Pulse
A TECHNITROL COMPANY

SWITCHING
Power Magnetics

SPM2007 (11/07)

SWITCHING POWER MAGNETICS

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SWITCHING POWER MAGNETICS OVERVIEW

Pulse offers a complete range of magnetics for both high-frequency switching and low-frequency laminated power supply applications. The switching power magnetics include power inductors, power transformers, current sense magnetics, gate drive transformers and common mode chokes. The laminated power magnetics include both encapsulated and open-frame transformers, as well as ignition transformers for heating and ventilation. For complete product information, please see the "Power Switching Magnetics" or the "Laminated Transformers" catalogs.

Pulse also designs and manufactures a wide array of custom and semi-custom magnetics. Contact Pulse Power Applications Engineering for more information.

NOTE: *For additional listings of Pulse Power magnetics, see other Power data sheets at this URL: http://www.pulseeng.com/products/datasheets.aspx.*

OVERVIEW: PULSE POWER MAGNETICS

Power Inductors

Surface Mount (SMT)

- Unshielded Drum Core Inductors (up to 30A)
- Shielded Drum Core Inductors (up to 14A)
- Power Bead Inductors (up to 45A)
- Flat Coil Inductors (up to 35A)
- Planar and Wirewound Inductors (up to 73A)
- Toroid Inductors (up to 40A)

Through Hole (THT)

- Toroid Inductors (up to 48A)
- Power Cube Inductors (up to 50A)

High-Frequency Switch Mode Transformers

Surface Mount (SMT)

- Planar Transformers (30W, 75W, 140W, 250W)
- Wire Wound Transformers (Up to 200W)
- Custom transformers available upon request

Through Hole (THT)

- Wire Wound Transformers (Up to 500W)
- Custom transformers available upon request

Gate Drive Transformers

Surface Mount (SMT)

- Operational and Basic Insulation for DC/DC applications (1500Vrms/1500Vrms)

Through Hole (THT)

- Reinforced Insulation for AC/DC applications (3000Vrms)

Current Sense Magnetics

Surface Mount (SMT)

- Operational Insulation (500Vrms)
- Five platforms (4A, 10A, 15A, 20A, 35A)

Through Hole (THT)

- Reinforced Insulation (3000Vrms)
- Multiple platforms (up to 30A)

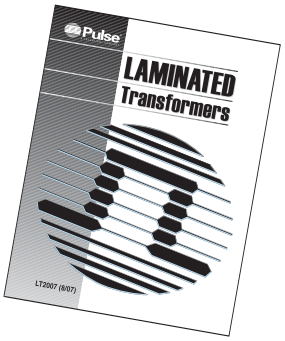
Common Mode Chokes

Surface Mount (SMT)

- Up to 14A
- 500VRMS and 1500Vrms Isolation
- Over 10 package sizes available
- Customer designs available upon request

Through Hole (THT)

- Up to 23A
- 3000Vrms Isolation
- Multiple package sizes available.



NEW!

For all Laminated Transformers, check out Pulse's new LAMINATED TRANSFORMERS catalog. To order, see our website:

www.pulseeng.com

Go to Products/Literature Request and ask for the **LT2007** catalog

POWER INDUCTOR
Selector Chart - SMT and THT

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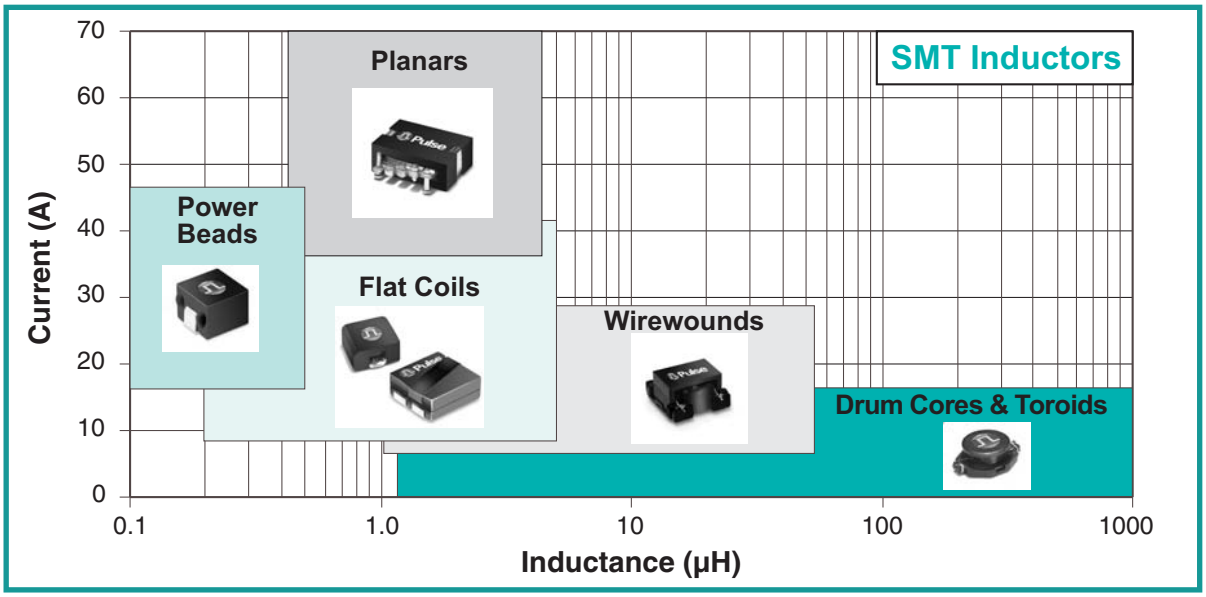
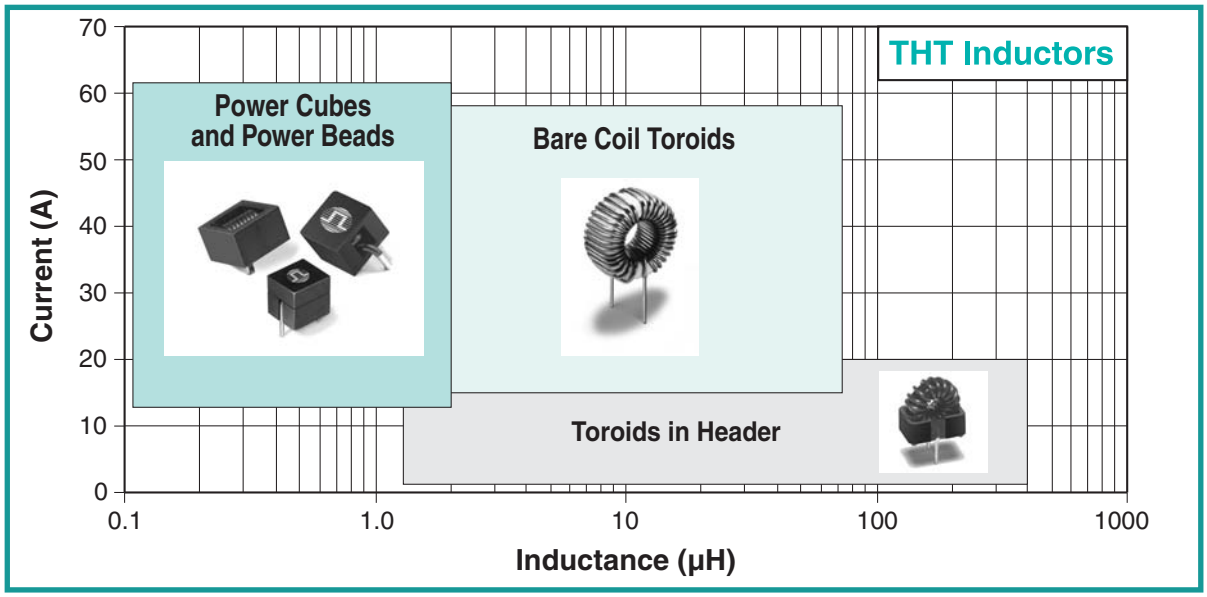
SURFACE MOUNT & THROUGH HOLE INDUCTOR OVERVIEW



Power Beads - low inductance (<.5µH) - high current (>25A) applications
Flat Coils - mid-inductance (.5µH to 4µH) - medium current (15-30A) applications
Planars - mid-inductance (.5µH to 4µH) - high current (>25A) applications
Wirewound - high inductance (>5µH) - medium current (15-30A) applications
Unshielded Drum Core Inductors - typically for lower current, portable or small power applications
Shielded Drum Core Inductors - typically for lower current, portable or small power applications
Toroid Inductors - versatile multi-use platforms for single and dual inductors



Power Cube Inductors - high-current inductors for use in low inductance applications where board space and height are critical
Bare Coil Toroids - low cost, general purpose inductors for mid- to high-current applications where over all size is a less critical factor
Toroid in Header Inductors - general purpose inductors for low to medium current ranges

PRODUCT OVERVIEW
Unshielded Drum Cores, Shielded Drum Cores

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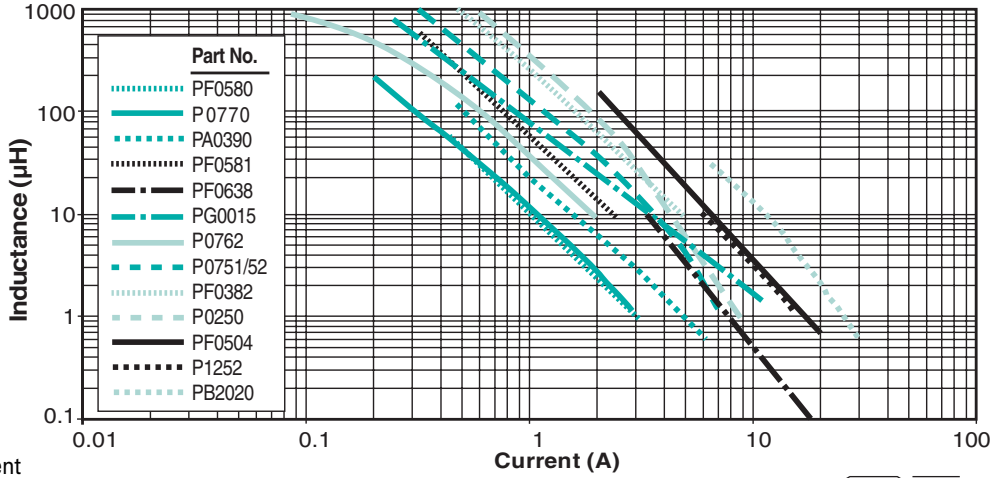
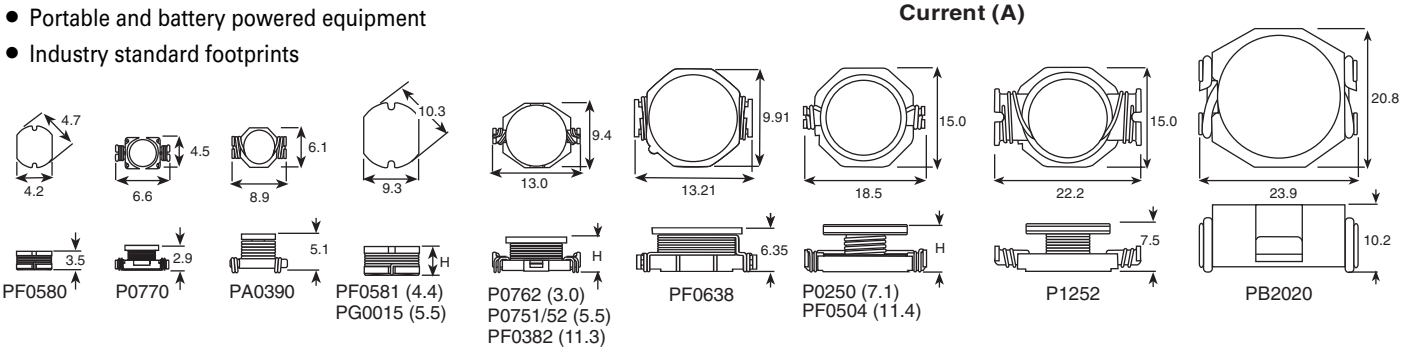
SMT UNSHIELDED DRUM CORE INDUCTORS *(pages 9-26)*

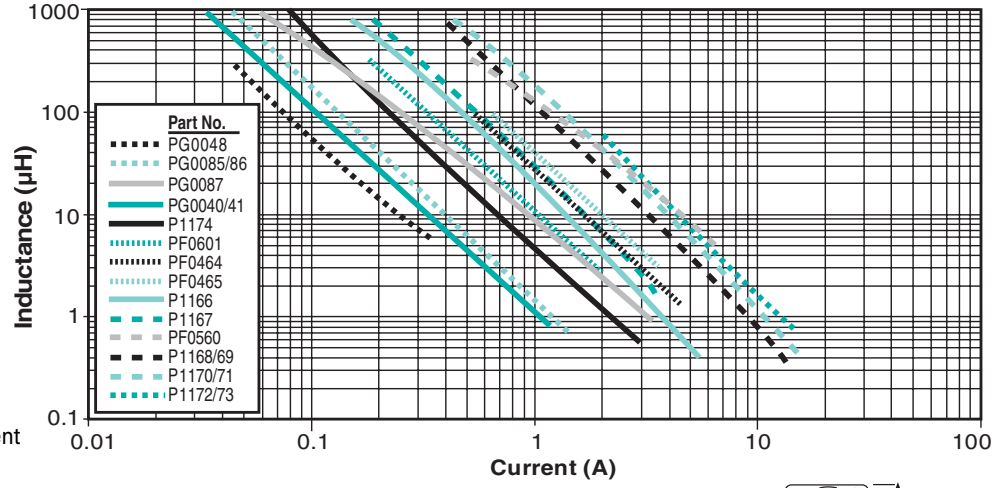
- Up to 30ADC
- Typically for lower current, higher inductance applications
- Lower power DC/DC converters and filter inductors
- Portable and battery powered equipment
- Industry standard footprints

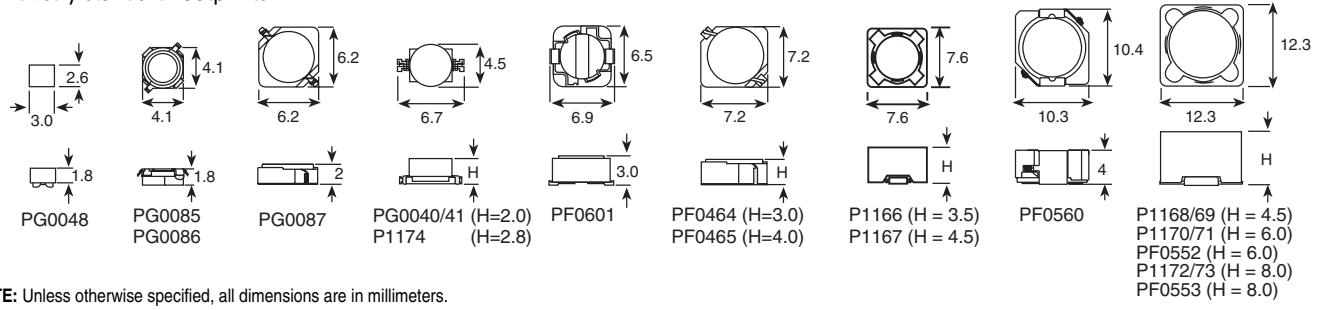




SMT SHIELDED DRUM CORE INDUCTORS *(pages 27-43)*

- Up to 14ADC
- Typically for lower current, higher inductance applications requiring low EMI
- Lower power DC/DC converters
- Portable and battery powered equipment
- Industry standard footprints





NOTE: Unless otherwise specified, all dimensions are in millimeters.

PRODUCT OVERVIEW
Power Beads, Flat Coils

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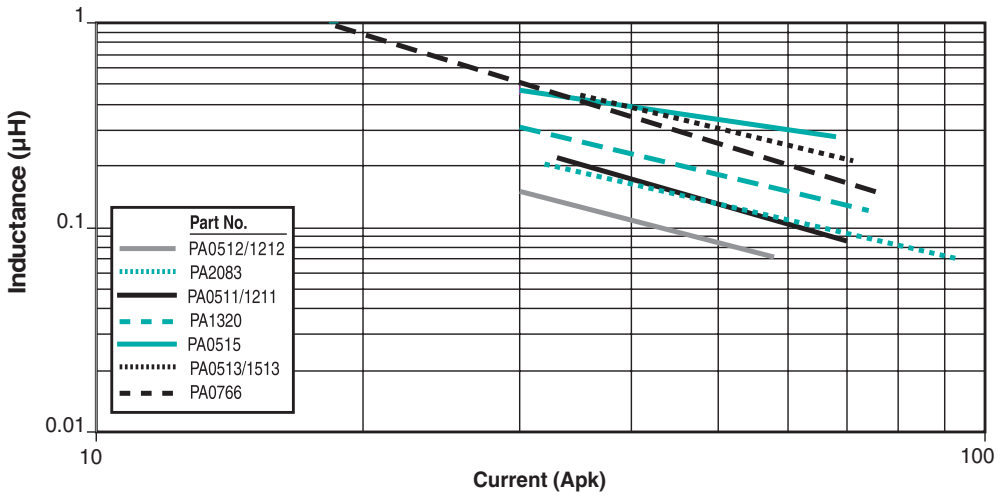
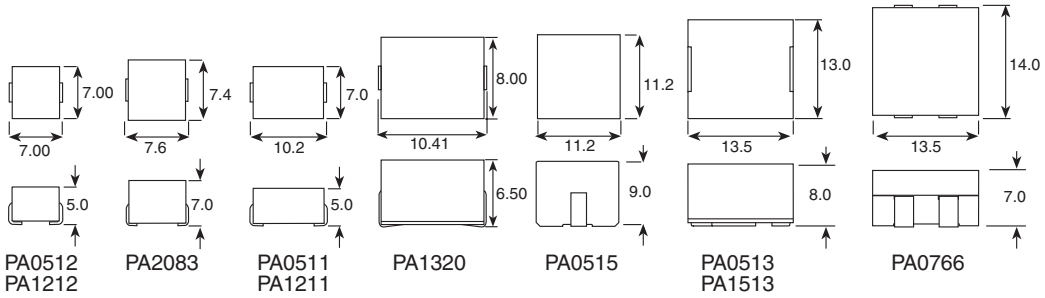
SMT POWER BEAD INDUCTORS *(pages 44-54)*

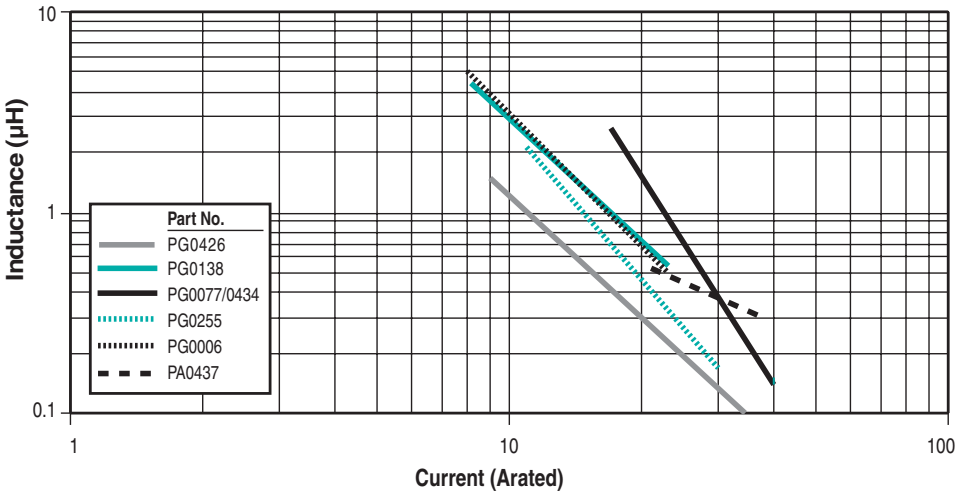
- Up to 70A
- Typically for high current (>30A) applications requiring inductance values below 0.5µH
- VRM/VRD and DDR computing applications for server, workstation, portable and desktop
- Integrated and coupled inductors for multi-phase applications

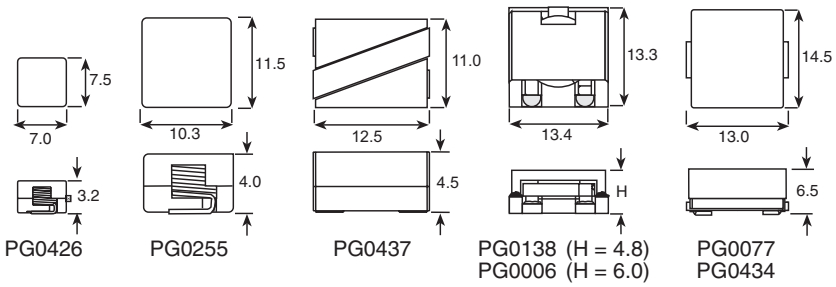




SMT FLAT COIL INDUCTORS *(pages 55-65)*

- Up to 38ADC
- Typically for mid to high current applications requiring inductance between 0.5µH and 5.0µH
- Portable computing, higher power DC/DC converters and Telecom applications
- Industry standard footprints





PRODUCT OVERVIEW
Planar & Wire-wound, SMT Toroids

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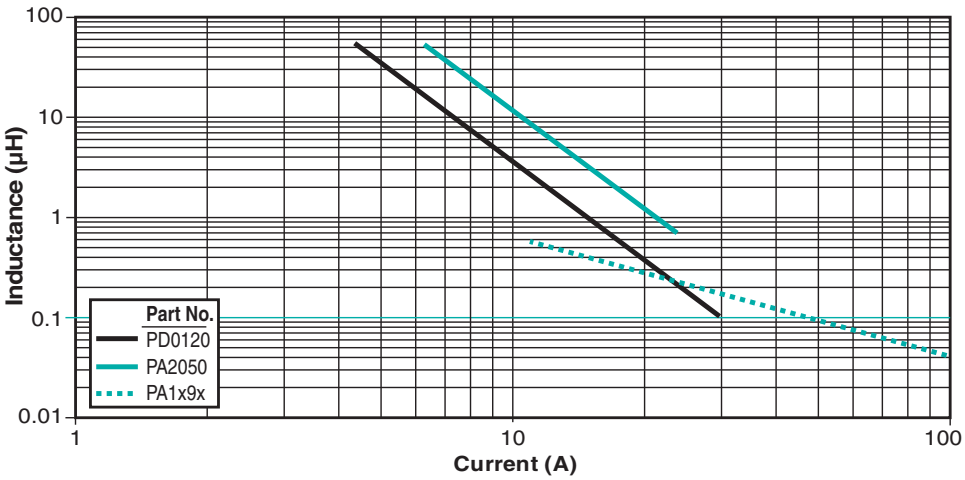
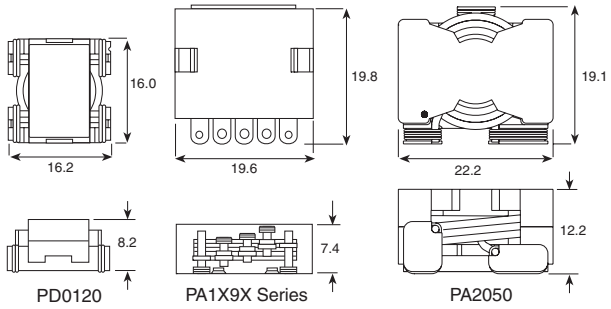
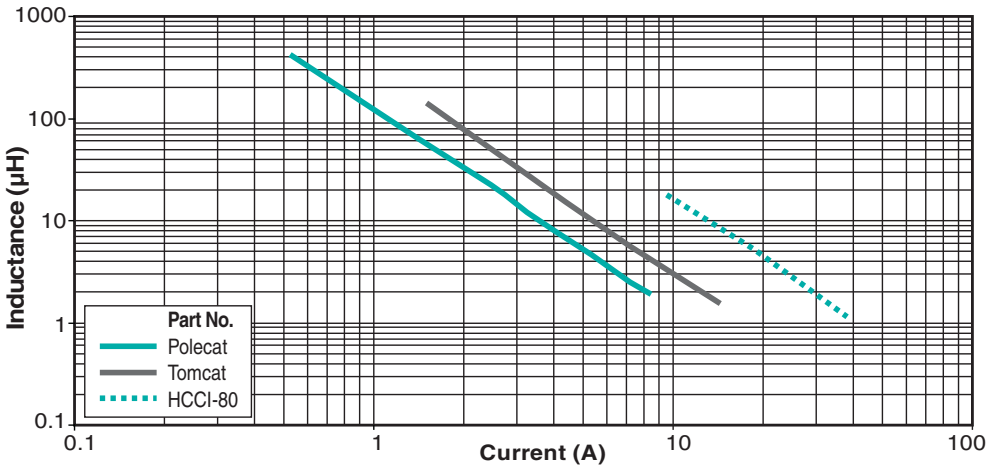
PLANAR & WIREWOUND INDUCTORS *(pages 66-70)*



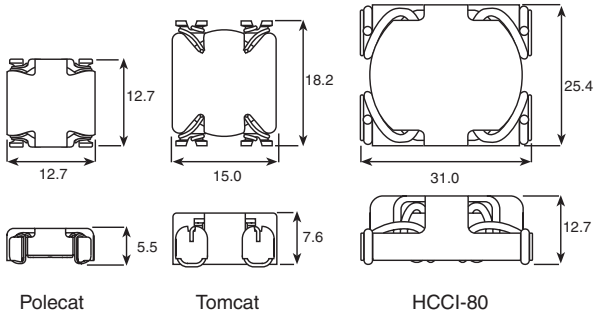
- Up to 73A
- Typically for high current (>20A) applications requiring mid-inductance values (1.0µH to 15µH)
- Output inductors for isolated DC/DC inductors



SMT TOROID INDUCTORS *(pages 71-80)*



- Up to 38ADC
- Single and dual inductors
- General purpose DC/DC converters and EMI filters
- Versatile and cost-effective



PRODUCT OVERVIEW
THT Power Cube Inductors and High Frequency Planar Transformers

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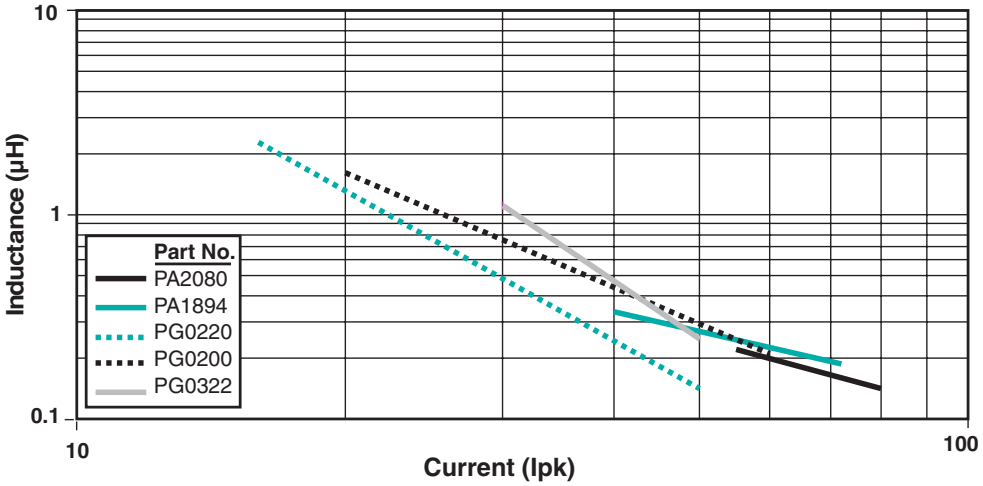
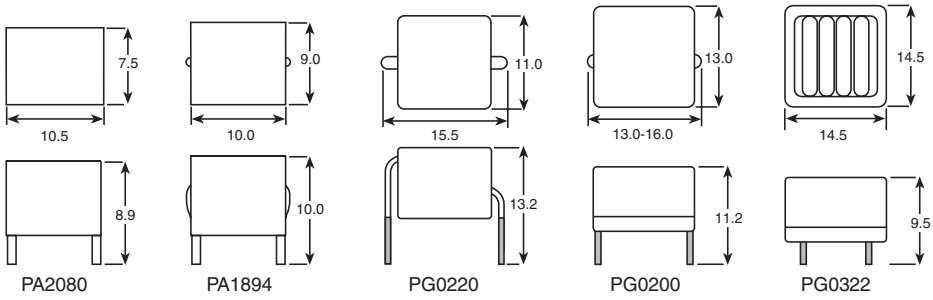
THT POWER CUBE AND POWER BEAD INDUCTORS *(pages 83-88)*

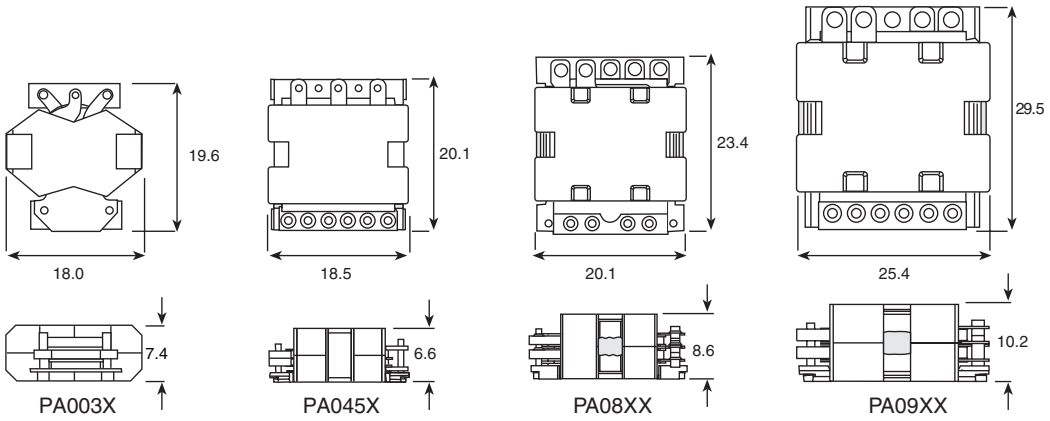


- Up to 45ADC
- Typically for mid to high current applications (10A to 45A) requiring lower inductance (0.2µH to 3.0µH)
- VRD applications for desktops
- Low profile (<10mm)



HIGH FREQUENCY PLANAR TRANSFORMERS *(pages 89-95)*

- Transformers for high-density DC/DC converters (30W to 300W)
- Low profile construction
- Low leakage inductance
- Four package sizes and over 400 winding configurations
- Basic/operational insulation



PRODUCT OVERVIEW

High Frequency Switch Mode Transformers and Current Sense Magnetics

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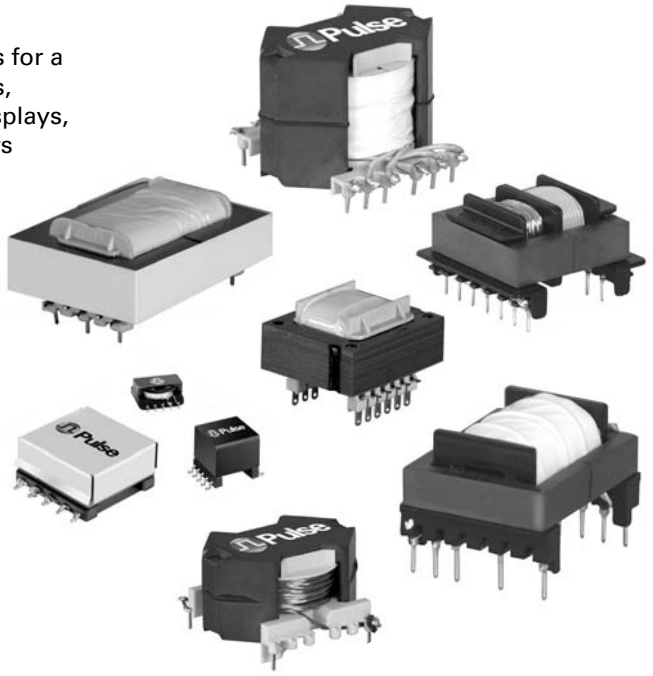
HIGH FREQUENCY SWITCH MODE TRANSFORMERS *(pages 96-108)*

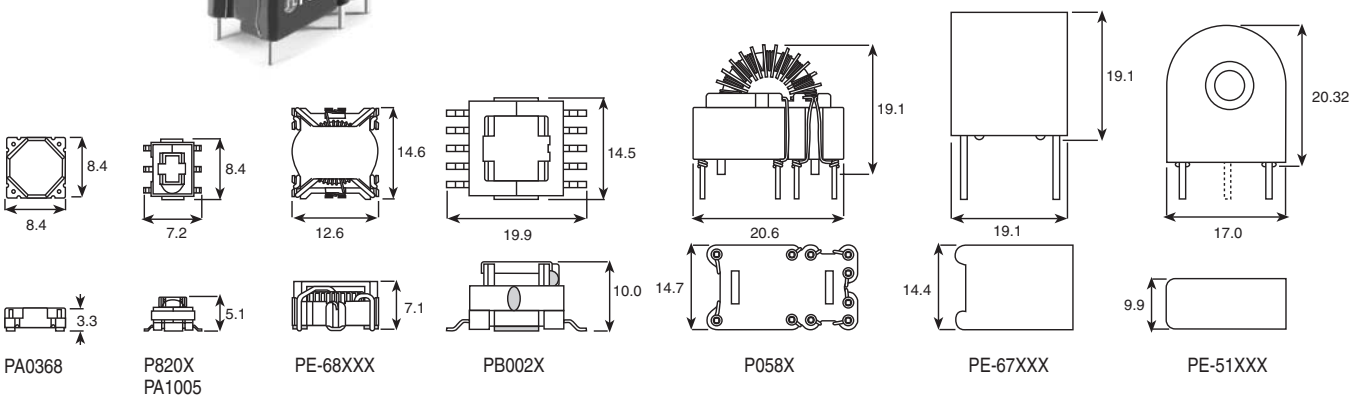
- Layer-wound transformers and power factor correction chokes for a wide range of applications: consumer electronics, white goods, Set-top boxes, television, computing, telecommunications, displays, DC/DC converters, PoE (Power over Ethernet), and many others
- Most popular core shapes and bobbin combinations available
  - — Ferrite core platforms for transformers:

    EE, EF, EFD, EP, ER, EER, ETD, RM, PQ, U and I
  - — Laminated, steel core materials for power factor chokes
  - — Bobbins: horizontal or vertical, through hole or surface mount, multiple pin count options
- Available as catalog products and custom designs
- Many are designed in support of third Party IC chipsets
- Worldwide design and support with high volume manufacturing capability
- Safety agency certifications with UL, CSA, IEC, TÜV, and VDE available



CURRENT SENSE MAGNETICS *(pages 109-112)*

- Up to 35A
- Wide range of winding ratios
- Versatile and cost-effective



PRODUCT OVERVIEW
Gate Drive Transformers and Common Mode Chokes

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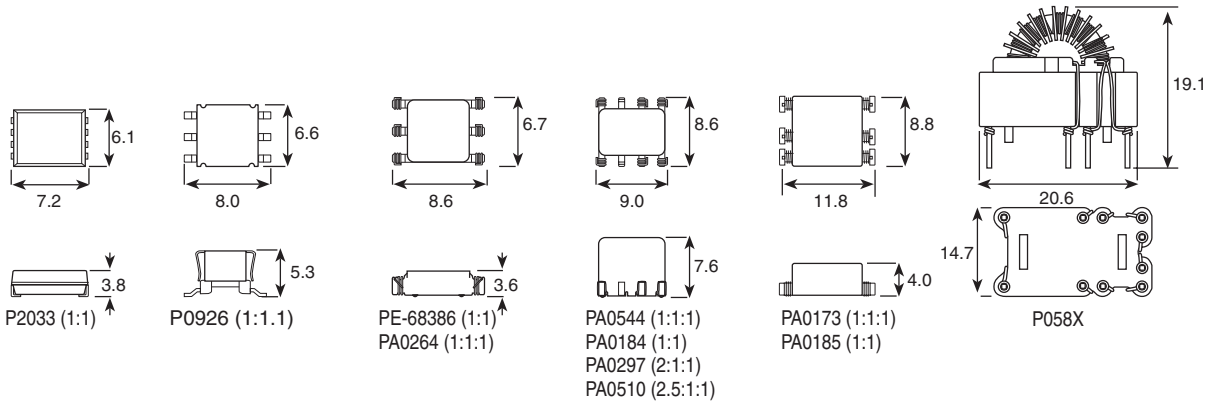
GATE DRIVE TRANSFORMERS *(pages 113-114)*

- Smallest footprints in the industry
- Operational, basic and reinforced insulation systems
- Versatile and cost-effective
- Custom winding ratios available



P2033 (1:1)

P0926 (1:1.1)

PE-68386 (1:1)
PA0264 (1:1:1)

PA0544 (1:1:1)
PA0184 (1:1)
PA0297 (2:1:1)
PA0510 (2.5:1:1)

PA0173 (1:1:1)
PA0185 (1:1)

P058X

COMMON MODE CHOKES *(pages 115-117)*

- Up to 24ADC
- SMT and THT
- AC/DC and DC/DC common mode filters
- Versatile and cost-effective

SMT POWER INDUCTORS
Unshielded Drum Core - PF0580NL Series

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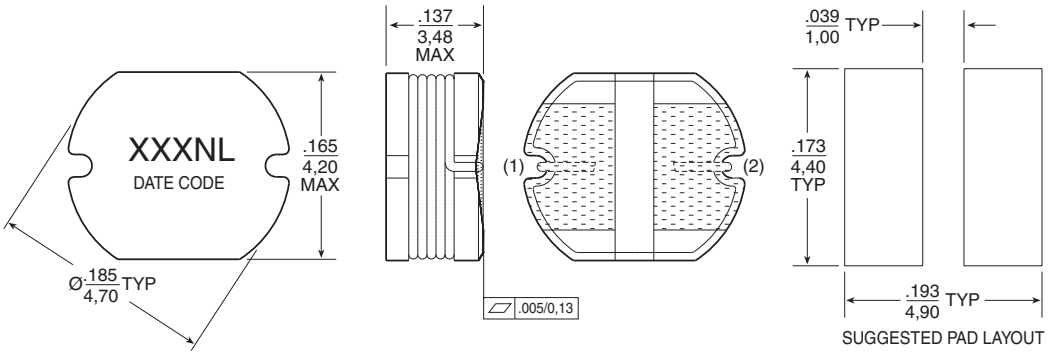
RoHS COMPLIANT

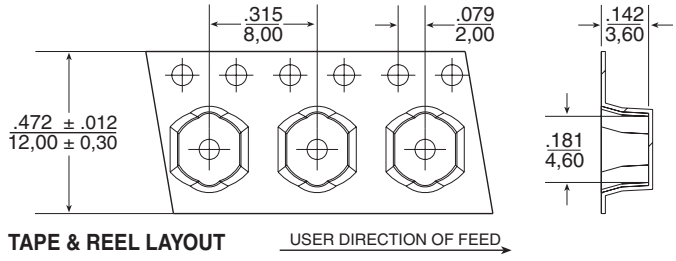
- **Height:** 3.48mm Max
- **Footprint:** 4.7mm Typ x 4.2mm Max
- **Current Rating:** up to 3.1A
- **Inductance Range:** 1µH to 65µH
- 260°C reflow peak temperature qualified

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

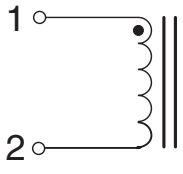
Part[5] Number	Inductance @Irated[1] (µH TYP)	Irated[2] (A)	DCR (mΩ MAX)	Inductance @0Adc (µH ±15%)	Saturation[3] Current Isat (A)	Heating[4] Current Idc (A)
PF0580.102NL	1.0	3.1	35	1.0	3.6	3.1
PF0580.152NL	1.4	2.7	40	1.5	2.7	2.7
PF0580.182NL	1.7	2.4	45	1.8	2.4	2.6
PF0580.222NL	2.1	2.2	49	2.2	2.2	2.4
PF0580.272NL	2.6	2.0	58	2.7	2.0	2.3
PF0580.332NL	3.1	1.8	63	3.3	1.8	2.25
PF0580.382NL	3.6	1.7	68	3.8	1.7	2.2
PF0580.472NL	4.5	1.6	77	4.7	1.6	2.0
PF0580.562NL	5.3	1.4	90	5.6	1.4	1.9
PF0580.682NL	6.5	1.3	100	6.8	1.3	1.8
PF0580.822NL	7.8	1.2	111	8.2	1.2	1.6
PF0580.103NL	9.5	1.1	132	10	1.1	1.5
PF0580.123NL	11	1.0	160	12	1.0	1.4
PF0580.153NL	14	0.85	197	15	0.85	1.3
PF0580.183NL	17	0.80	255	18	0.80	1.1
PF0580.223NL	21	0.75	280	22	0.75	1.0
PF0580.273NL	26	0.65	384	27	0.65	0.90
PF0580.333NL	31	0.58	427	33	0.58	0.85
PF0580.393NL	37	0.55	490	39	0.55	0.80
PF0580.473NL	45	0.50	645	47	0.50	0.70
PF0580.563NL	53	0.46	700	56	0.46	0.67
PF0580.683NL	65	0.41	827	68	0.41	0.62

Mechanical





Schematic



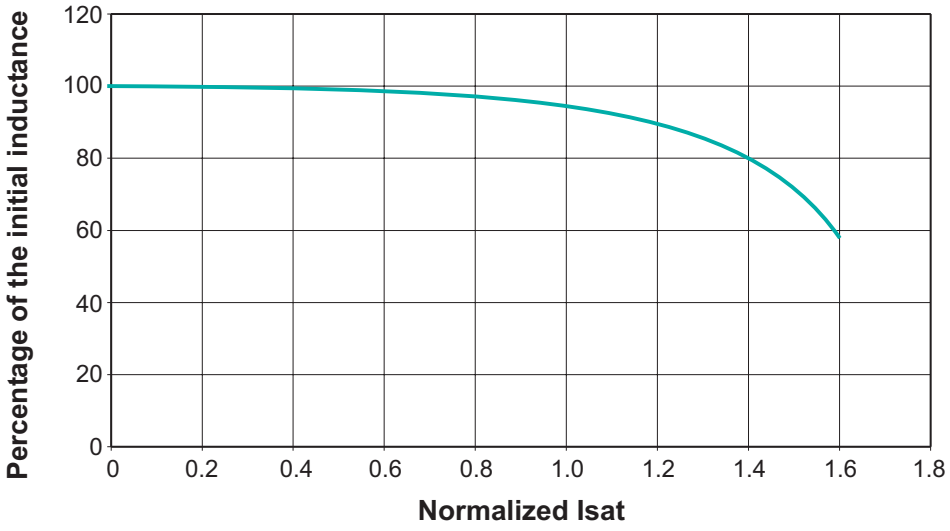
Weight . . . . . .0.22 grams
Tape & Reel 1950/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables

1. Inductance at Irated is a typical inductance value for the component taken at rated current.
2. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
3. The saturation current, Isat, is the current at which the component inductance drops by 10% (maximum) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
4. The heating current, IDC, is the DC current required to raise the component temperature by approximately 45°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PF0580.102NL becomes PF0580.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Typical Inductance vs Current Characteristics



SMT POWER INDUCTORS
Unshielded Drum Core - P0770NL Series

Pulse
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RoHS COMPLIANT

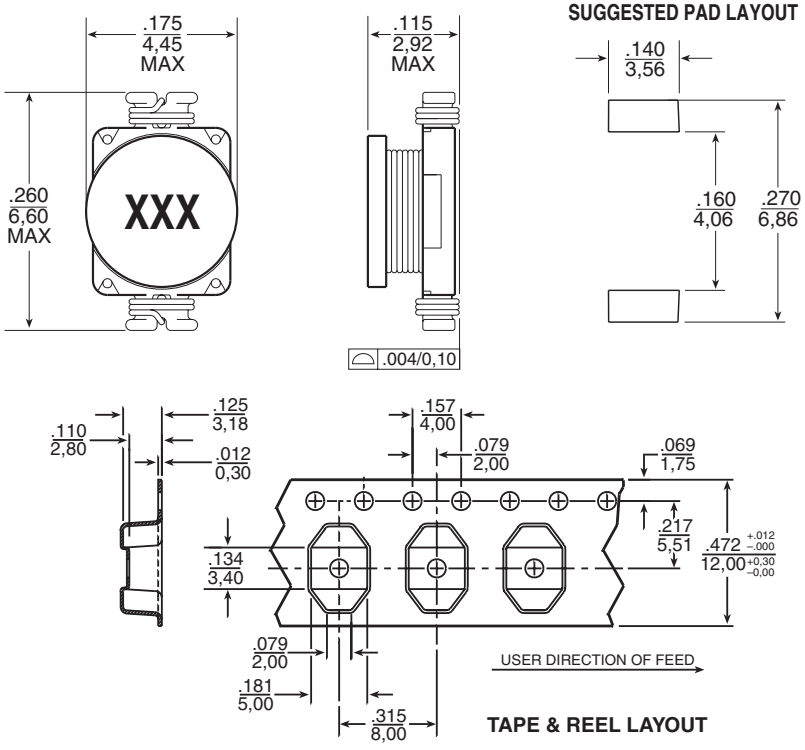
- **Height:** 2.9mm Max
- **Footprint:** 6.6mm x 4.5mm Max
- **Current Rating:** up to 2.9A
- **Inductance Range:** 1.0µH to 220µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

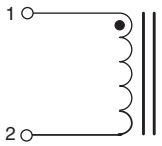
Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 20%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
P0770.102NL	1.0	2.90	50	2.90	2.90
P0770.152NL	1.5	2.60	50	2.60	2.80
P0770.222NL	2.2	2.30	70	2.30	2.40
P0770.332NL	3.3	2.00	80	2.00	2.00
P0770.472NL	4.7	1.50	90	1.50	1.50
P0770.682NL	6.8	1.20	130	1.20	1.40
P0770.103NL	10	1.10	160	1.10	1.10
P0770.153NL	15	0.90	230	0.90	1.20
P0770.223NL	22	0.70	370	0.70	0.80
P0770.333NL	33	0.58	510	0.58	0.60
P0770.473NL	47	0.50	640	0.50	0.50
P0770.683NL	68	0.40	860	0.40	0.40
P0770.104NL	100	0.30	1270	0.31	0.30
P0770.154NL	150	0.25	2000	0.27	0.2
P0770.224NL	220	0.20	3110	0.22	0.20

NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 10 mV_{RMS}
3. Inductance drop = 10% typical at the Saturation Current
4. ΔT = 15°C rise typical at the Heating Current
5. The rated current is the lower of the saturation or heating current.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part no. (i.e. P0770.102NL becomes P0770.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanical



Schematic



Weight . . . . . 0.2 grams
Tape & Reel 2500/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Unshielded Drum Core - PA0390NL Series

Pulse
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RoHS COMPLIANT

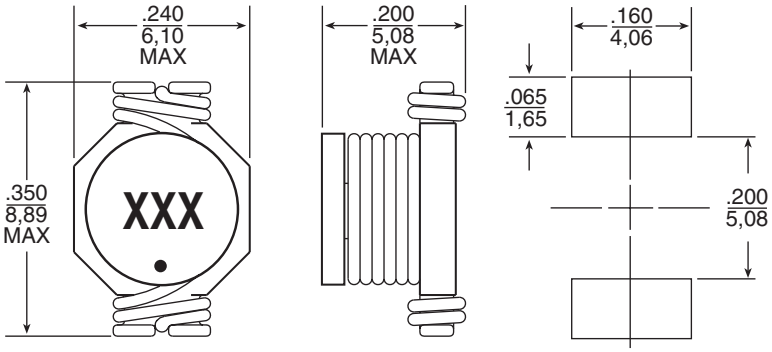
- **Height:** 5.1mm Max
- **Footprint:** 8.89mm x 6.10mm Max
- **Current Rating:** up to 6.0A
- **Inductance Range:** 0.6µH to 113µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 20%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
PA0390.471NL	0.6	6	9.7	7.7	6
PA0390.102NL	1.2	4.4	17.7	5.3	4.4
PA0390.152NL	1.6	4.2	20	4.5	4.2
PA0390.222NL	2.6	3.1	36.3	3.5	3.1
PA0390.332NL	3.8	2.9	42.8	3	2.9
PA0390.472NL	5.2	2.2	54.4	2.6	2.2
PA0390.682NL	6.9	1.7	89.7	2.2	1.7
PA0390.103NL	11	1.5	110.7	1.9	1.5
PA0390.153NL	16	1.2	174.7	1.5	1.2
PA0390.223NL	23	1	254.1	1.2	1
PA0390.333NL	36	0.82	367	0.99	0.82
PA0390.473NL	48	0.72	474	0.87	0.72
PA0390.683NL	73	0.58	732	0.67	0.58
PA0390.104NL	113	0.47	1109	0.53	0.47

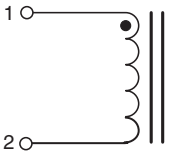
NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 250mVRMS
3. Inductance drop = 10% typical at the Saturation Current.
4. ΔT = 40°C rise typical at the Heating Current
5. The rated current is the lower of the saturation or heating current.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PA0390.102NL becomes PA0390.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

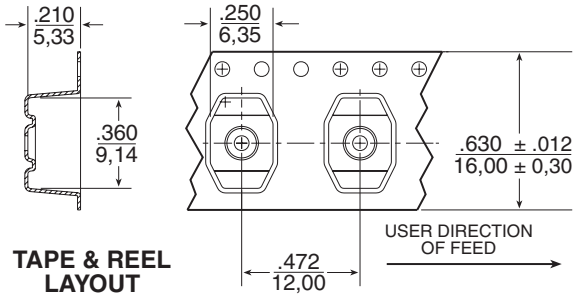
Mechanical



Weight . . . . . 0.2 grams
Tape & Reel. 900/reel
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic





TAPE & REEL LAYOUT

SMT POWER INDUCTORS
Unshielded Drum Core - PG0015NL Series

Pulse
A TECHNITROL COMPANY

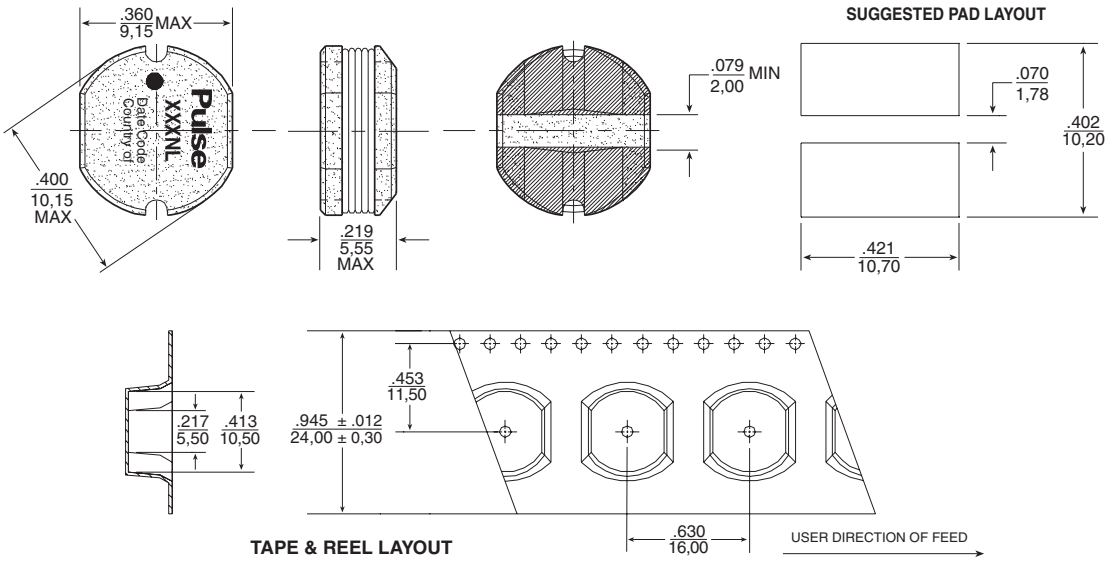
RoHS COMPLIANT

- **Height:** 5.55mm Max
- **Footprint:** 10.15mm x 9.15mm Max
- **Current Rating:** up to 2.6A
- **Inductance Range:** 10µH to 820µH
- 260°C reflow peak temperature qualified

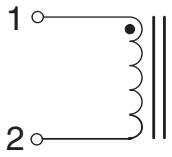
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [5]

Part[4] Number	Inductance @0Adc (µH ±20%)	Irated[1] (A)	DCR (mΩ MAX)	Saturation[2] Current Isat (A)	Heating[3] Current Idc (A)	SRF (MHz TYP)
PG0015.103NL	10	2.6	60	2.6	4.8	20
PG0015.123NL	12	2.45	70	2.45	4.5	19
PG0015.153NL	15	2.27	80	2.27	4.3	18
PG0015.183NL	18	2.15	90	2.15	4.1	16
PG0015.223NL	22	1.95	100	1.95	4.0	14
PG0015.273NL	27	1.76	110	1.76	3.7	12
PG0015.333NL	33	1.50	120	1.50	3.4	12
PG0015.393NL	39	1.37	140	1.37	3.2	10
PG0015.473NL	47	1.28	170	1.28	3.1	9.0
PG0015.563NL	56	1.17	190	1.17	3.0	8.1
PG0015.683NL	68	1.11	220	1.11	2.7	7.6
PG0015.823NL	82	1.00	250	1.00	2.4	6.8
PG0015.104NL	100	0.97	350	0.97	2.2	6.2
PG0015.124NL	120	0.89	400	0.89	1.9	5.0
PG0015.154NL	150	0.78	470	0.78	1.8	4.5
PG0015.184NL	180	0.72	630	0.72	1.5	4.5
PG0015.224NL	220	0.66	730	0.66	1.3	4.0
PG0015.274NL	270	0.57	970	0.57	1.2	3.6
PG0015.334NL	330	0.52	1150	0.52	1.1	3.1
PG0015.394NL	390	0.48	1300	0.48	1.1	2.8
PG0015.474NL	470	0.42	1480	0.42	1.0	2.6
PG0015.564NL	560	0.32	1900	0.32	0.9	2.2
PG0015.684NL	680	0.28	2250	0.28	0.9	2.2
PG0015.824NL	820	0.24	2550	0.24	0.5	2.0

Mechanical



Schematic



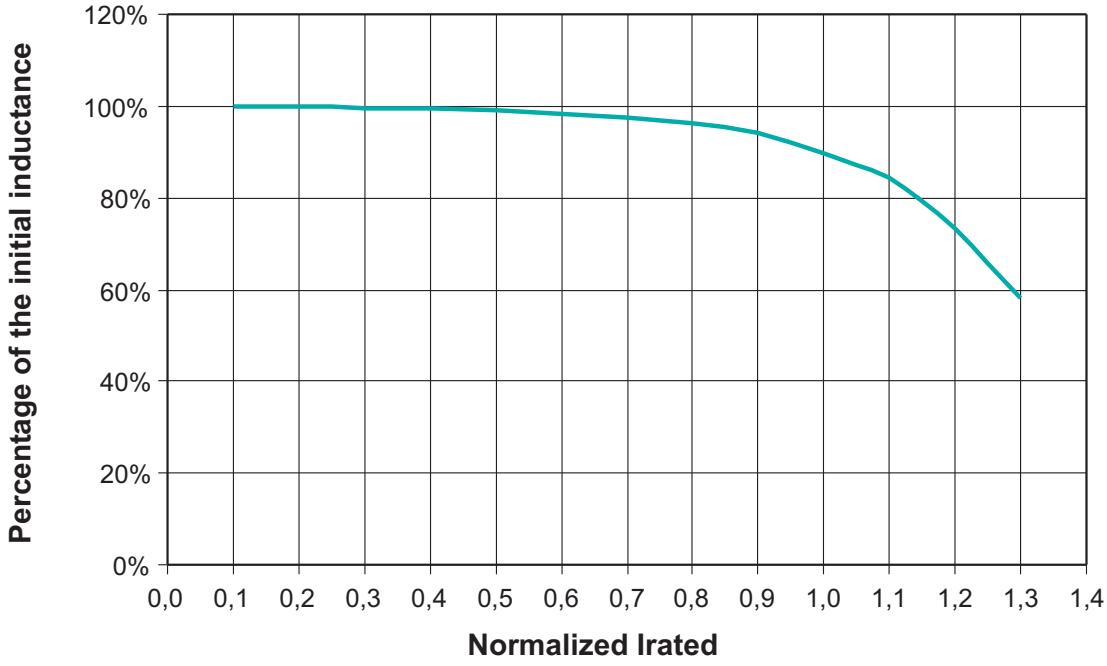
Weight.....1.5 grams
Tape & Reel.....600/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables

1. The rated current as listed is either the saturation current @ 25°C or the heating current depending on which value is lower.
2. The saturation current Isat is the current which causes the inductance to drop by 10% Max at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
3. The heating current Idc is the dc current which causes the temperature rise of the part to increase approximately 40°C. This current is determined by mounting the component on a typical application PCB and applying the current to the device for 30 minutes.
4. Optional Tape and Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0015.103NL becomes PG0015.103NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
5. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Typical Inductance vs Current Characteristics



SMT POWER INDUCTORS
Unshielded Drum Core - PF0581NL Series

Pulse
A TECHNITROL COMPANY

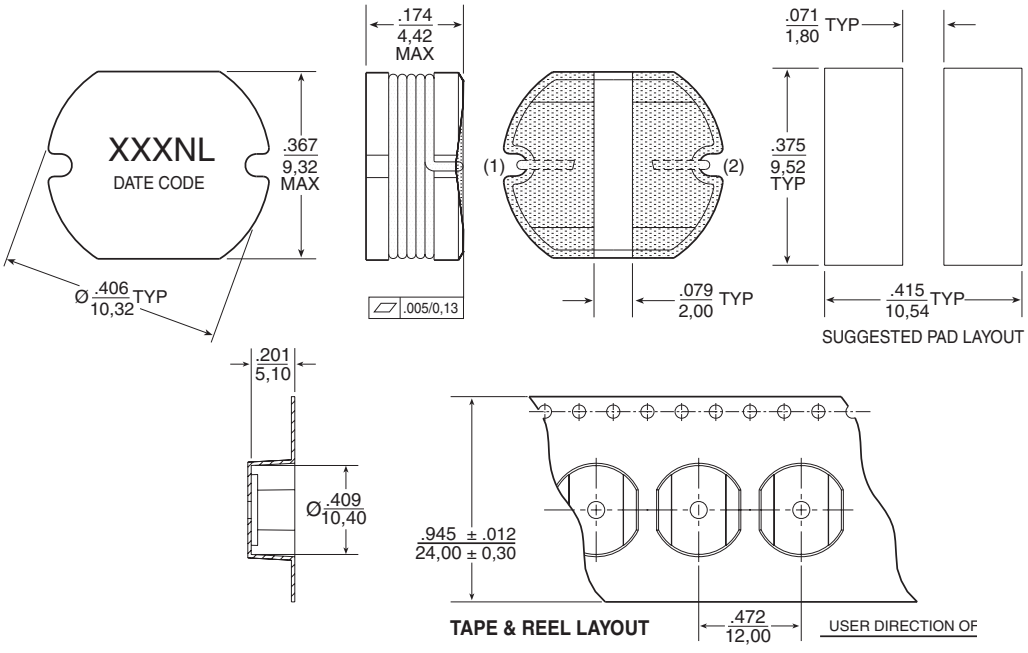
RoHS COMPLIANT

- **Height:** 4.42mm Max
- **Footprint:** 10.32mm Typ x 9.32mm Max
- **Current Rating:** up to 2.5A
- **Inductance Range:** 10µH to 560µH
- 260°C reflow peak temperature qualified

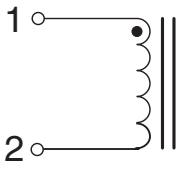
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

Part[5] Number	Inductance @Irated[1] (µH TYP)	Irated[2] (A)	DCR (mΩ MAX)	Inductance @0Adc (µH ±10%)	Saturation[3] Current Isat (A)	Heating[4] Current Idc (A)
PF0581.103NL	9.5	2.50	43	10	2.50	3.25
PF0581.123NL	11	2.30	48	12	2.30	3.15
PF0581.153NL	14	2.00	60	15	2.00	2.70
PF0581.183NL	17	1.90	66	18	1.90	2.50
PF0581.223NL	21	1.70	84	22	1.70	2.25
PF0581.273NL	26	1.50	96	27	1.50	2.05
PF0581.333NL	31	1.30	115	33	1.30	1.90
PF0581.393NL	37	1.20	151	39	1.20	1.73
PF0581.473NL	45	1.10	166	47	1.10	1.65
PF0581.563NL	53	1.00	199	56	1.00	1.52
PF0581.683NL	65	0.93	233	68	0.93	1.37
PF0581.823NL	78	0.85	262	82	0.85	1.29
PF0581.104NL	95	0.76	333	100	0.76	1.16
PF0581.124NL	110	0.70	376	120	0.70	1.10
PF0581.154NL	140	0.63	500	150	0.63	0.97
PF0581.184NL	170	0.56	620	180	0.56	0.84
PF0581.224NL	210	0.53	721	220	0.53	0.79
PF0581.274NL	260	0.46	949	270	0.46	0.68
PF0581.334NL	310	0.42	1100	330	0.42	0.63
PF0581.394NL	370	0.39	1245	390	0.39	0.60
PF0581.474NL	450	0.35	1526	470	0.35	0.53
PF0581.564NL	530	0.32	1870	560	0.32	0.51

Mechanical



Schematic



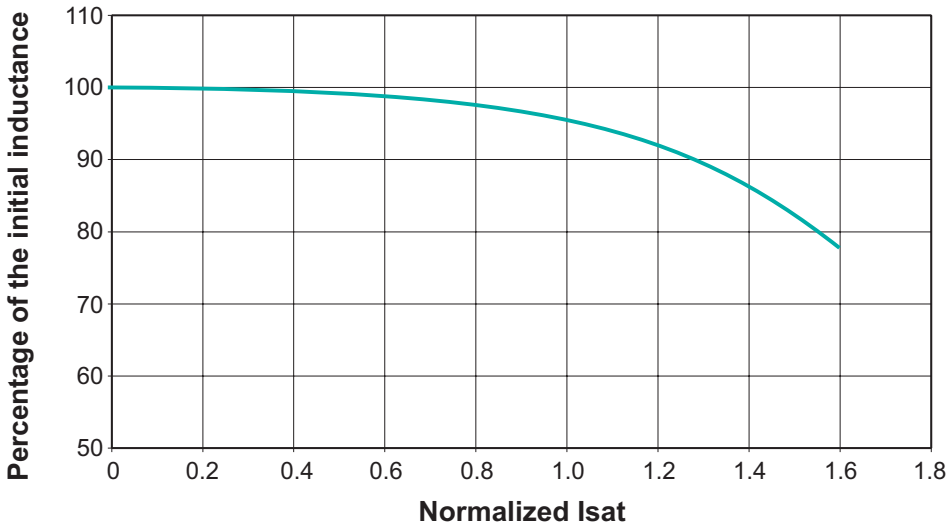
Weight . . . . . .1.2 grams
Tape & Reel 900/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables

1. Inductance at Irated is a typical inductance value for the component taken at rated current.
2. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
3. The saturation current, Isat, is the current at which the component inductance drops by 10% (maximum) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
4. The heating current, IDC, is the DC current required to raise the component temperature by approximately 45°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PF0581.103NL becomes PF0581.103NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Typical Inductance vs Current Characteristics



SMT POWER INDUCTORS
Unshielded Drum Core - P0762NL Series

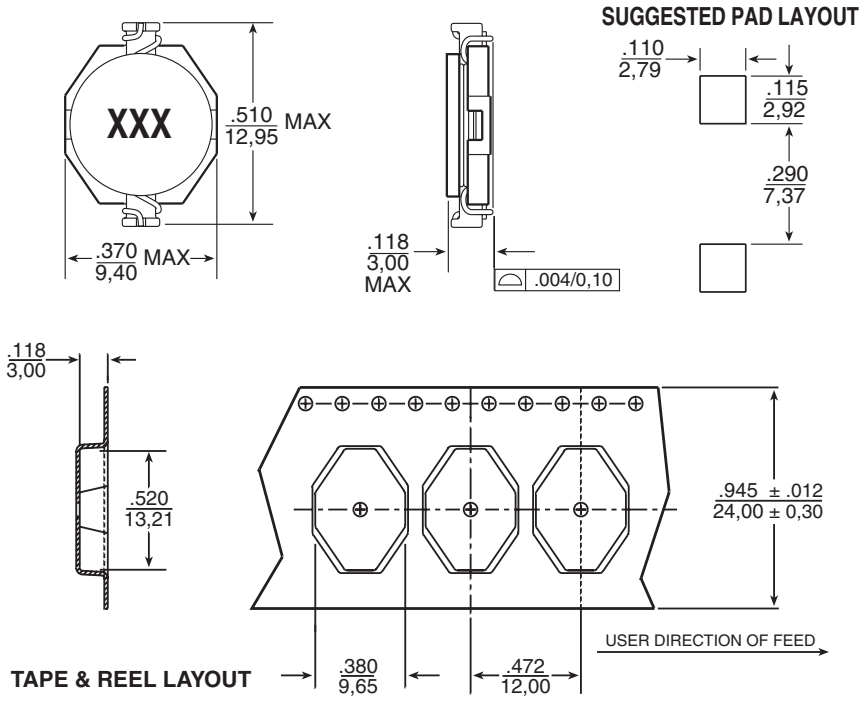
- **Height:** 3.0mm Max
- **Footprint:** 13.0mm x 9.4mm Max
- **Current Rating:** up to 2.0A
- **Inductance Range:** 10µH to 1000µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

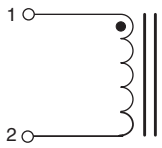
Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 20%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
P0762.103NL	10	2.0	110	2.4	2.0
P0762.153NL	15	1.5	150	2.0	1.5
P0762.223NL	22	1.3	230	1.6	1.3
P0762.333NL	33	1.1	300	1.4	1.1
P0762.473NL	47	0.8	390	1.0	0.8
P0762.683NL	68	0.7	660	0.9	0.7
P0762.104NL	100	0.6	840	0.7	0.6
P0762.154NL	150	0.5	1200	0.6	0.5
P0762.224NL	220	0.4	1900	0.5	0.4
P0762.334NL	330	0.3	2700	0.4	0.3
P0762.474NL	470	0.2	4000	0.3	0.2
P0762.684NL	680	0.1	5300	0.2	0.1
P0762.105NL	1000	0.05	8400	0.1	.05

NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 10mVRMS
3. Inductance drop = 10% typical at the Saturation Current.
4. ΔT = 15°C rise typical at the heating current.
5. The rated current is the lower of the saturation or heating current.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0762.103NL becomes P0762.103NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanical



Schematic



Weight . . . . . 0.8 grams
Tape & Reel 1000/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS

Unshielded Drum Core - P0751NL/52NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

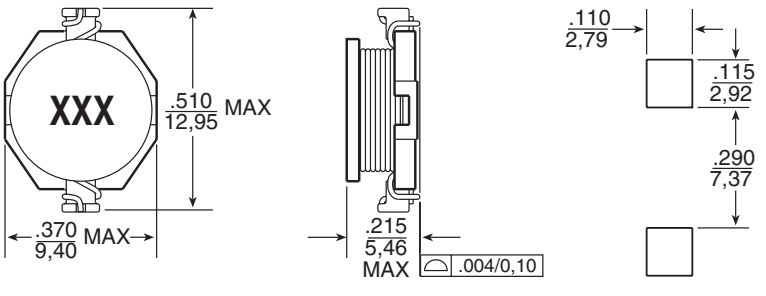
- **Height:** 5.5mm Max
- **Footprint:** 13.0mm x 9.4mm Max
- **Current Rating:** up to 6.8A
- **Inductance Range:** 1.0µH to 1000µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 20%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
P0751.102NL	1.0	6.8	10	9.0	6.8
P0751.152NL	1.5	6.4	12	8.0	6.4
P0751.222NL	2.2	6.1	15	7.0	6.1
P0751.332NL	3.3	5.4	18	6.4	5.4
P0751.472NL	4.7	4.8	33	5.4	4.8
P0751.682NL	6.8	4.4	44	4.6	4.4
P0751.103NL	10	3.8	50	3.8	3.9
P0751.153NL	15	3.0	55	3.0	3.1
P0751.223NL	22	2.6	114	2.6	2.7
P0751.333NL	33	2.0	120	2.0	2.1
P0751.473NL	47	1.6	168	1.6	1.8
P0751.683NL	68	1.4	240	1.4	1.5
P0752.104NL	100	1.2	380	1.2	1.3
P0752.154NL	150	1.0	570	1.0	1.0
P0752.224NL	220	0.8	840	0.8	0.8
P0752.334NL	330	0.6	1020	0.6	0.6
P0752.474NL	470	0.5	1460	0.5	0.5
P0752.684NL	680	0.4	2170	0.4	0.4
P0752.105NL	1000	0.3	3300	0.3	0.3

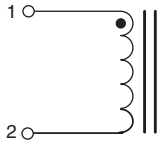
NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 10mV$_{RMS}$
3. Inductance drop = 10% typical at the saturation current
4. ΔT = 15°C rise typical at the heating current
5. The rated current is the lower of the saturation or heating current
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0751.102NL becomes P0751.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

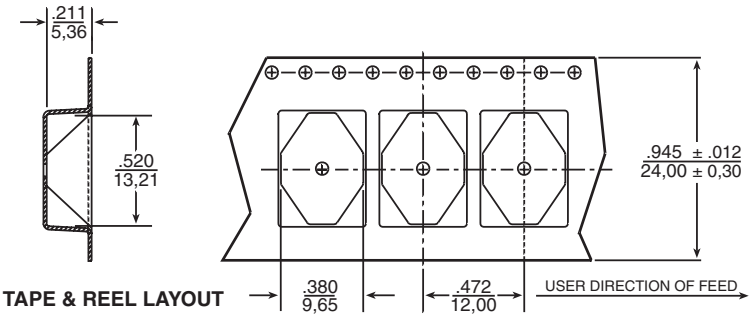
Mechanical



SUGGESTED PAD LAYOUT

Schematic





TAPE & REEL LAYOUT

Weight . . . . . 0.8 grams
Tape & Reel. 800/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Unshielded Drum Core - PF0382NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

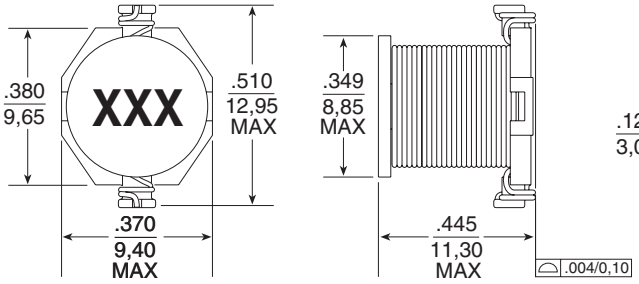
- **Height:** 11.3mm Max
- **Footprint:** 13.0mm x 9.4mm Max
- **Current Rating:** up to 4.9A
- **Inductance Range:** 10µH to 1000µH
- RoHS compliant version available on request

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [7]

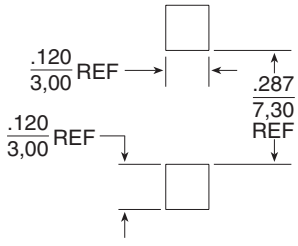
Part [5,6] Number	Inductance[1] @ Irated (µH TYP)	Irated [2] (A)	DCR (mΩ MAX)	Inductance @ 0ADC (µH ±20%)	Saturation [3] Current ISAT (A)	Heating [4] Current IDC (A)
PF0382.103NL	9	4.90	24	10	8.30	4.90
PF0382.153NL	14	4.20	31	15	7.10	4.20
PF0382.223NL	20	3.50	47	22	5.60	3.50
PF0382.333NL	30	3.10	65	33	4.30	3.10
PF0382.473NL	42	2.70	90	47	3.80	2.70
PF0382.683NL	61	1.90	130	68	3.10	1.90
PF0382.104NL	90	1.50	200	100	2.60	1.50
PF0382.154NL	140	1.20	280	150	2.10	1.20
PF0382.224NL	200	1.10	360	220	1.70	1.10
PF0382.334NL	297	0.80	580	330	1.35	0.80
PF0382.474NL	423	0.60	860	470	1.15	0.60
PF0382.684NL	612	0.50	1200	680	1.05	0.50
PF0382.105NL	900	0.20	2000	1000	0.85	0.20

NOTES:
1. Inductance at Irated is a typical inductance value measured when the inductor is subjected to the rated current.
2. The rated current as listed is either the saturation current at 25°C or the heating current, depending on which value is lower.
3. The saturation current Isat is the current which causes the inductance to drop by 10% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
4. The heating current IDC is the DC current which causes the temperature rise of the part to increase by approximately 40°C. This current is determined by mounting the component on a typical application PCB and applying the current to the device for 30 minutes.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PF0382.103NL becomes PF0382.103NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

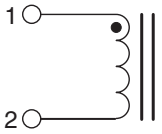
Mechanical



SUGGESTED PAD LAYOUT

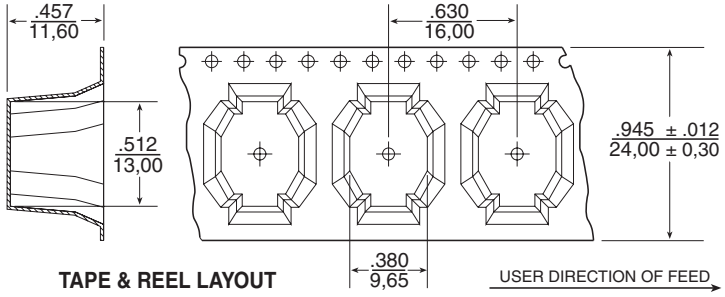


Schematic



Weight . . . . . 2.5 grams
Tape & Reel. 280/reel
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25



TAPE & REEL LAYOUT

SMT POWER INDUCTORS
Unshielded Drum Core - PF0638NL Series

Pulse
A TECHNITROL COMPANY

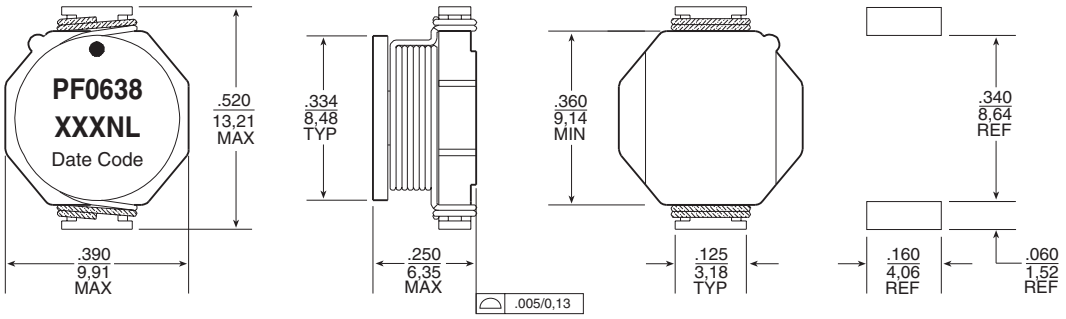
RoHS COMPLIANT

- **Height:** 6.35mm Max
- **Footprint:** 13.21mm x 9.91mm Max
- **Current Rating:** up to 17A
- **Inductance Range:** 0.12µH to 10µH
- 260°C reflow peak temperature qualified

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C

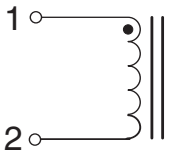
Part[4] Number	Inductance @0Adc (µH ±20%)	Irated[1] (A)	DCR (mΩ MAX)	Saturation[2] Current Isat (A)	Heating[3] Current Idc (A)	SRF (MHz TYP)
PF0638.121NL	0.12	17	1.5	28	17	200
PF0638.331NL	0.33	16	2	20	16	200
PF0638.681NL	0.68	12	5	13	12	150
PF0638.102NL	1.0	10	6	11	10	100
PF0638.152NL	1.5	9	10	9	9	90
PF0638.222NL	2.2	7.4	11	7.8	7.4	80
PF0638.272NL	2.7	6.6	12	7	6.6	65
PF0638.332NL	3.3	5.9	14	6.4	5.9	60
PF0638.392NL	3.9	5.3	15	5.9	5.3	50
PF0638.472NL	4.7	4.8	18	5.4	4.8	45
PF0638.682NL	6.8	4.4	25	4.6	4.4	40
PF0638.103NL	10	3.7	34	4	3.7	32

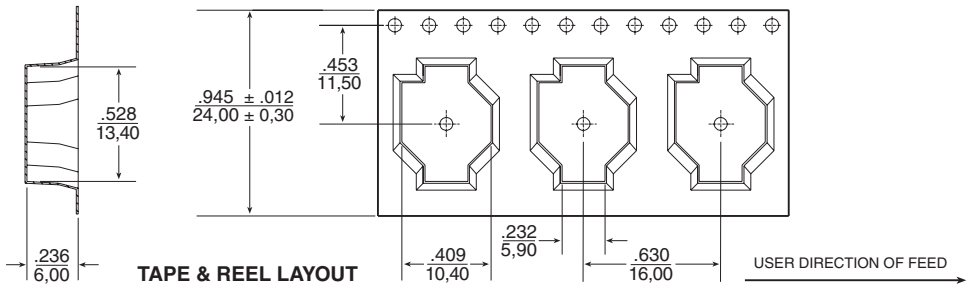
Mechanical



SUGGESTED PAD LAYOUT

Schematic





TAPE & REEL LAYOUT

Weight .....1.3 grams
Tape & Reel.....600/reel

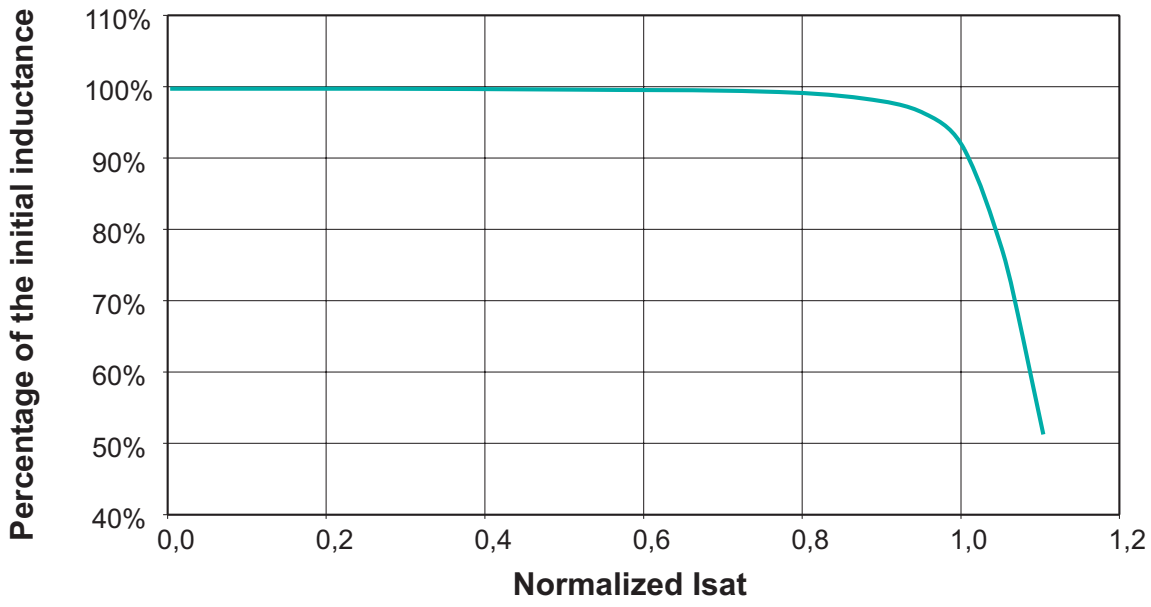
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables

1. The rated current as listed is either the saturation current @ 25°C or the heating current depending on which value is lower.
2. The saturation current Isat is the current which causes the inductance to drop by 10% typical at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
3. The heating current Idc is the dc current which causes the temperature rise of the part to increase by approximately 40°C. This current is determined by mounting the component on a typical application PCB and applying the current to the device for 30 minutes.
4. Optional Tape and Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PF0638.103NL becomes PF0638.103NL**T**). Pulse complies to industry standard tape and reel specification EIA481.

Typical Inductance vs Current Characteristics



SMT POWER INDUCTORS
Unshielded Drum Core - P0250NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

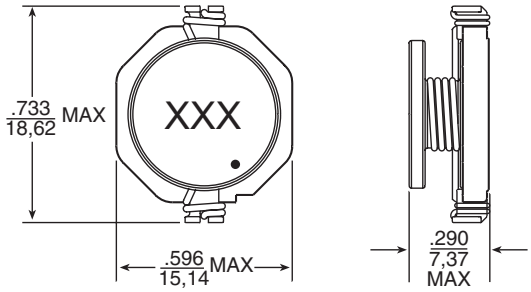
- **Height:** 7.37mm Max
- **Footprint:** 18.62mm x 15.14mm Max
- **Current Rating:** up to 8.6A
- **Inductance Range:** 1µH to 1030µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 15%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
P0250.102NL	1.0	8.6	9	20.0	8.60
P0250.222NL	2.2	7.1	14	16.0	7.10
P0250.332NL	3.3	6.2	15	14.0	6.20
P0250.562NL	5.6	5.3	20	12.0	5.30
P0250.103NL	10	4.3	31	10.0	4.30
P0250.153NL	15	4.0	36	8.0	4.00
P0250.223NL	22	3.5	47	7.0	3.50
P0250.333NL	33	3.0	66	5.5	3.00
P0250.473NL	47	2.6	86	4.5	2.60
P0250.683NL	68	2.3	130	3.5	2.30
P0250.104NL	100	1.8	190	3.0	1.80
P0250.154NL	150	1.5	250	2.6	1.50
P0250.224NL	220	1.2	380	2.4	1.20
P0250.334NL	330	1.0	560	1.9	1.00
P0250.474NL	470	.82	850	1.4	0.82
P0250.684NL	680	.72	1100	1.2	0.72
P0250.105NL	1000	.56	1800	1.0	0.56

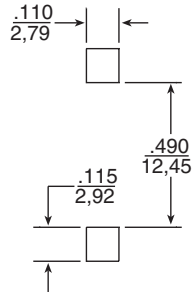
NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 0.1 mV_{RMS}
3. Inductance drop = 10% typical at the saturation current.
4. ΔT = 40°C rise typical at the heating current.
5. The rated current is the lower of the saturation or heating current.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0250.102NL becomes P0250.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanical

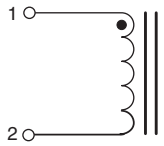


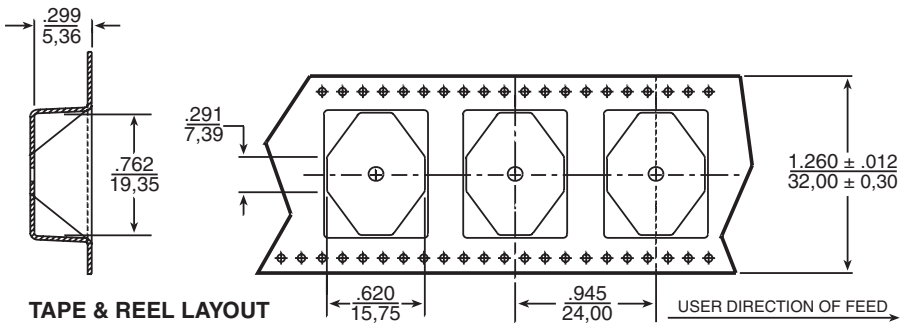
NOTE: Dot indicates start of winding

SUGGESTED PAD LAYOUT



Schematic





TAPE & REEL LAYOUT

Weight . . . . . 3.6 grams
Tape & Reel 250/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

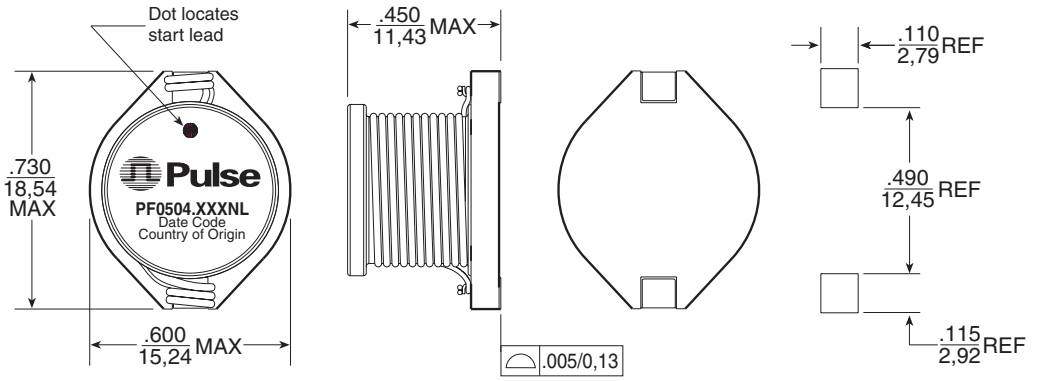
SMT POWER INDUCTORS
Unshielded Drum Core - PF0504NL Series

- **Height:** 11.43mm Max
- **Footprint:** 18.54mm x 15.24mm Max
- **Current Rating:** up to 20A
- **Inductance Range:** 0.68µH to 150µH
- 260°C reflow peak temperature qualified
- Leaded technology compatible

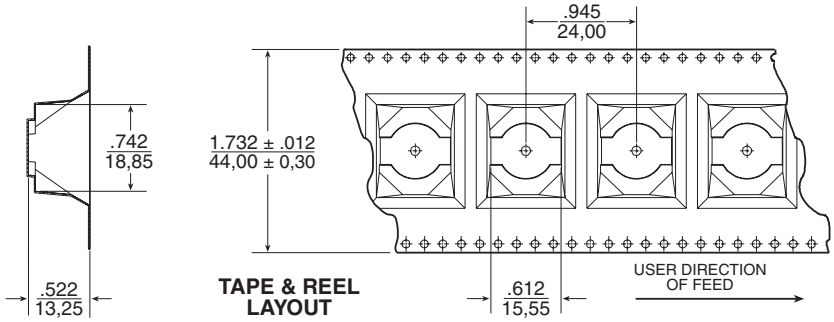
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

Part [5] Number	Inductance [1] @ Irated (µH TYP)	Irated [2] (A)	DCR (mΩ MAX)	Inductance @ 0ADC (µH ±20%)	Saturation Current [3] ISAT (A)	Heating Current [4] IDC (A)
PF0504.681NL	0.68	20.0	2.0	0.68	64	20.0
PF0504.122NL	1.2	17.7	2.6	1.2	48	17.7
PF0504.222NL	2.2	14.7	3.7	2.2	35	14.7
PF0504.332NL	3.3	13.7	4.3	3.3	29	13.7
PF0504.392NL	3.9	11.7	6.7	3.9	26	11.7
PF0504.472NL	4.7	10.8	6.9	4.7	24	10.8
PF0504.682NL	6.8	9.0	9.8	6.8	20	9.0
PF0504.103NL	10	7.1	15	10	16	7.1
PF0504.183NL	18	6.0	25	18	13	6.0
PF0504.223NL	22	5.4	27	22	11	5.4
PF0504.333NL	33	4.4	42	33	9	4.4
PF0504.403NL	40	4.0	50	40	8	4.0
PF0504.473NL	47	3.5	55	47	7	3.5
PF0504.104NL	100	2.3	153	100	5	2.3
PF0504.154NL	150	2	200	150	4	2

Mechanical

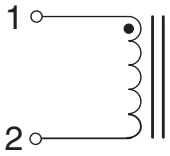


SUGGESTED PAD LAYOUT



TAPE & REEL LAYOUT

Schematic



Weight . . . . . .6.0 grams
Tape & Reel 160/reel

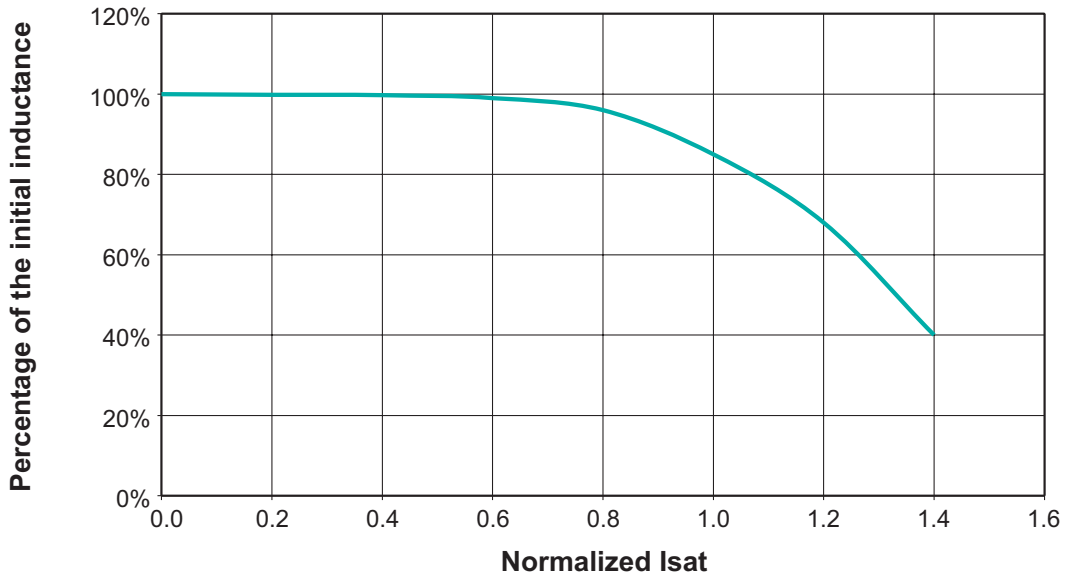
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables

1. Inductance at Irated is a typical inductance value measured when the inductor is subjected to the rated current.
2. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
3. The saturation current, Isat, is the current at which the component inductance drops by 20% (maximum) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
4. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PF0504.681NL becomes PF0504.681NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Inductance vs Current Characteristics



SMT POWER INDUCTORS
Unshielded Drum Core - P1252NL Series

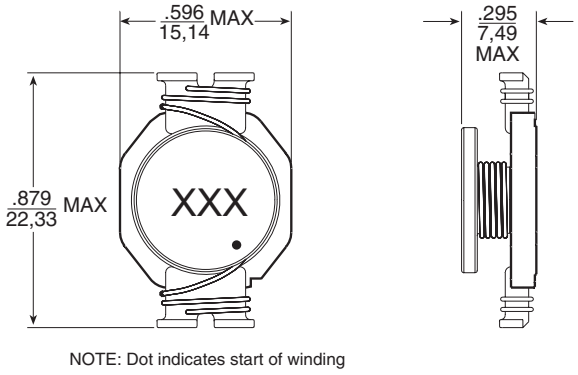
- **Height:** 7.5mm Max
- **Footprint:** 22.33mm x 15.14mm Max
- **Current Rating:** up to 15A
- **Inductance Range:** 0.78µH to 10µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [6,7] Number	Inductance @ I_{PK} A_{DC} (µH ± 20%)	Irated [5] (A)	DCR (MAX) (mΩ)	Saturation Current (A) @ 25°C	Heating Current (A)
P1252.781NL	0.78	15.0	2.6	30.0	15.0
P1252.152NL	1.5	15.0	4.0	25.0	15.0
P1252.222NL	2.2	12.0	6.1	20.0	12.0
P1252.332NL	3.3	10.0	8.6	17.0	10.0
P1252.392NL	3.9	9.0	10	15.0	9.0
P1252.472NL	4.7	8.4	14	13.0	8.4
P1252.602NL	6.0	7.5	17	12.0	7.5
P1252.782NL	7.8	7.5	18	11.0	7.5
P1252.103NL	10	6.0	26	10.0	6.0

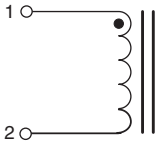
NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance tested at 100kHz, 0.1 mV_{RMS}
3. Inductance drop = 10% typical at the saturation current
4. ΔT = 40°C rise typical at the heating current
5. The rated current is the lower of the saturation or heating current.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P1252.781NL becomes P1252.781NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

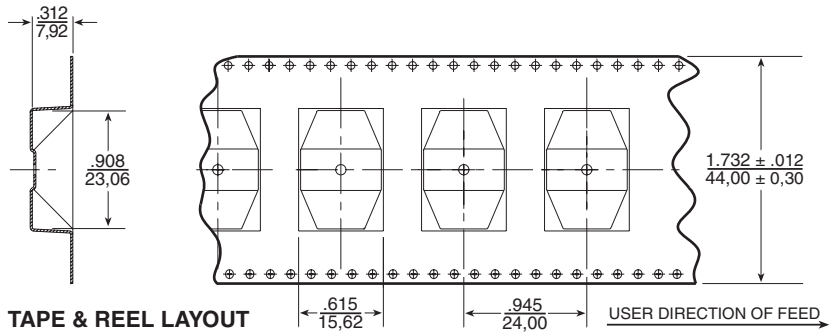
Mechanical



NOTE: Dot indicates start of winding

Schematic





TAPE & REEL LAYOUT

Weight . . . . . 4.1 grams
Tape & Reel 300/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Unshielded Drum Core - PB2020NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

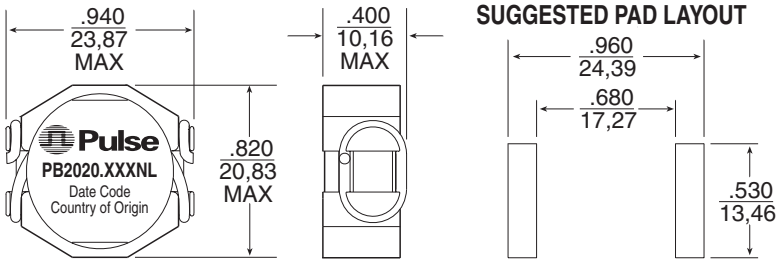
- **Height:** 10.2mm Max
- **Footprint:** 23.9mm x 20.8mm Max
- **Current Rating:** up to 30A
- **Inductance Range:** 0.65µH to 29µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [6,7] Number	Inductance [2] @ Irated (µH MIN)	Irated [3] (A_{DC})	DCR (mΩ) (TYP)	DCR (mΩ) (MAX)	Inductance @ 0 A_{DC} (µH ±15%)	Saturation Current [4] @ 25°C (A_{DC})	Heating [5] Current (A_{DC})
PB2020.681NL	0.65	30.0	1.62	1.80	0.65	70	30.0
PB2020.102NL	0.85	23.7	1.98	2.20	0.85	55	23.7
PB2020.222NL	1.83	21.8	2.34	2.60	1.83	40	21.8
PB2020.332NL	3.00	18.3	3.33	3.70	3.00	35	18.3
PB2020.472NL	4.00	16.8	3.96	4.40	4.00	28	16.8
PB2020.682NL	5.78	13.6	6.03	6.70	5.78	25	13.6
PB2020.103NL	8.30	12.6	7.02	7.80	8.30	20	12.6
PB2020.153NL	13.00	9.7	11.70	13.00	13.00	18	9.7
PB2020.223NL	18.70	8.1	17.10	19.00	18.70	13	8.1
PB2020.333NL	29.00	6.5	26.10	29.00	29.00	10	6.5

NOTES:
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is typical inductance value for component taken at rated current.
3. The rated current listed is the lower of saturation current @ 25°C or heating current.
4. The saturation current, Isat, is the current at which the component inductance drops by 10% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PB2020.102NL becomes PB2020.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

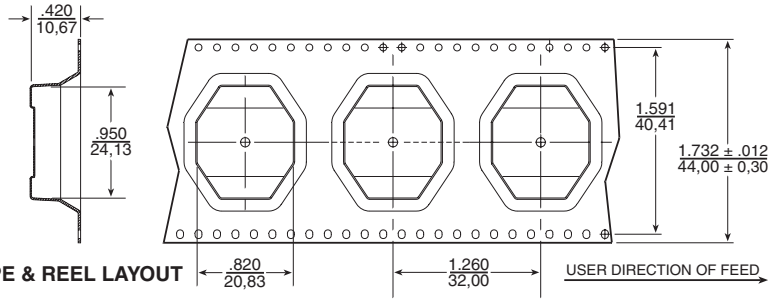
Mechanical



Weight . . . . . .9.5 grams
Tape & Reel 100/reel
Tray 20/tray

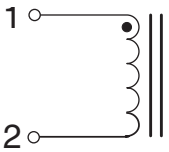
Dimensions: Inches / mm

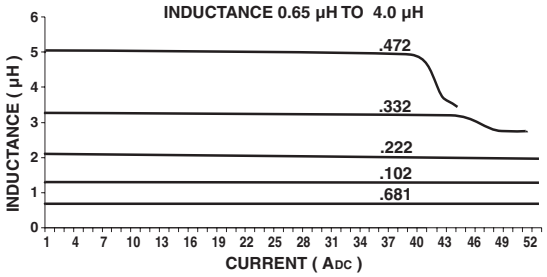
Unless otherwise specified, all tolerances are ± .010 / 0,25

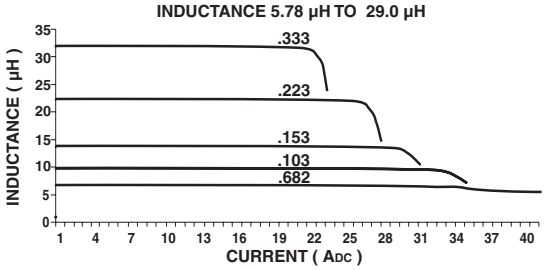


TAPE & REEL LAYOUT

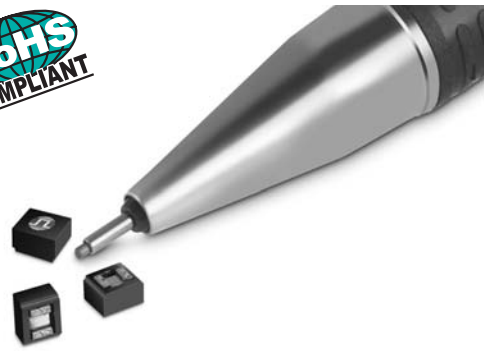
Schematic







SMT POWER INDUCTORS
Shielded Drum Core - PG0048NL Series



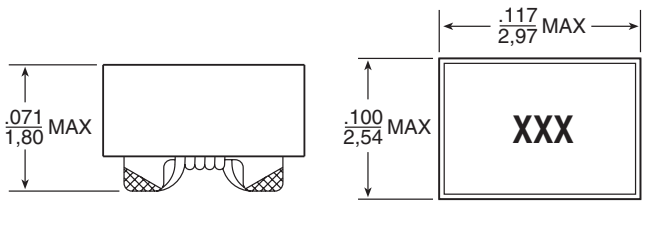
- **Height:** 1.8mm Max
- **Footprint:** 2.97mm x 2.54mm Max
- **Current Rating:** up to .35A
- **Inductance Range:** 6µH to 282µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C

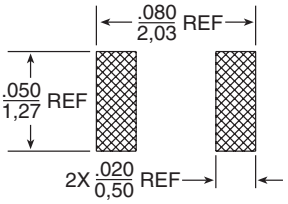
Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH TYP)	Irated [5] (mA)	DCR (Ω) TYP	DCR (Ω) MAX	Saturation [6] Current ISAT -40% (mA)	Heating [7] Current IDC +40°C (mA)	Q@1MHz (MIN)	SRF (MHz TYP)
PG0048.103NL	10	6.0	350	0.5	0.8	350	560	10	160
PG0048.153NL	15	9.0	226	1.1	1.3	226	440	10	110
PG0048.223NL	22	13.2	220	1.3	1.5	220	390	10	80
PG0048.333NL	33	19.8	176	1.7	1.9	176	330	15	50
PG0048.473NL	47	28.2	140	2.1	2.4	140	300	15	35
PG0048.683NL	68	40.8	110	2.4	2.6	110	260	15	25
PG0048.104NL	100	60	96	3.0	3.3	96	240	15	20
PG0048.154NL	150	90	80	6.2	6.5	80	180	15	15
PG0048.224NL	220	132	66	6.8	7.4	66	160	15	10
PG0048.334NL	330	198	55	10.5	11.2	55	140	15	5
PG0048.474NL	470	282	45	13.2	14.0	45	120	15	3

NOTES FROM TABLE: *(See page 43)*

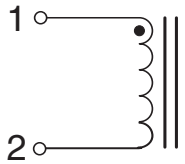
Mechanical



SUGGESTED PAD LAYOUT



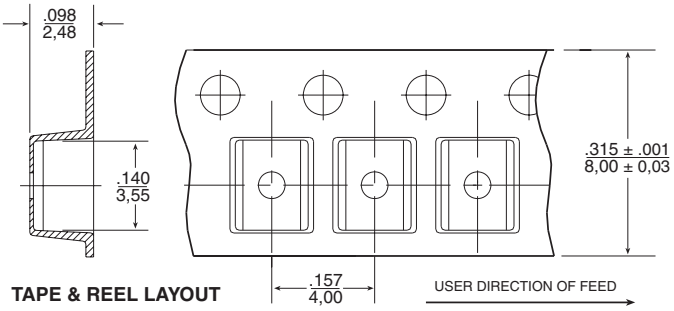
Schematic



Weight .....0.1 grams
Tape & Reel.....1600/reel

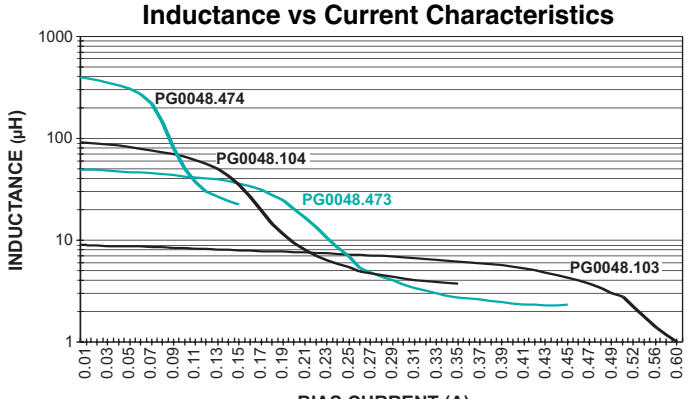
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25



TAPE & REEL LAYOUT

Inductance vs Current Characteristics



SMT POWER INDUCTORS

Shielded Drum Core - PG0085NL/PG0086 Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

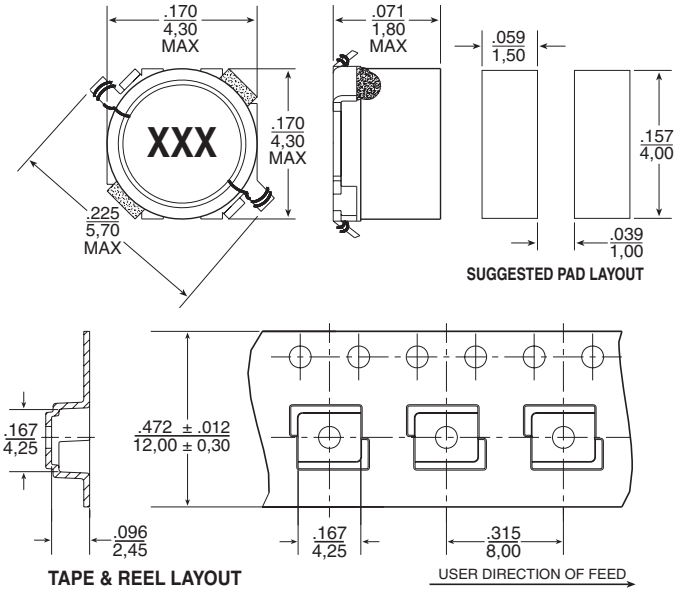
- **Height:** 1.8mm Max
- **Footprint:** 4.3mm x 4.3mm Max
- **Current Rating:** up to 1.5A
- **Inductance Range:** 0.7µH to 3500µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH TYP)	Irated[5] (A)	DCR (Ω) TYP	DCR (Ω) MAX	Saturation[6] Current ISAT -40% (A)	Heating[7] Current IDC +40°C (A)	Core Loss[8] Factor (K2)	SRF (MHz)
PG0085NL SERIES									
PG0085.102NL	1.0	0.7	1.50	0.026	0.033	1.50	3.00	1300	>40
PG0085.152NL	1.5	1.0	1.30	0.033	0.038	1.30	2.60	1500	>40
PG0085.222NL	2.2	1.5	1.10	0.038	0.046	1.10	2.20	1900	>40
PG0085.332NL	3.3	2.3	1.00	0.060	0.077	1.00	2.00	2200	>40
PG0085.472NL	4.7	3.3	0.86	0.080	0.100	0.86	1.60	2800	>40
PG0085.682NL	6.8	4.8	0.66	0.093	0.115	0.66	1.30	3300	38
PG0085.103NL	10	7.0	0.55	0.152	0.182	0.55	1.10	3600	29
PG0085.153NL	15	10.5	0.45	0.207	0.235	0.45	0.90	4800	36
PG0085.223NL	22	15.4	0.40	0.330	0.360	0.40	0.80	5500	33
PG0085.333NL	33	23.1	0.30	0.463	0.510	0.30	0.60	7300	16
PG0085.473NL	47	32.9	0.28	0.655	0.780	0.28	0.55	8200	14
PG0085.683NL	68	47.6	0.26	0.930	1.200	0.26	0.50	10000	12
PG0085.104NL	100	70	0.18	1.450	1.750	0.18	0.35	12000	10
PG0085.154NL	150	105	0.16	1.780	2.000	0.16	0.30	15000	8.0
PG0085.224NL	220	154	0.13	2.800	3.500	0.13	0.26	18000	6.0
PG0086 SERIES									
PG0086.334	330	231	0.080	4.76	5.40	0.080	0.16	23000	5.0
PG0086.474	470	329	0.072	5.82	6.70	0.072	0.14	28000	4.5
PG0086.604	600	420	0.058	8.00	8.80	0.058	0.12	31000	4.2
PG0086.684	680	476	0.055	8.30	9.00	0.055	0.11	33000	3.7
PG0086.824	820	574	0.050	9.50	10.50	0.050	0.10	36000	3.4
PG0086.105	1000	700	0.045	10.70	11.50	0.045	0.09	40000	3.1
PG0086.155	1500	1005	0.043	20.00	22.00	0.043	0.08	50000	2.6
PG0086.205	2000	1400	0.037	24.00	26.00	0.037	0.07	58000	2.0
PG0086.305	3000	2100	0.034	37.60	41.50	0.034	0.06	47000	1.7
PG0086.505	5000	3500	0.024	58.60	62.80	0.024	0.05	90000	1.3

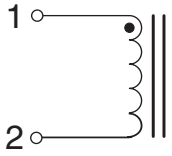
NOTES FROM TABLE: *(See page 43)*

Mechanical

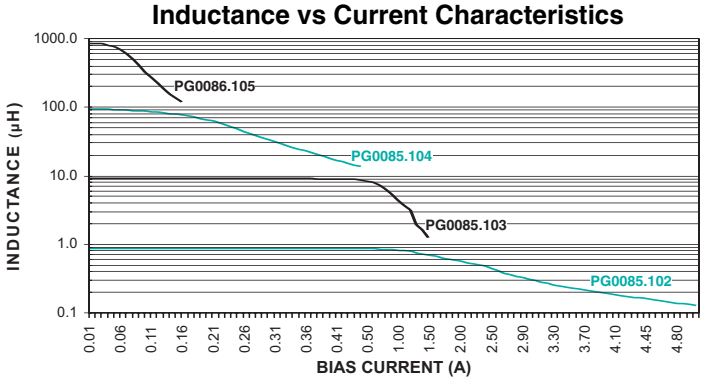


Weight . . . . . .0.1 grams
Tape & Reel 2850/reel
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .004 / 0,10

Schematic



Inductance vs Current Characteristics



SMT POWER INDUCTORS
Shielded Drum Core - PG0087NL Series

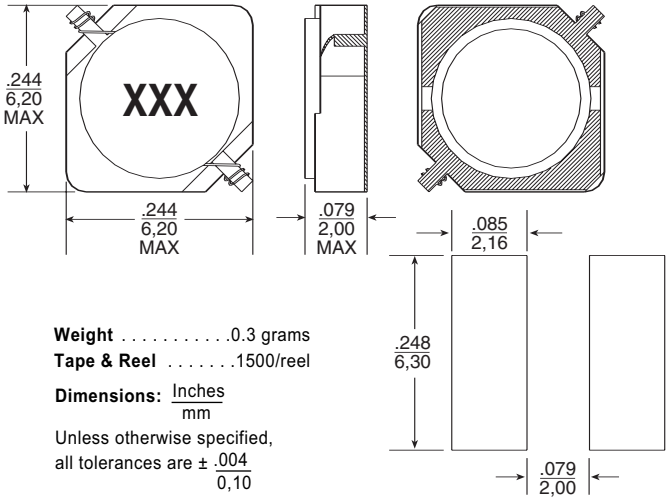
- **Height:** 2.0mm Max
- **Footprint:** 6.2mm x 6.2mm Max
- **Current Rating:** up to 3.5A
- **Inductance Range:** 0.9µH to 4.5mH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH TYP)	Irated[5] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation[6] Current ISAT -10% (A)	Heating[7] Current IDC +40°C (A)	Core Loss[8] Factor (K2)	SRF (MHz)
PG0087.102NL	1.0	0.9	3.5	29	33	3.5	5.5	710	>40
PG0087.152NL	1.5	1.3	3.0	23	34	3.0	4.9	870	>40
PG0087.222NL	2.2	1.9	2.2	40	45	2.2	4.2	1100	>40
PG0087.332NL	3.3	2.9	2.0	47	55	2.0	3.3	1200	>40
PG0087.472NL	4.7	4.2	1.75	64	70	1.75	2.8	1600	>40
PG0087.682NL	6.8	6.1	1.50	97	105	1.50	2.4	1700	37
PG0087.103NL	10	9.0	1.20	111	124	1.20	2.2	2200	34
PG0087.153NL	15	13	0.94	198	205	0.94	1.6	2700	28
PG0087.223NL	22	19	0.80	248	280	0.80	1.5	3400	22
PG0087.333NL	33	29	0.65	342	386	0.65	1.2	4000	17
PG0087.473NL	47	42	0.54	525	594	0.54	0.95	4900	15
PG0087.683NL	68	61	0.43	656	710	0.43	0.80	6100	13
PG0087.104NL	100	90	0.36	1180	1200	0.36	0.65	7000	10
PG0087.154NL	150	130	0.30	1740	1850	0.30	0.52	8200	9.0
PG0087.224NL	220	190	0.25	2600	2700	0.25	0.42	10000	7.0
PG0087.334NL	330	290	0.20	3810	3950	0.20	0.36	13000	5.4
PG0087.474NL	470	420	0.15	6147	6240	0.15	0.28	15000	4.3
PG0087.604NL	600	540	0.13	6716	7160	0.13	0.26	17000	4.1
PG0087.684NL	680	610	0.10	8947	9190	0.10	0.22	18000	3.9
PG0087.824NL	820	730	0.08	10800	11440	0.08	0.20	19000	3.5
PG0087.105NL	1000	900	0.06	11655	12570	0.06	0.18	21000	2.7
PG0087.205NL	2000	1800	0.05	23200	24900	0.05	0.14	30000	1.9
PG0087.305NL	3000	2700	0.038	30660	31530	0.038	0.12	37000	1.6
PG0087.505NL	5000	4500	0.025	57560	64200	0.025	0.09	48000	1.1

NOTES FROM TABLE: *(See page 43)*

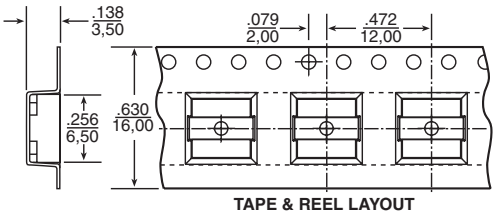
Mechanical



Weight . . . . . .0.3 grams
Tape & Reel 1500/reel

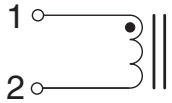
Dimensions: Inches / mm

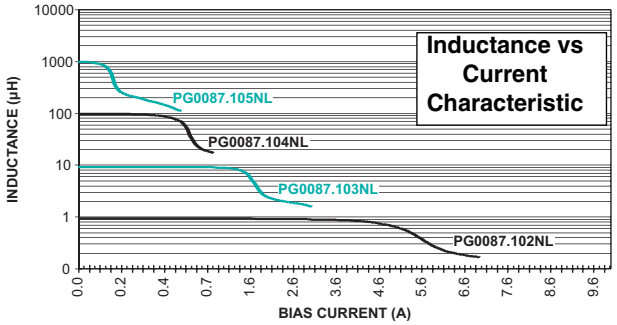
Unless otherwise specified, all tolerances are ± .004 / 0,10



TAPE & REEL LAYOUT

Schematic





SMT POWER INDUCTORS
Shielded Drum Core - PG0040/41 Series

Pulse
A TECHNITROL COMPANY

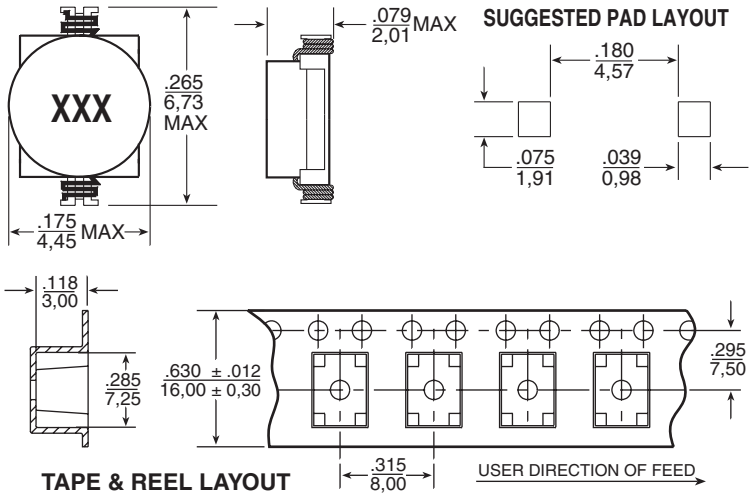
- **Height:** 2.0mm Max
- **Footprint:** 6.7mm x 4.5mm Max
- **Current Rating:** up to 1.2A
- **Inductance Range:** 0.7µH to 3500µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Number	Inductance @0Adc (µH ±20%)	Inductance @Irated (µH TYP)	Irated[5] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation[6] Current -30% (A)	Heating[7] Current Idc +30°C (A)	Core Loss[8] Factor (K2)	SRF (MHz)
PG0040 Series									
PG0040.102	1.0	0.7	1.2	30	40	1.2	2.2	3000	>40
PG0040.152	1.5	1.0	1.0	40	54	1.0	1.9	3500	>40
PG0040.222	2.2	1.5	.960	50	64	.960	1.6	4200	>40
PG0040.332	3.3	2.3	.750	55	68	.750	1.3	4600	>40
PG0040.472	4.7	3.3	.650	65	74	.650	1.1	5800	32
PG0040.682	6.8	4.8	.500	75	89	.500	1.0	6800	24
PG0040.103	10	7.0	.400	80	106	.400	.800	8400	18
PG0040.153	15	10.5	.300	120	154	.300	.600	10000	13
PG0040.223	22	15.4	.230	163	188	.230	.500	13000	12
PG0040.333	33	23.1	.205	240	278	.205	.400	15000	10
PG0040.473	47	32.9	.195	360	406	.195	.330	18000	9.0
PG0040.683	68	47.6	.150	550	594	.150	.270	22000	7.0
PG0040.104	100	70	.120	810	857	.120	.250	27000	5.0
PG0040.154	150	105	.105	1210	1397	.105	.190	33000	4.0
PG0040.224	220	154	.096	1550	1683	.096	.150	40000	3.0
PG0041 Series									
PG0041.334	330	231	.070	2350	2650	.070	.120	49000	2.8
PG0041.474	470	329	.062	3620	3830	.062	.105	58000	2.6
PG0041.604	600	420	.048	4230	4520	.048	.096	65000	2.2
PG0041.684	680	476	.045	4700	4800	.045	.090	70000	1.6
PG0041.824	820	574	.040	5700	6350	.040	.080	77000	1.2
PG0041.105	1000	700	.035	6600	6800	.035	.076	84000	1.0
PG0041.205	2000	1400	.032	14700	15600	.032	.054	120000	0.9
PG0041.305	3000	2100	.024	24700	26000	.024	.042	150000	0.7
PG0041.505	5000	3500	.019	37000	39000	.019	.030	190000	0.5

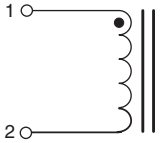
NOTES FROM TABLE: *(See page 43)*

Mechanical



TAPE & REEL LAYOUT

Schematic

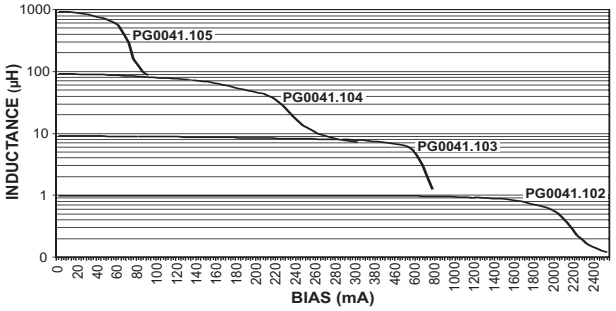


Weight . . . . . 0.1 grams
Tape & Reel 2500/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

PG0040/PG0041 TYPICAL INDUCTANCE VS. DC BIAS



SMT POWER INDUCTORS
Shielded Drum Core - P1174NL Series

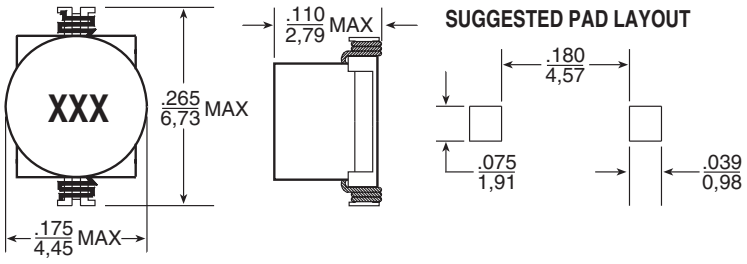
- **Height:** 2.8mm Max
- **Footprint:** 6.7mm x 4.5mm Max
- **Current Rating:** up to 3.0A
- **Inductance Range:** 1µH to 5000µH

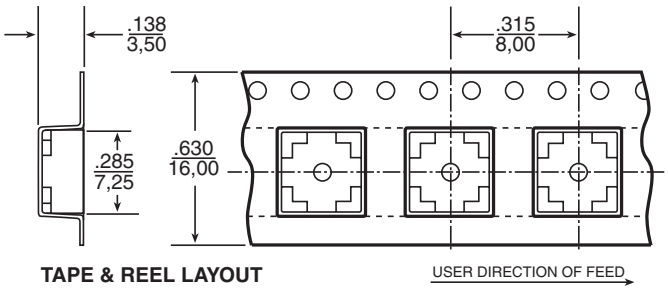
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Number	Inductance @ 0ADC (uH ±20%)	Inductance @ Irated Typical	Irated [5] (ADC)	DCR (mΩ) (MAX)	Saturation [6] Current -30% (A)	Heating [7] Current +30°C (A)	Core Loss [8] Factor (K2)	SRF (MHz)
P1174.102NL	1.0	0.7	3	13	3	3.0	1600	>40
P1174.152NL	1.5	1.0	2.0	15	2.0	2.8	1900	>40
P1174.222NL	2.2	1.6	1.7	18	1.7	1.8	2300	>40
P1174.332NL	3.3	2.3	1.3	21	1.3	1.6	3400	>40
P1174.472NL	4.7	3.4	1.0	30	1.0	1.4	4100	>40
P1174.682NL	6.8	4.8	0.90	51	0.90	1.2	4500	34
P1174.103NL	10	7.2	0.80	73	0.80	1.0	5400	31
P1174.153NL	15	14	0.60	90	0.60	0.8	6300	25
P1174.223NL	22	18	0.50	120	0.50	0.7	8000	20
P1174.333NL	33	26	0.40	188	0.40	0.6	10000	16
P1174.473NL	47	32	0.35	230	0.35	0.5	11000	14
P1174.683NL	68	45	0.32	370	0.32	0.4	14000	11
P1174.104NL	100	74	0.28	470	0.28	0.3	17000	9.0
P1174.154NL	150	109	0.22	620	0.22	0.26	21000	8.0
P1174.224NL	220	161	0.15	950	0.15	0.22	26000	6.0
P1174.334NL	330	208	0.14	1340	0.14	0.20	32000	5.0
P1174.474NL	470	350	0.13	1800	0.13	0.19	39000	3.9
P1174.604NL	600	412	0.12	2550	0.12	0.18	43000	3.7
P1174.684NL	680	500	0.10	2650	0.10	0.17	47000	3.6
P1174.105NL	1000	744	0.07	4000	0.07	0.15	57000	2.6
P1174.335NL	3300	2300	0.065	11000	0.065	0.09	99000	1.6
P1174.505NL	5000	4900	0.05	18500	0.05	0.05	130000	1.2

NOTES FROM TABLE: *(See page 43)*

Mechanical

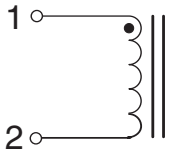




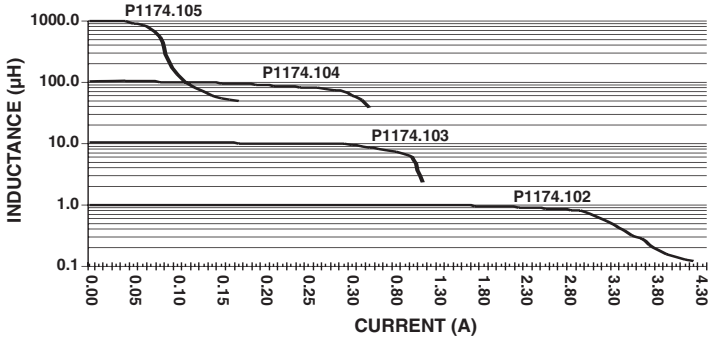
Weight . . . . . 0.1 grams
Tape & Reel 2500/reel
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic



TYPICAL INDUCTANCE VS. DC BIAS



SMT POWER INDUCTORS
Shielded Drum Core - PF0601NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

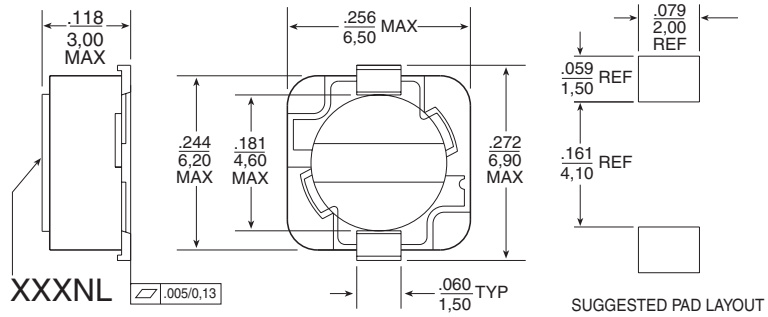
- **Height:** 3mm Max
- **Footprint:** 6.9mm x 6.5mm Max
- **Current Rating:** up to 2A
- **Inductance Range:** 2.9µH to 330µH
- **260°C reflow peak temperature qualified**

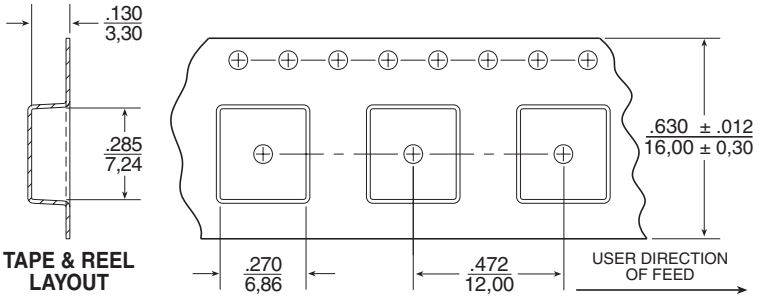
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Number	Inductance @0Adc (µH ±20%)	Inductance @Irated (µH TYP)	Irated[5] (A)	DCR (mΩ) MAX	Saturation[6] Current Isat -20% (A)	Heating[7] Current Idc +45°C(A)	Core Loss[8] Factor (K2)	SRF (MHz)
PF0601.292NL	2.9	2.6	2.0	55	2.0	3.3	1500	>40
PF0601.402NL	4.0	3.5	1.63	69	1.63	3.0	1700	>40
PF0601.552NL	5.5	4.8	1.5	75	1.5	2.6	2000	>40
PF0601.103NL	10	8.8	1.1	135	1.1	2.1	2700	31
PF0601.123NL	12	11	1.0	140	1.0	2.0	3100	30
PF0601.153NL	15	13	0.9	155	0.9	1.7	3300	26
PF0601.183NL	18	16	0.8	210	0.8	1.6	3700	23
PF0601.223NL	22	19	0.74	230	0.74	1.5	4000	20
PF0601.273NL	27	24	0.66	305	0.66	1.4	4600	19
PF0601.333NL	33	29	0.59	345	0.59	1.3	4900	17
PF0601.393NL	39	34	0.54	445	0.54	1.2	5500	16
PF0601.473NL	47	41	0.5	515	0.5	1.0	5900	14
PF0601.563NL	56	49	0.46	575	0.46	0.9	6400	13
PF0601.683NL	68	60	0.42	765	0.42	0.85	7200	12
PF0601.823NL	82	72	0.38	840	0.38	0.80	7800	11
PF0601.104NL	100	88	0.34	1120	0.34	0.67	8700	9.0
PF0601.124NL	120	106	0.31	1250	0.31	0.62	9400	8.0
PF0601.154NL	150	132	0.28	1440	0.28	0.60	11000	7.0
PF0601.184NL	180	158	0.26	1920	0.26	0.52	12000	6.5
PF0601.224NL	220	194	0.23	2200	0.23	0.45	13000	6.1
PF0601.274NL	270	238	0.22	3000	0.22	0.40	14000	5.8
PF0601.334NL	330	290	0.19	3300	0.19	0.30	16000	5.1

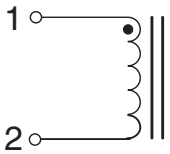
NOTES FROM TABLE: *(See page 43)*

Mechanical





Schematic

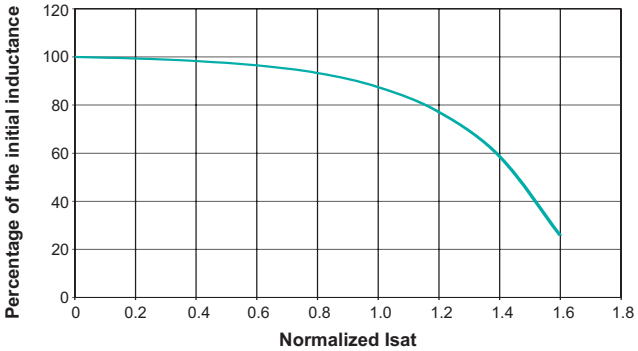


Weight . . . . . .0.35 grams
Tape & Reel 1200/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10

Inductance vs Current Characteristics



SMT POWER INDUCTORS

Shielded Drum Core - PF0464NL/PF0465NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

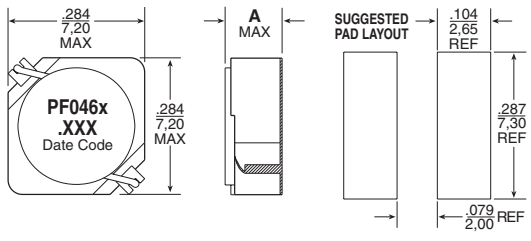
- **Height:** PF0464: 3mm Max - PF0465: 4mm Max
- **Footprint:** 7.2mm x 7.2mm Max
- **Current Rating:** PF0464: up to 4.5A - PF0465: up to 3.5A
- **Inductance Range:** 1.5µH to 100µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [1,6]

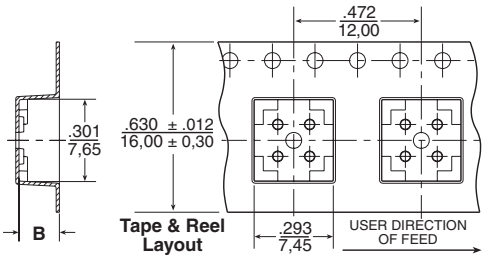
Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH TYP)	Irated[5] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation[6] Current ISAT -20% (A)	Heating[7] Current IDC +40°C(A)	Core Loss[8] Factor (K2)	SFR (MHz)
PF0464NL SERIES									
PF0464.152NL	1.5	1.2	4.50	9	12	4.50	5.50	660	>40
PF0464.302NL	3.0	2.4	3.00	17	22	3.00	4.25	850	>40
PF0464.392NL	3.9	3.1	2.60	19	25	2.60	3.80	990	>40
PF0464.502NL	5.0	4.0	2.40	24	30	2.40	3.55	1100	>40
PF0464.602NL	6.0	4.8	2.25	26	33	2.25	3.20	1300	>40
PF0464.732NL	7.3	5.8	2.10	36	45	2.10	3.10	1400	>40
PF0464.862NL	8.6	6.9	1.85	38	48	1.85	2.95	1500	35
PF0464.103NL	10	8.0	1.70	41	52	1.70	2.90	1700	32
PF0464.123NL	12	9.6	1.55	52	66	1.55	2.40	1800	26
PF0464.153NL	15	12.0	1.40	55	75	1.40	2.35	2000	24
PF0464.183NL	18	14.4	1.32	69	90	1.32	2.10	2200	22
PF0464.223NL	22	17.6	1.20	85	113	1.20	1.85	2500	21
PF0464.273NL	27	21.6	1.05	104	132	1.05	1.70	2800	19
PF0464.333NL	33	26.4	0.97	132	165	0.97	1.50	3000	18
PF0464.393NL	39	31.2	0.86	142	180	0.86	1.45	3300	14
PF0464.473NL	47	37.6	0.80	197	238	0.80	1.25	3600	14
PF0464.563NL	56	44.8	0.73	216	270	0.73	1.15	3900	13
PF0464.683NL	68	54.4	0.65	235	300	0.65	1.10	4400	12
PF0464.823NL	82	65.6	0.60	291	370	0.60	1.00	4800	11
PF0464.104NL	100	80.0	0.54	401	505	0.54	0.85	5300	10.5
PF0465NL SERIES									
PF0465.332NL	3.3	2.6	3.50	16	20	3.50	4.65	790	>40
PF0465.502NL	5.0	4.0	2.90	19	24	2.90	4.10	970	>40
PF0465.622NL	6.2	5.0	2.50	21	26	2.50	3.90	1100	>40
PF0465.732NL	7.3	5.8	2.30	25	31	2.30	3.50	1200	>40
PF0465.862NL	8.6	6.9	2.20	27	34	2.20	3.30	1300	35
PF0465.103NL	10	8.0	2.00	29	37	2.00	3.20	1400	32
PF0465.123NL	12	9.6	1.70	39	50	1.70	2.80	1600	26
PF0465.153NL	15	12.0	1.60	44	55	1.60	2.60	1700	24
PF0465.183NL	18	14.4	1.50	62	78	1.50	2.25	1900	22
PF0465.223NL	22	17.6	1.30	68	86	1.30	2.10	2100	21
PF0465.273NL	27	21.6	1.20	75	95	1.20	2.00	2300	19
PF0465.333NL	33	26.4	1.10	94	118	1.10	1.75	2500	18
PF0465.393NL	39	31.2	1.00	101	128	1.00	1.70	2800	17
PF0465.473NL	47	37.6	0.95	112	140	0.95	1.60	3000	14
PF0465.563NL	56	44.8	0.85	154	195	0.85	1.35	3300	13
PF0465.683NL	68	54.4	0.75	188	234	0.75	1.25	3700	12
PF0465.823NL	82	65.6	0.70	261	324	0.70	1.05	4000	11
PF0465.104NL	100	80.0	0.65	286	350	0.65	1.00	4500	10.5

NOTES FROM TABLE: *(See page 43)*

Mechanical

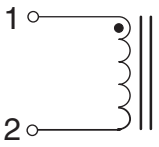


	PF0464	PF0465
Weight	0.5 grams	0.7 grams
Tape & Reel	1200/reel	900/reel
"A" (height - in./mm)	0.118/3,00	0.158/4,00



	PF0464	PF0465
"B" height - (in./mm)	0.150/3,80	0.205/5,20

Schematic



Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10

SMT POWER INDUCTORS
Shielded Drum Core - P1166NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Height:** 3.8mm Max
- **Footprint:** 7.5mm x 7.5mm Max
- **Current Rating:** up to 5.5A
- **Inductance Range:** .44µH to 750µH

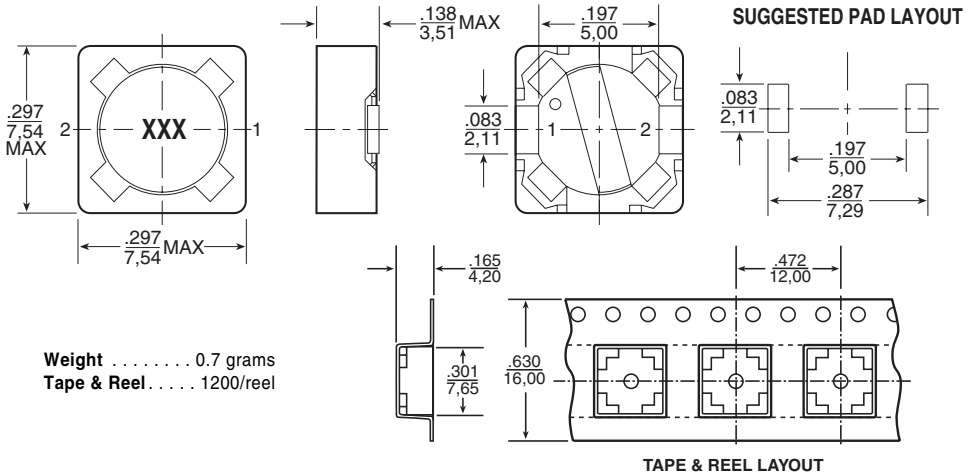
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH) MIN	Irated [5] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation [6] Current -25% (A)	Heating [7] Current +40°C(A)	Core Loss [8] Factor (K2)	SRF (MHz)
P1166.681NL	0.68*	0.44	5.5	5.0	6.0	5.9	5.5	380	>40
P1166.102NL	1.00*	0.65	4.9	6.2	7.5	5.2	4.9	440	>40
P1166.162NL	1.60*	1.0	4.0	7.8	11	4.0	4.4	570	>40
P1166.302NL	3.00*	2.0	2.8	19	23	3.0	2.8	780	>40
P1166.482NL	4.80*	3.1	2.4	25	31	2.4	2.5	990	>40
P1166.682NL	6.80*	4.4	2.1	32	40	2.1	2.2	1200	38
P1166.103NL	10	7.5	1.6	58	70	1.8	1.6	1400	29
P1166.123NL	12	9.0	1.5	62	78	1.7	1.5	1500	25
P1166.153NL	15	11.3	1.4	74	92	1.5	1.4	1700	22
P1166.183NL	18	13.5	1.2	100	124	1.4	1.2	1800	21
P1166.223NL	22	16.5	1.2	106	126	1.2	1.2	2000	20
P1166.273NL	27	20.3	1.0	146	180	1.1	1.0	2300	17
P1166.333NL	33	24.8	0.94	167	205	1.0	0.94	2400	15
P1166.393NL	39	29.3	0.86	183	211	0.86	0.90	2700	13
P1166.473NL	47	35.3	0.83	206	260	0.83	0.85	2900	12
P1166.563NL	56	42.0	0.73	271	340	0.73	0.74	3300	11
P1166.683NL	68	51.0	0.67	303	370	0.67	0.70	3600	9.5
P1166.823NL	82	61.5	0.60	411	500	0.61	0.60	4000	8.0
P1166.104NL	100	75.0	0.56	464	580	0.56	0.57	4300	7.5
P1166.124NL	120	90.0	0.53	528	645	0.55	0.53	4700	7.0
P1166.154NL	150	113	0.46	695	860	0.46	0.46	5300	6.3
P1166.184NL	180	135	0.39	992	1190	0.42	0.39	5800	5.6
P1166.224NL	220	165	0.35	1210	1480	0.37	0.35	6400	5.1
P1166.274NL	270	203	0.32	1407	1750	0.32	0.33	7100	4.6
P1166.334NL	330	248	0.31	1580	1880	0.31	0.31	7800	4.1
P1166.394NL	390	293	0.26	2178	2600	0.29	0.26	8500	3.9
P1166.474NL	470	353	0.25	2400	2910	0.26	0.25	9500	3.6
P1166.564NL	560	420	0.23	2705	3400	0.23	0.23	10000	3.1
P1166.684NL	680	510	0.20	3658	4450	0.21	0.20	11000	2.7
P1166.824NL	820	615	0.17	5021	6200	0.20	0.17	13000	2.5
P1166.105NL	1000	750	0.15	6720	8000	0.16	0.15	14000	1.3

*Inductance at 0ADC tolerance on indicated part numbers is ±30%; tolerance is ±20% on all other parts.

NOTES FROM TABLE: *(See page 43)*

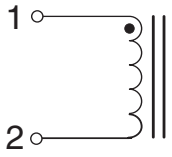
Mechanical



TAPE & REEL LAYOUT

Weight . . . . . 0.7 grams
Tape & Reel 1200/reel

Schematic



Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Shielded Drum Core - P1167NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Height:** 4.8mm Max
- **Footprint:** 7.5mm x 7.5mm Max
- **Current Rating:** up to 3.5A
- **Inductance Range:** 1.8µH to 750µH

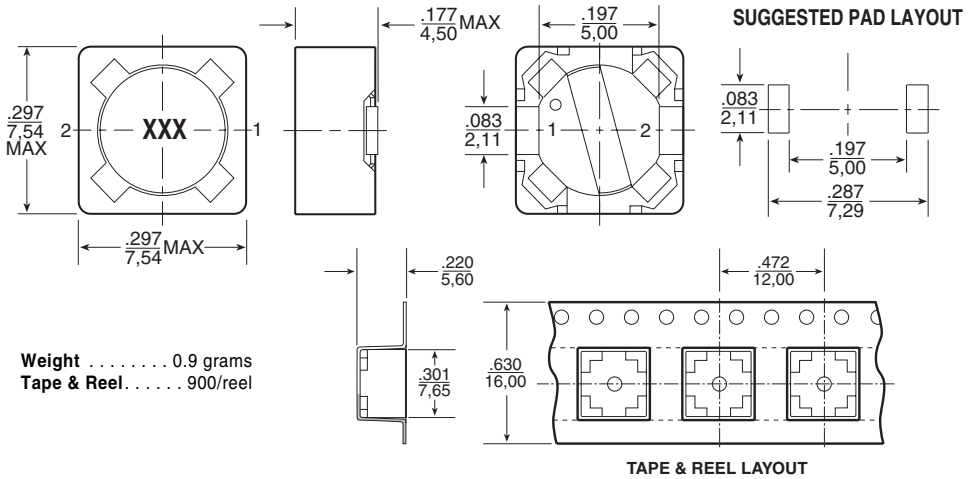
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Number	Inductance @0ADC (µH ±20%)	Inductance @Irated (µH) MIN	Irated [5] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation [6] Current -25% (A)	Heating [7] Current +40°C(A)	Core Loss [8] Factor (K2)	SRF (MHz)
P1167.272NL	2.7*	1.8	3.5	13	16	3.5	3.6	590	>40
P1167.362NL	3.6*	2.3	3.1	15	20	3.1	3.4	690	>40
P1167.452NL	4.5*	2.9	2.6	25	30	2.9	2.6	770	>40
P1167.542NL	5.4*	3.5	2.5	27	33	2.7	2.5	840	>40
P1167.632NL	6.3*	4.1	2.4	30	35	2.5	2.4	900	36
P1167.103NL	10	7.5	2.0	42	50	2.1	2.0	1100	26
P1167.123NL	12	9.0	1.9	46	57	1.9	1.9	1200	24
P1167.153NL	15	11.3	1.7	53	66	1.7	1.8	1300	20
P1167.183NL	18	13.5	1.5	59	73	1.5	1.7	1400	18
P1167.223NL	22	16.5	1.4	87	105	1.4	1.4	1700	17
P1167.273NL	27	20.3	1.2	100	130	1.2	1.3	1800	15
P1167.333NL	33	24.8	1.1	139	170	1.1	1.1	2000	13
P1167.393NL	39	29.3	1.0	156	200	1.0	1.0	2200	12
P1167.473NL	47	35.3	0.94	173	220	0.94	1.0	2400	10
P1167.563NL	56	42	0.86	225	270	0.86	0.86	2600	9.2
P1167.683NL	68	51	0.78	251	310	0.78	0.81	2900	8.8
P1167.823NL	82	61.5	0.7	282	350	0.7	0.77	3200	8.0
P1167.104NL	100	75	0.63	317	390	0.63	0.72	3500	6.2
P1167.124NL	120	90	0.57	418	530	0.57	0.63	3900	6.1
P1167.154NL	150	113	0.52	497	610	0.52	0.58	4300	5.6
P1167.184NL	180	135	0.47	635	820	0.47	0.51	4800	4.5
P1167.224NL	220	165	0.43	745	930	0.43	0.47	5200	4.3
P1167.274NL	270	203	0.39	840	1040	0.39	0.44	5700	3.8
P1167.334NL	330	248	0.35	1162	1470	0.35	0.38	6400	3.0
P1167.394NL	390	293	0.32	1237	1570	0.32	0.37	6900	2.8
P1167.474NL	470	353	0.29	1688	2180	0.29	0.31	7600	2.6
P1167.564NL	560	420	0.26	2240	2960	0.26	0.27	8300	2.4
P1167.684NL	680	510	0.23	2402	3180	0.23	0.26	9300	2.1
P1167.824NL	820	615	0.21	2702	3500	0.21	0.25	10000	2.0
P1167.105NL	1000	750	0.19	3703	4930	0.19	0.21	11000	1.8

*Inductance at 0ADC tolerance on indicated part numbers is ±30%; tolerance is ±20% on all other parts.

NOTES FROM TABLE: *(See page 43)*

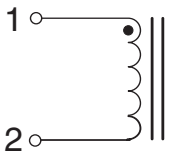
Mechanical



TAPE & REEL LAYOUT

Weight . . . . . 0.9 grams
Tape & Reel. 900/reel

Schematic



Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 54643211 / 2 • China 86 755 33966678 • Taiwan 886 3 4641811

SMT POWER INDUCTORS
Shielded Drum Core - PF0560NL Series

Pulse
A TECHNITROL COMPANY

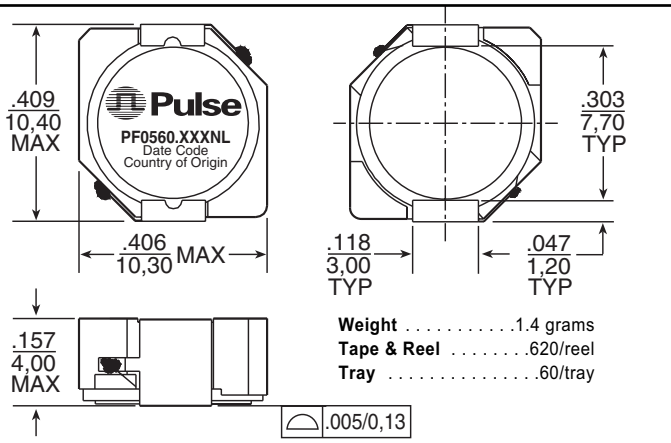
- **Height:** 4.0mm Max
- **Footprint:** 10.4 x 10.4mm Max
- **Current Rating:** up to 6.5A
- **Inductance Range:** 1.5µH to 330µH
- 260°C reflow peak temperature qualified
- Leaded technology compatible

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

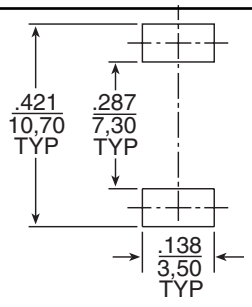
Part [2,3] Number	Inductance @ 0ADC (µH)	Inductance @ Irated (µH TYP)	Irated [5] (A)	DCR (mΩ MAX)	Saturation [6] Current ISAT -35% (A)	Heating [7] Current IDC +30°C(A)	Core Loss [8] Factor (K2)	SRF (MHz)
PF0560.152NL	1.5 ±30%	1.5	6.5	8.1	10	6.5	260	>40
PF0560.252NL	2.5 ±30%	2.5	6.1	10.5	7.5	6.1	330	>40
PF0560.382NL	3.8 ±30%	3.8	5.5	13	6.0	5.5	420	39
PF0560.522NL	5.2 ±30%	5.2	5.4	22	5.5	5.4	480	34
PF0560.702NL	7.0 ±30%	7.0	4.5	27	4.8	4.5	500	29
PF0560.103NL	10 ±30%	10	3.8	35	4.4	3.8	630	25
PF0560.153NL	15 ±30%	15	3.1	50	3,6	3.1	790	19
PF0560.223NL	22 ±30%	22	2.5	73	2.9	2.5	910	17
PF0560.333NL	33 ±25%	33	2.2	93	2.3	2.2	1200	14
PF0560.473NL	47 ±25%	47	1.9	128	2.1	1.9	1300	10
PF0560.683NL	68 ±25%	68	1.42	213	1.5	1.42	1700	9.0
PF0560.104NL	100 ±25%	100	1.25	304	1.35	1.25	2000	6.6
PF0560.154NL	150 ±25%	150	0.85	506	1.15	0.85	2400	5.4
PF0560.224NL	220 ±25%	220	0.7	756	0.92	0.7	2900	5.2
PF0560.334NL	330 ±25%	330	0.52	1090	0.70	0.52	3580	3.2

NOTES FROM TABLE: *(See page 43)*

Mechanical

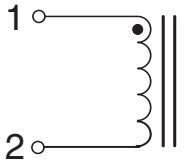


Weight . . . . . .1.4 grams
Tape & Reel 620/reel
Tray 60/tray



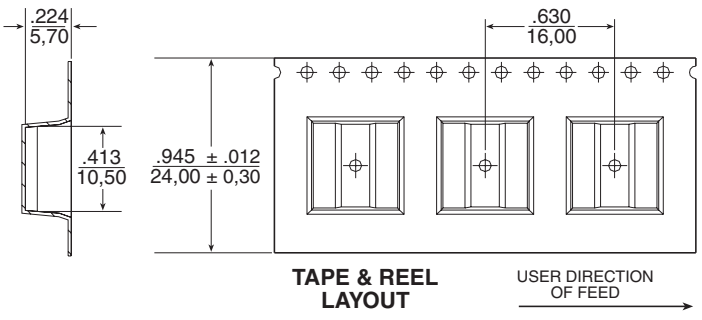
SUGGESTED PAD LAYOUT

Schematic

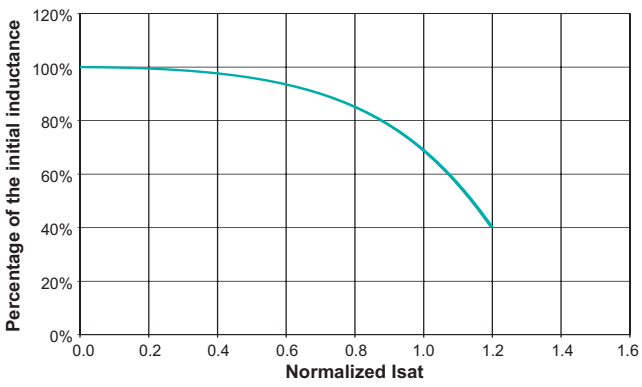


Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10



Inductance vs Current Characteristics



SMT POWER INDUCTORS

Shielded Drum Core - P1168NL/P1169NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Height:** 4.5mm Max
- **Footprint:** 12.2mm x 12.2mm Max
- **Current Rating:** up to 14A
- **Inductance Range:** .32µH to 750µH

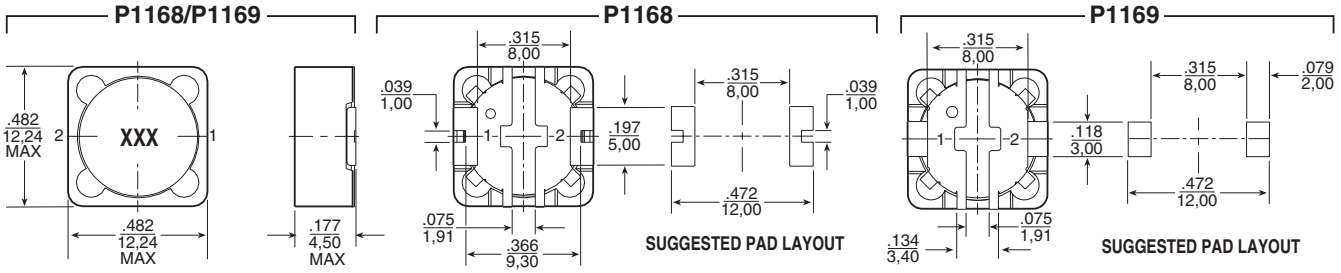
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part Numbers [2,3]		Inductance @0ADC (µH)	Inductance @Irated (µH) MIN	Irated [5] (ADC)	DCR (mΩ)		Saturation Current [6] -25% (A)	Heating Current [7] +40°C(A)	Core Loss Factor [8] (K2)	SRF (MHz)
					TYP	MAX				
P1168.501NL	P1169.501NL	0.5*	0.32	14	1.9	2.3	18	14	100	>40
P1168.102NL	P1169.102NL	1.0*	0.65	11	3.0	3.7	14	11	150	>40
P1168.162NL	P1169.162NL	1.6*	1.0	8.5	5.4	6.3	10	8.5	180	>40
P1168.242NL	P1169.242NL	2.4*	1.6	7.5	6.9	8.1	8.1	7.5	220	>40
P1168.332NL	P1169.332NL	3.3*	2.2	6.4	9.5	11	7.3	6.4	260	>40
P1168.452NL	P1169.452NL	4.5*	2.9	6.0	11	13	6.4	6.0	310	35
P1168.562NL	P1169.562NL	5.6*	3.6	5.5	13	15	5.7	5.5	340	30
P1168.682NL	P1169.682NL	6.8*	4.4	4.6	18	22	5.2	4.6	370	27
P1168.103NL	P1169.103NL	10	7.5	3.6	29	35	4.1	3.6	440	21
P1168.123NL	P1169.123NL	12	9.0	3.5	32	37	3.8	3.5	490	19
P1168.153NL	P1169.153NL	15	11.3	3.1	40	47	3.3	3.1	570	17
P1168.183NL	P1169.183NL	18	13.5	2.8	48	58	2.9	2.8	590	15
P1168.223NL	P1169.223NL	22	16.5	2.6	55	67	2.7	2.6	640	13
P1168.273NL	P1169.273NL	27	20.3	2.4	67	79	2.4	2.4	740	12
P1168.333NL	P1169.333NL	33	24.8	2.2	76	94	2.2	2.2	820	11
P1168.393NL	P1169.393NL	39	29.3	1.9	101	126	2.0	1.9	880	10
P1168.473NL	P1169.473NL	47	35.3	1.8	112	140	1.9	1.8	980	9.0
P1168.563NL	P1169.563NL	56	42.0	1.7	129	157	1.7	1.7	1000	8.0
P1168.683NL	P1169.683NL	68	51.0	1.5	169	202	1.5	1.6	1200	7.0
P1168.823NL	P1169.823NL	82	61.5	1.4	191	232	1.4	1.5	1300	6.0
P1168.104NL	P1169.104NL	100	75.0	1.2	222	270	1.2	1.4	1400	6.0
P1168.124NL	P1169.124NL	120	90.0	1.1	252	316	1.1	1.3	1500	5.5
P1168.154NL	P1169.154NL	150	113	1.0	346	456	1.0	1.1	1700	4.9
P1168.184NL	P1169.184NL	180	135	0.90	385	497	0.90	1.1	1900	4.4
P1168.224NL	P1169.224NL	220	165	0.80	506	681	0.80	0.93	2100	3.7
P1168.274NL	P1169.274NL	270	203	0.70	596	775	0.70	0.85	2300	3.3
P1168.334NL	P1169.334NL	330	248	0.66	764	955	0.66	0.75	2600	2.8
P1168.394NL	P1169.394NL	390	293	0.62	870	1087	0.62	0.71	2800	2.6
P1168.474NL	P1169.474NL	470	353	0.57	1150	1403	0.57	0.61	3100	2.4
P1168.564NL	P1169.564NL	560	420	0.53	1283	1623	0.53	0.58	3300	2.2
P1168.684NL	P1169.684NL	680	510	0.50	1493	1824	0.50	0.54	3700	2.1
P1168.824NL	P1169.824NL	820	615	0.44	1924	2355	0.44	0.47	4000	1.7
P1168.105NL	P1169.105NL	1000	750	0.40	2174	2850	0.40	0.45	4500	1.5

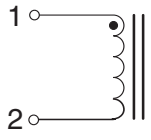
*Inductance at 0ADC tolerance on indicated part numbers is ±30%; tolerance is ±20% on all other parts.

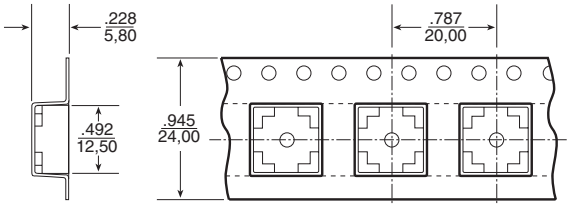
NOTES FROM TABLE: *(See page 43)*

Mechanical



Schematic:





TAPE & REEL LAYOUT

Weight . . . . . 2.5 grams
Tape & Reel 500/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS

Shielded Drum Core - P1170NL/P1171NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Height:** 6.0mm Max
- **Footprint:** 12.2mm x 12.2mm Max
- **Current Rating:** up to 13A
- **Inductance Range:** .32µH to 750µH

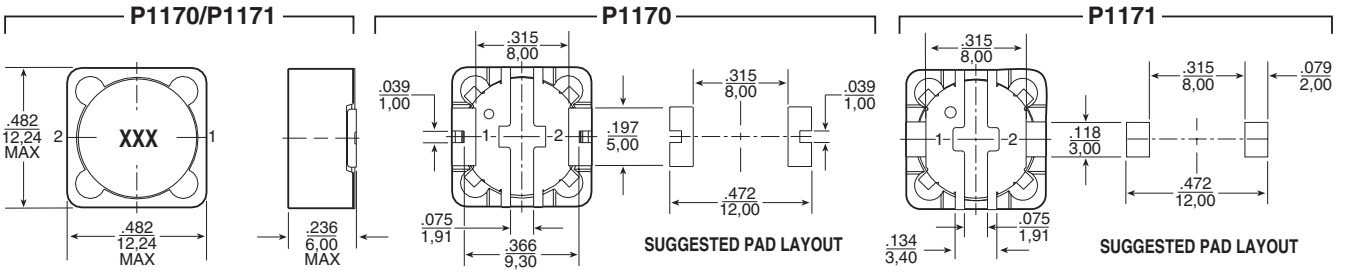
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Numbers		Inductance @0ADC (µH)	Inductance @Irated (µH) MIN	Irated [5] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation [6] Current -25% (A)	Heating [7] Current +40°C(A)	Core Loss [8] Factor (K2)	SRF (MHz)
P1170.901NL	P1171.901NL	0.9*	0.6	13	2.0	2.9	14	13	140	>40
P1170.142NL	P1171.142NL	1.4*	0.9	11	3.0	4.2	13	11	170	>40
P1170.222NL	P1171.222NL	2.2*	1.5	9.6	4.0	5.7	9.7	9.6	210	>40
P1170.302NL	P1171.302NL	3.0*	2.0	8.3	5.4	7.7	8.3	8.3	250	38
P1170.392NL	P1171.392NL	3.9*	2.5	7.0	7.4	10	7.0	7.1	280	34
P1170.502NL	P1171.502NL	5.0*	3.3	6.4	8.5	12	6.4	6.6	310	30
P1170.642NL	P1171.642NL	6.4*	4.2	5.3	13	18	5.8	5.3	360	26
P1170.103NL	P1171.103NL	10	7.5	4.4	19	25	4.6	4.4	430	24
P1170.123NL	P1171.123NL	12	9.0	4.2	21	27	4.3	4.2	470	18
P1170.153NL	P1171.153NL	15	11.3	4.0	22	30	4.0	4.1	550	16
P1170.183NL	P1171.183NL	18	13.5	3.4	32	40	3.4	3.4	580	14
P1170.223NL	P1171.223NL	22	16.5	3.0	36	45	3.0	3.2	670	14
P1170.273NL	P1171.273NL	27	20.3	2.7	41	51	2.7	3.0	740	12
P1170.333NL	P1171.333NL	33	24.8	2.6	56	70	2.6	2.6	820	11
P1170.393NL	P1171.393NL	39	29.3	2.4	60	75	2.4	2.5	880	10
P1170.473NL	P1171.473NL	47	35.3	2.2	79	100	2.2	2.2	980	9.0
P1170.563NL	P1171.563NL	56	42	2.0	85	110	2.0	2.1	1000	8.0
P1170.683NL	P1171.683NL	68	51	1.8	97	120	1.8	1.9	1100	6.9
P1170.823NL	P1171.823NL	82	61.5	1.7	127	158	1.7	1.7	1300	6.3
P1170.104NL	P1171.104NL	100	75	1.4	182	230	1.4	1.4	1400	5.5
P1170.124NL	P1171.124NL	120	90	1.3	201	253	1.3	1.4	1500	5.0
P1170.154NL	P1171.154NL	150	113	1.2	225	280	1.2	1.3	1700	4.6
P1170.184NL	P1171.184NL	180	135	1.1	249	310	1.1	1.2	1900	3.8
P1170.224NL	P1171.224NL	220	165	1.0	319	400	1.0	1.1	2100	3.5
P1170.274NL	P1171.274NL	270	203	0.91	363	460	0.91	1.0	2300	3.2
P1170.334NL	P1171.334NL	330	248	0.82	539	620	0.82	0.82	2600	3.0
P1170.394NL	P1171.394NL	390	293	0.72	561	690	0.72	0.81	2800	2.7
P1170.474NL	P1171.474NL	470	353	0.68	629	770	0.68	0.77	3100	2.6
P1170.564NL	P1171.564NL	560	420	0.63	851	1060	0.63	0.66	3300	2.3
P1170.684NL	P1171.684NL	680	510	0.57	950	1200	0.57	0.62	3700	2.0
P1170.824NL	P1171.824NL	820	615	0.52	1241	1550	0.52	0.54	4000	2.0
P1170.105NL	P1171.105NL	1000	750	0.46	1398	1750	0.46	0.51	4500	1.5

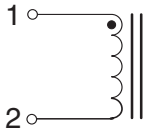
*Inductance at 0ADC tolerance on indicated part numbers is ±30%; tolerance is ±20% on all other parts.

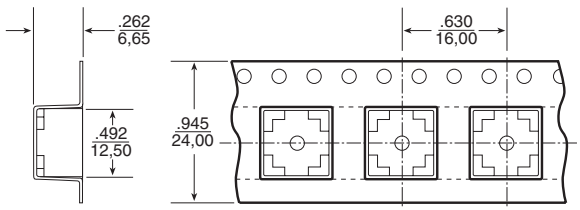
NOTES FROM TABLE: *(See page 43)*

Mechanical



Schematic:





TAPE & REEL LAYOUT

Weight . . . . . 3.2 grams
Tape & Reel. 500/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Shielded Drum Core - P1172NL/P1173NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Height:** 8.0mm Max
- **Footprint:** 12.2mm x 12.2mm Max
- **Current Rating:** up to 14A
- **Inductance Range:** .8µH to 51µH

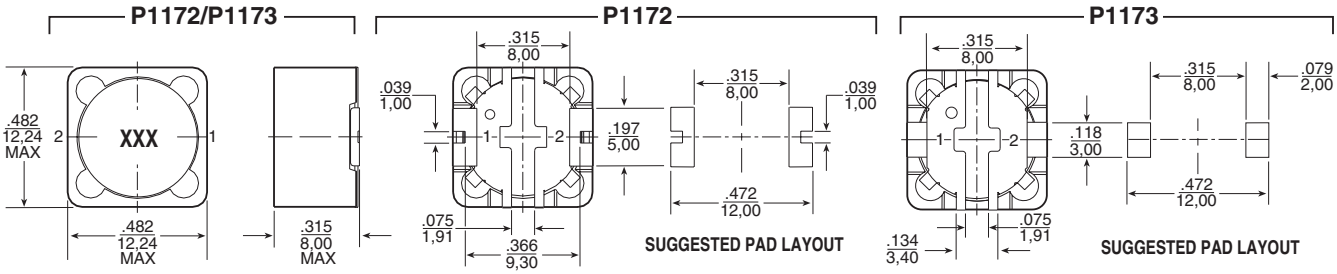
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [2,3] Numbers		Inductance @0ADC (µH)	Inductance @Irated (µH) MIN	Irated [5] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation [6] Current -25% (A)	Heating [7] Current +40°C(A)	Core Loss [8] Factor (K2)	SRF (MHz)
P1172.132NL	P1173.132NL	1.3*	0.8	14	2.3	3	15	14	90	>40
P1172.202NL	P1173.202NL	2.0*	1.3	10	4.5	6	13	10	110	>40
P1172.272NL	P1173.272NL	2.7*	1.8	9	5.8	7.3	11	9	130	>40
P1172.372NL	P1173.372NL	3.7*	2.4	8.3	6.8	8.5	9.2	8.3	150	37
P1172.472NL	P1173.472NL	4.7*	3.1	7.9	7.6	9.5	8.2	7.9	170	33
P1172.602NL	P1173.602NL	6.0*	3.9	6	13	16.5	6.9	6	200	30
P1172.762NL	P1173.762NL	7.6*	4.9	5.7	14.3	18.5	6.2	5.7	220	25
P1172.103NL	P1173.103NL	10	7.5	5.2	17.3	21.8	5.5	5.2	250	20
P1172.123NL	P1173.123NL	12	9	4.5	23.3	29	5.1	4.5	280	18
P1172.153NL	P1173.153NL	15	11.3	4.1	28.3	35.4	4.4	4.1	300	15
P1172.183NL	P1173.183NL	18	13.5	4	29.4	37	4.3	4	340	13
P1172.223NL	P1173.223NL	22	16.5	3.8	33.2	42	3.8	3.8	370	12
P1172.273NL	P1173.273NL	27	20.3	3.4	36.2	45.9	3.4	3.6	410	11
P1172.333NL	P1173.333NL	33	24.8	3	49.3	64.8	3	3.1	460	10
P1172.393NL	P1173.393NL	39	29.3	2.7	65.2	81.5	2.8	2.7	490	8
P1172.473NL	P1173.473NL	47	35.3	2.6	71.4	89	2.6	2.6	550	7
P1172.683NL	P1173.683NL	68	51	2.1	108	135	2.1	2.1	670	6

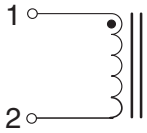
*Inductance at 0ADC tolerance on indicated part numbers is ±30%; tolerance is ±20% on all other parts.

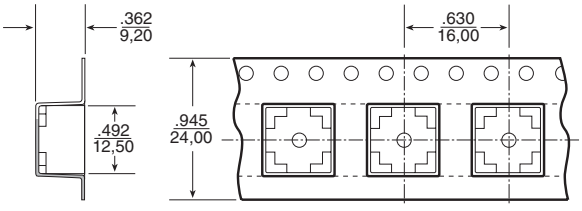
NOTES FROM TABLE: *(See page 43)*

Mechanical



Schematic:





TAPE & REEL LAYOUT

Weight . . . . . 4.5 grams
Tape & Reel. 400/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Shielded Drum Core
PF0552NL and PF0553NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- Single, coupled or transformer (1:1 turns ratio) applications
- **Current Rating:** up to 17.72A
- **Inductance Range:** 0.47µH to 4mH
- 260°C reflow peak temperature qualified
- 200Vac isolation between windings

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

Part [2,3] Number	Inductance* @ 0Adc (µH ±20%)	Inductance @ Irated (µH TYP)	Irated [5] (A)	DCR (mΩ MAX)	Saturation [6] Current Isat -30% (A)	Heating [7] Current Idc +40°C(A)	Core Loss [8] Factor (K2)	Connection** Mode
PF0552.471NL	0.49	0.49	14.2	1.6	33	14.2	100	Parallel
PF0552.102NL	0.91	0.91	12.9	2.4	24	12.9	140	Parallel
PF0552.152NL	1.5	1.5	12.4	2.9	18.4	12.4	180	Parallel
PF0552.471NL	2.0	2.0	7.1	6.4	16.4	7.1	210	Series
PF0552.222NL	2.2	2.2	11.1	3.9	15	11.1	210	Parallel
PF0552.332NL	3.1	3.1	10.1	5.8	12.8	10.1	250	Parallel
PF0552.102NL	3.6	3.6	6.5	9.6	11.8	6.5	270	Series
PF0552.472NL	5.3	4.7	8.5	9.2	9.8	8.5	330	Parallel
PF0552.152NL	5.9	5.9	6.2	12	9.2	6.2	350	Series
PF0552.683NL	6.6	6.6	7.3	12	8.8	7.3	370	Parallel
PF0552.822NL	8.1	8.1	6.5	18	7.8	6.5	410	Series
PF0552.222NL	8.8	8.8	5.6	16	7.5	5.6	430	Parallel
PF0552.103NL	9.7	9.7	6.0	19	7.2	6.0	450	Parallel
PF0552.332NL	12	12	5.0	23	6.4	5.0	490	Series
PF0552.153NL	15	15	5.5	24	5.8	5.5	550	Parallel
PF0552.472NL	21	19	4.3	37	4.9	4.3	660	Series
PF0552.223NL	22	22	4.6	35	4.8	4.6	670	Parallel
PF0552.682NL	27	27	3.7	48	4.4	3.7	760	Series
PF0552.822NL	32	32	3.3	66	3.9	3.3	810	Parallel
PF0552.333NL	34	33	3.7	54	3.9	3.7	840	Series
PF0552.103NL	39	39	3.0	73	3.6	3.0	900	Series
PF0552.473NL	47	47	3.2	69	3.2	3.3	980	Parallel
PF0552.153NL	61	60	2.8	97	2.9	2.8	1100	Series
PF0552.683NL	68	68	2.7	100	2.7	2.8	1200	Parallel
PF0552.823NL	84	82	2.4	130	2.4	2.4	1300	Parallel
PF0552.223NL	89	88	2.3	140	2.4	2.3	1400	Series
PF0552.104NL	100	100	2.2	160	2.2	2.3	1400	Parallel
PF0552.333NL	135	130	1.9	220	2.0	1.9	1700	Series
PF0552.154NL	150	150	1.8	230	1.8	1.8	1800	Parallel
PF0552.473NL	190	190	1.7	270	1.6	1.7	2000	Series
PF0552.224NL	220	220	1.4	350	1.5	1.4	2100	Parallel
PF0552.683NL	270	270	1.4	400	1.4	1.4	2400	Series
PF0552.823NL	330	330	1.2	530	1.2	1.2	2600	Series
PF0552.334NL	340	330	1.2	470	1.2	1.2	2700	Parallel
PF0552.104NL	410	400	1.1	640	1.1	1.1	2900	Series
PF0552.474NL	470	470	1.0	690	1.0	1.0	3100	Parallel
PF0552.154NL	600	600	0.88	930	0.91	0.88	3500	Series
PF0552.684NL	680	680	0.81	1000	0.86	0.81	3700	Parallel
PF0552.824NL	830	830	0.69	1400	0.78	0.69	4100	Parallel
PF0552.224NL	870	870	0.71	1400	0.76	0.71	4200	Series
PF0552.105NL	1000	1000	0.65	1600	0.70	0.65	4500	Parallel
PF0552.334NL	1300	1300	0.61	1900	0.62	0.61	5100	Series
PF0552.474NL	1900	1900	0.51	2700	0.51	0.51	6300	Series
PF0552.684NL	2700	2700	0.4	4100	0.43	0.4	7400	Series
PF0552.824NL	3300	3300	0.34	5500	0.39	0.34	8200	Series
PF0552.105NL	4000	4000	0.32	6400	0.35	0.32	9100	Series

NOTES FROM TABLE: (See page 43)

SMT POWER INDUCTORS
Shielded Drum Core
PF0552NL and PF0553NL Series

Pulse
A TECHNITROL COMPANY

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [6]

Part [2,3] Number	Inductance* @ 0Adc (µH ±20%)	Inductance @ Irated (µH TYP)	Irated [5] (A)	DCR (mΩ MAX)	Saturation [6] Current Isat -30% (A)	Heating [7] Current Idc +40°C(A)	Core Loss [8] Factor (K2)	Connection** Mode
PF0553.471NL	0.43	0.43	17	1.6	56	17	53	Parallel
PF0553.102NL	0.86	0.86	15	2.4	40	15	76	Parallel
PF0553.152NL	1.4	1.4	13	2.9	31	13	97	Parallel
PF0553.471NL	1.7	1.7	9.0	6.4	28	9.0	110	Series
PF0553.222NL	2.0	2.0	13	3.7	25	13	110	Parallel
PF0553.332NL	2.8	2.8	10	5.4	21	10	130	Parallel
PF0553.102NL	3.4	3.4	7.7	9.4	20	7.7	150	Series
PF0553.472NL	4.8	4.7	8.1	9.2	16	8.1	180	Parallel
PF0553.152NL	5.4	5.4	6.7	12	16	6.7	190	Series
PF0553.682NL	7.4	6.8	7.2	12	13	7.2	220	Parallel
PF0553.222NL	8.1	8.1	6.2	15	13	6.2	230	Parallel
PF0553.822NL	8.9	8.2	6.2	15	12	6.2	240	Series
PF0553.103NL	10.5	10	6.0	17	11	6.0	260	Parallel
PF0553.332NL	11.3	11.3	5.2	22	11	5.2	270	Series
PF0553.153NL	14	15	5.0	24	9.6	5.0	300	Parallel
PF0553.472NL	19	19	4.1	37	8.2	4.1	350	Series
PF0553.223NL	23	22	3.9	39	7.6	3.9	390	Parallel
PF0553.682NL	30	27	3.6	46	6.6	3.6	440	Series
PF0553.333NL	34	33	3.2	59	6.2	3.2	470	Series
PF0553.822NL	35	33	3.1	62	6.1	3.1	470	Parallel
PF0553.103NL	42	40	3.0	67	5.6	3.0	520	Series
PF0553.473NL	47	47	2.9	72	5.3	2.9	550	Parallel
PF0553.153NL	56	56	2.5	96	4.8	2.5	600	Series
PF0553.683NL	66	66	2.4	110	4.4	2.4	650	Parallel
PF0553.823NL	80	80	2.0	140	4.1	2.0	720	Parallel
PF0553.223NL	92	88	2.0	160	3.8	2.0	770	Series
PF0553.104NL	100	100	1.9	160	3.6	1.9	810	Parallel
PF0553.333NL	135	130	1.6	240	3.1	1.6	930	Series
PF0553.154NL	150	150	1.6	250	3.0	1.6	1000	Parallel
PF0553.473NL	190	190	1.5	290	2.6	1.5	1100	Series
PF0553.224NL	220	220	1.3	380	2.4	1.3	1200	Parallel
PF0553.683NL	270	270	1.2	420	2.2	1.2	1300	Series
PF0553.823NL	320	320	1.0	570	2.0	1.0	1400	Series
PF0553.334NL	330	330	1.0	570	2.0	1.0	1500	Parallel
PF0553.104NL	400	400	0.97	650	1.8	0.97	1600	Series
PF0553.474NL	470	470	0.83	860	1.7	0.83	1700	Parallel
PF0553.154NL	600	600	0.78	990	1.5	0.78	2000	Series
PF0553.684NL	680	680	0.75	1100	1.4	0.75	2100	Parallel
PF0553.824NL	830	820	0.64	1400	1.3	0.64	2300	Parallel
PF0553.224NL	890	880	0.63	1500	1.2	0.63	2400	Series
PF0553.105NL	1000	1000	0.61	1600	1.1	0.61	2500	Parallel
PF0553.334NL	1300	1300	0.51	2300	1.0	0.51	2900	Series
PF0553.474NL	1900	1900	0.42	3400	0.84	0.42	3500	Series
PF0553.684NL	2700	2700	0.38	4300	0.69	0.38	4200	Series
PF0553.824NL	3300	3300	0.32	5800	0.63	0.32	4600	Series
PF0553.105NL	4000	4000	0.31	6500	0.57	0.31	5100	Series

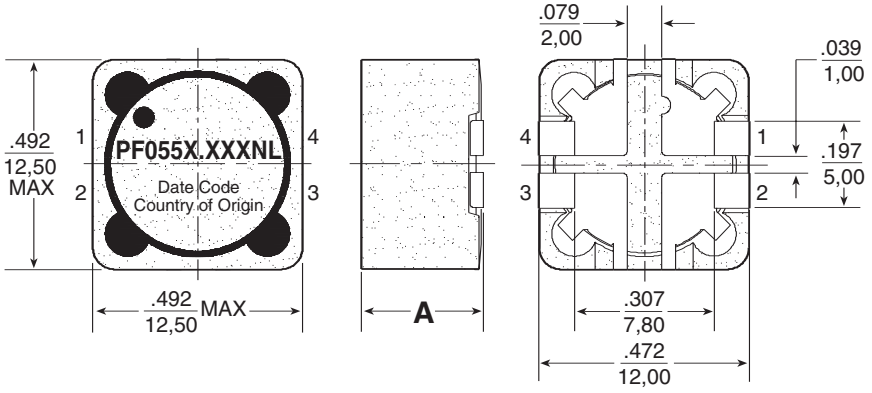
NOTES FROM TABLE: *(See page 43)*

***Open circuit inductance test parameters:** Inductance values up to 100µH: 100kHz - 0.10Vac with 0Adc bias;
Inductance values higher than 100µH: 20kHz - 0.10Vac with 0Adc bias.

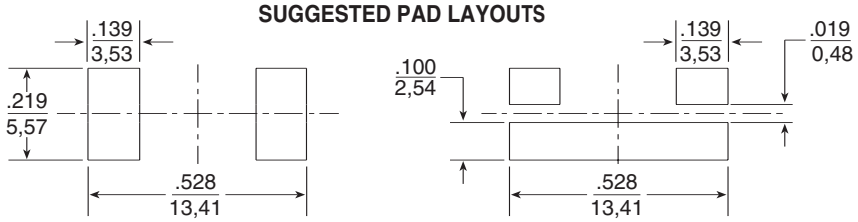
**Parallel connection mode (1,2 - 3,4); Serial connection mode (1-4) with (2-3) short circuited.

SMT POWER INDUCTORS
Shielded Drum Core
PF0552NL and PF0553NL Series

Mechanical

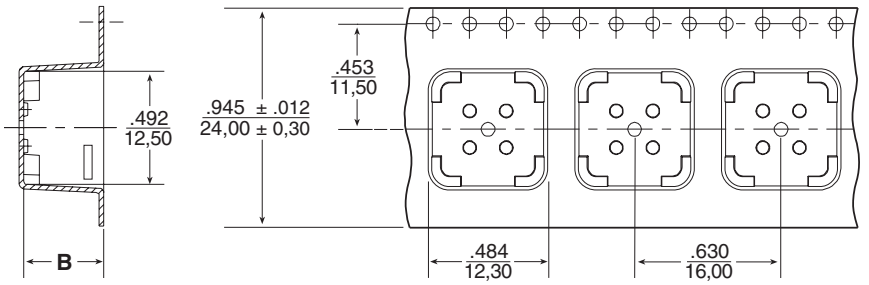


SUGGESTED PAD LAYOUTS



Parallel Connection Mode

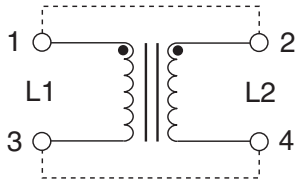
Series Connection Mode



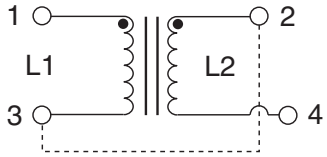
TAPE & REEL LAYOUT

USER DIRECTION OF FEED

Schematics



PARALLEL MODE



SERIES MODE

	PF0552NL	PF0553NL
Weight	3.2 grams	4.5 grams
Tape & Reel	500/reel	400/reel
"A" (height - in./mm)	0.236/6,00	0.315/8,00
"B" (height - in./mm)	0.246/6,25	0.343/8,70

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .004 / 0,10

Notes from Tables *(pages 27 - 42)*

1. Unless otherwise specified, all testing is made at 100kHz, 0.1VAC.
2. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P1166.102NL becomes P1166.102NL**T**). Pulse complies with industry standard Tape and Tape & Reel specification EIA481.
3. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
4. Temperature of the component (ambient plus temperature rise) must be within specified operating temperature range.
5. The rated current (Irated) as listed is either the saturation current or the heating current depending on which value is lower.
6. The saturation current, Isat, is the current at which the component inductance drops by the indicated percentage (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
7. The heating current, Idc, is the DC current required to raise the component temperature by the indicated delta (approximately). The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test.
8. In high volt*time (Et) or ripple current applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total loss (or temperature rise) for a given application, both copper losses and core losses should be taken into account.

Estimated Temperature Rise:

Trise = [Total loss (mW) / K0]$^{.833}$ (^{o}C)

Total loss = Copper loss + Core loss (mW)

Copper loss = I_{RMS}^2 x DCR (Typical) (mW)

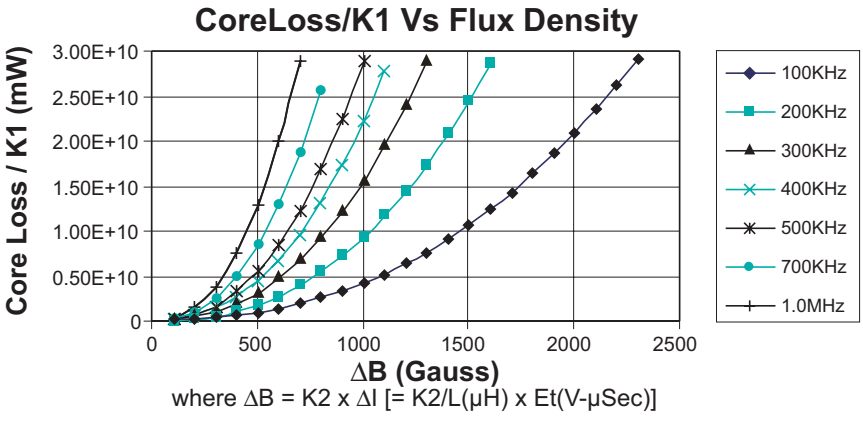
Irms = [I_{DC}^2 + $\Delta I^2/12$]$^{1/2}$ (A)

Core loss = K1 x f (kHz)$^{1.23}$ x Bac(Ga)$^{2.38}$ (mW)

Bac (peak to peak flux density) = K2 x ΔI (Ga)
[= K2/L(µH) x Et(V-µSec) (Ga)]
where f varies between 25kHz and 1MHz, and Bac is less than 2500 Gauss.

K2 is a core size and winding dependant value and is given for each p/n in the proceeding datasheets. K0 & K1 are platform and material dependant constants and are given in the table below for each platform.

Part No.	Trise Factor (K0)	Core Loss Factor (K1)
PG0085/86	2.3	5.29E-10
PG0087	5.8	15.2E-10
PG0040/41	0.8	2.80E-10
P1174	0.8	6.47E-10
PF0601	4.6	14.0E-10
PF0464	3.6	24.7E-10
PF0465	3.6	33.4E-10
P1166	1.9	29.6E-10
P1167	2.1	42.2E-10
PF0560NL	5.5	136E-10
P1168/69	4.8	184E-10
P1170/71	4.3	201E-10
P1172/73	5.6	411E-10
PF0552NL	8.3	201E-10
PF0553NL	7.1	411E-10



where ΔB = K2 x ΔI [= K2/L(µH) x Et(V-µSec)]

Take note that the component's temperature rise varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.

SMT POWER INDUCTORS

Power Beads - PA051XNL, PA121XNL, PA151XNL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Current Rating:** Over 70Apk
- **Inductance Range:** 72nH to 470nH
- **Four Package Sizes:**

PA0512/PA1212: 7.0 x 7.0 x 4.96mm Max
PA0511/PA1211: 10.2 x 7.0 x 4.96mm Max
PA0515: 11.2 x 11.2 x 9.0mm Max
PA0513/PA1513: 13.5 x 13.0 x 8.0mm Max

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [7]

Part Number	Inductance @0ADC (nH ±20%)	Inductance @Irated (nH TYP)	Irated [1] (ADC)	DCR [2] (mΩ)	Saturation Current [3] (TYP)		Heating [4] Current (A TYP)
					25°C	100°C	
PA0512NL and PA1212NL - 7.0mm x 7.0mm x 4.96mm Max							
PA0512.700NLT	72	72	31	0.32 ±9.4%	58	45	31
PA0512.101NLT	105	102	31		46	38	
PA0512.151NLT	150	134	24		30	24	
PA1212.700NLT	72	72	31	0.46 ±6.5%	58	45	31
PA1212.101NLT	105	102	31		46	38	
PA1212.151NLT	150	134	24		30	24	
PA0511NL and PA1211NL - 10.2mm x 7.0mm x 4.96mm Max							
PA0511.850NLT	85	85	31	0.39 ±7.7%	70+	70	31
PA0511.900NLT	100	100	31		70	65	
PA0511.101NLT	120	120	31		52	42	
PA0511.151NLT	155	150	31		40	36	
PA0511.221NLT	220	176	25		33	25	
PA1211.850NLT	85	85	31	0.55 ±7.3%	70+	70	31
PA1211.900NLT	100	100	31		70	65	
PA1211.101NLT	120	120	31		52	42	
PA1211.151NLT	155	150	31		40	36	
PA1211.221NLT	220	176	25		33	25	
PA0515NL - 11.2mm x 11.2mm x 9.0mm Max							
PA0515.221NLT	225	225	35	0.63 ±9.5%	68	59	35
PA0515.271NLT	270	280	35		50	44	
PA0515.321NLT	325	325	35		43	36	
PA0515.471NLT	470	380	23		30	23	
PA0513NL and PA1513NL - 13.5mm x 13.0mm x 8.0mm Max							
PA0513.211NLT	210	210	45	0.32 ±9.4%	71	64	45
PA0513.261NLT	260	260	45		60	55	
PA0513.321NLT	320	285	41		50	45	
PA0513.441NLT	440	363	30		35	30	
PA1513.211NLT	210	210	45	0.53 ±11.3%	71	64	45
PA1513.261NLT	260	260	45		60	55	
PA1513.321NLT	320	285	41		50	45	
PA1513.441NLT	440	363	30		35	30	

NOTES:

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
2. The nominal DCR tolerance is by design. The nominal DCR is measured from point ⓐ to point ⓑ, as shown below on the mechanical drawing.
3. The saturation current is the typical current which causes the inductance to drop by 20% at the stated ambient temperatures (25°C and 100°C).
4. The heating current is the DC current which causes the part temperature to increase by approximately 40°C. This current is determined by soldering the component on a typical application PCB, and then applying the current to the device for 30 minutes without any forced air cooling. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.

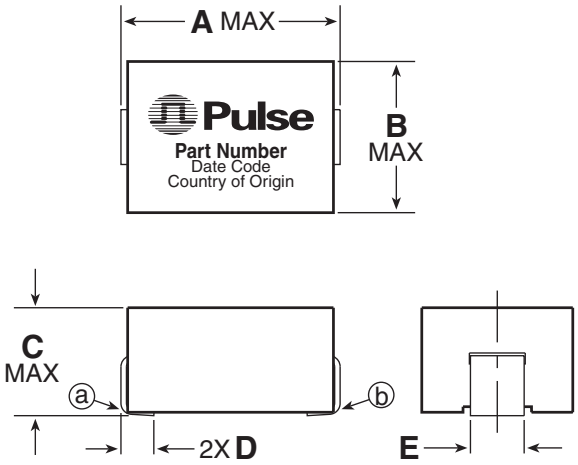
(continued)

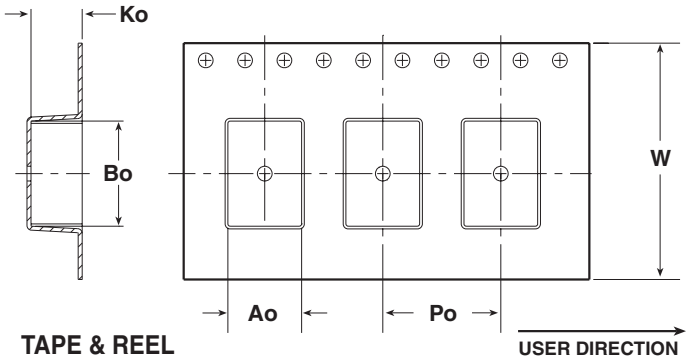
SMT POWER INDUCTORS
Power Beads - PA051XNL, PA121XNL, PA151XNL Series

NOTES *(continued)*:

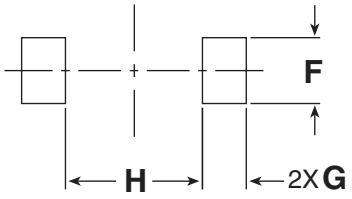
5. In high volt*time applications, additional heating in the component can occur due to core losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
6. Pulse complies to industry standard tape and reel specification EIA481.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical





TAPE & REEL LAYOUT

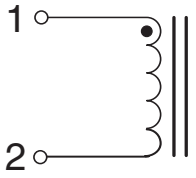


SUGGESTED PAD LAYOUT

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic



Dimensions (inches/mm)

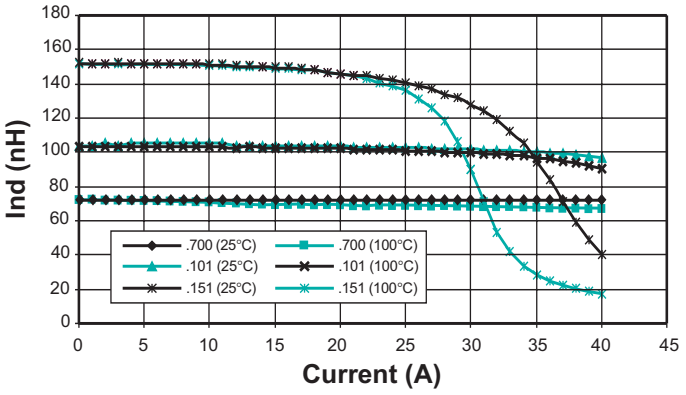
	Mechanical Dimensions								T&R Dimensions						
Part Number	**A** (MAX)	**B** (MAX)	**C** (MAX)	**D** (NOM)	**E** (NOM)	**F** (NOM)	**G** (NOM)	**H** (NOM)	**Ao**	**Bo**	**Ko**	**Po**	**W**	**Parts/Reel**	**Weight** (grams)
PA0512/PA1212	.276 / 7,00	.276 / 7,00	.195 / 4,96	.060 / 1,52	.098 / 2,49	.120 / 3,05	.080 / 2,03	.130 / 3,30	.295 / 7,49	.300 / 7,62	.205 / 5,21	.472 / 12,00	.630 / 16,00	1000	0.94
PA0511/PA1211	.400 / 10,20	.276 / 7,00	.195 / 4,96	.060 / 1,52	.098 / 2,49	.120 / 3,05	.080 / 2,03	.250 / 6,35	.295 / 7,49	.420 / 10,67	.205 / 5,21	.472 / 12,00	.945 / 24,00	1000	1.35
PA0515	.440 / 11,18	.440 / 11,18	.354 / 9,00	.100 / 2,54	.080 / 2,03	.100 / 2,54	.120 / 3,05	.210 / 5,33	.453 / 11,50	.453 / 11,50	.378 / 9,60	.945 / 24,00	.945 / 24,00	250	4.5
PA0513/PA1513	.530 / 13,46	.510 / 12,95	.315 / 8,00	.100 / 2,54	.200 / 5,08	.300 / 7,62	.125 / 3,18	.280 / 7,11	.525 / 13,34	.525 / 13,34	.320 / 8,13	.630 / 16,00	.945 / 24,00	400	5.7

SMT POWER INDUCTORS
Power Beads - PA051XNL, PA121XNL, PA151XNL Series

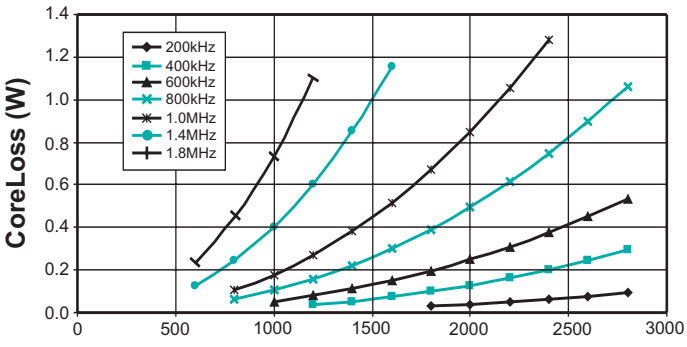
Pulse
A TECHNITROL COMPANY

PA0512NL & PA1212NL

Inductance vs Current

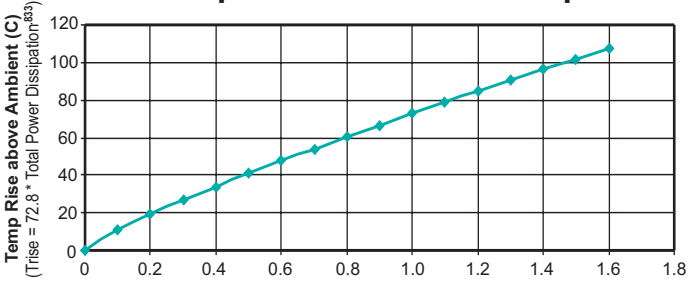


CoreLoss vs Flux Density



where ΔB = .86 * L(nH) * ΔI

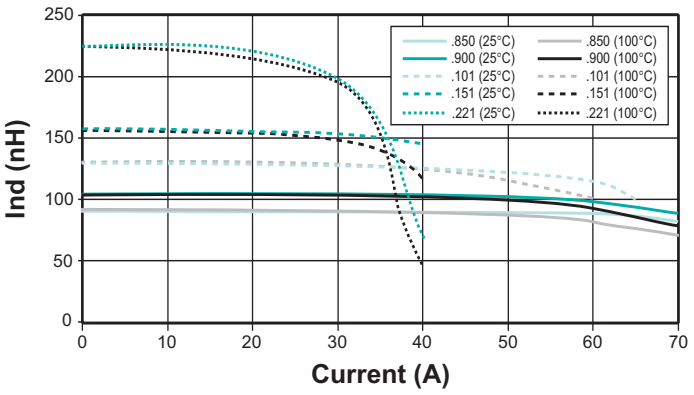
Temp Rise vs Power Dissipation



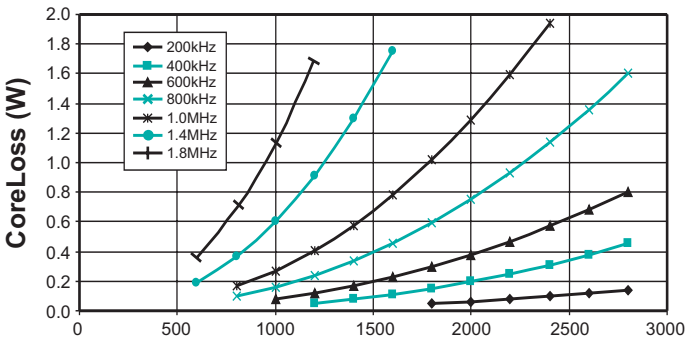
Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = $I_{RMS}^2 * R_{DC}$ (mΩ) / 1000
CoreLoss = (from graph)

PA0511NL & PA1211NL

Inductance vs Current

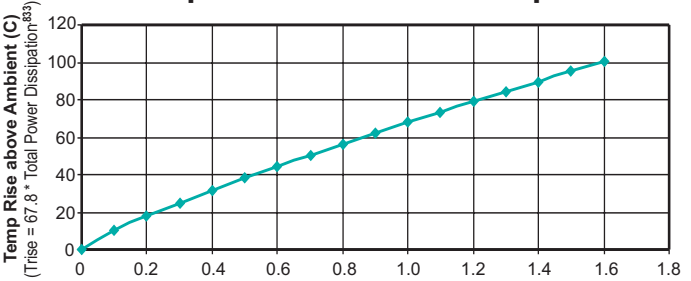


CoreLoss vs Flux Density



where ΔB = .57 * L(nH) * ΔI

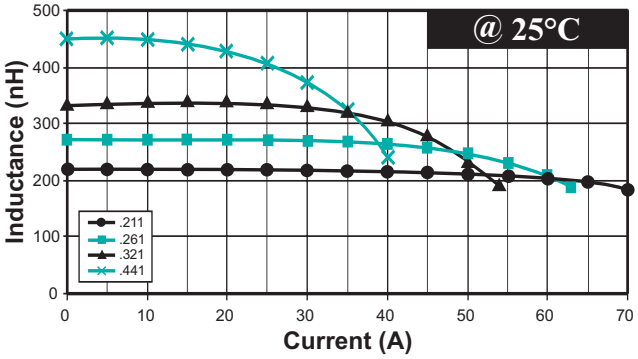
Temp Rise vs Power Dissipation

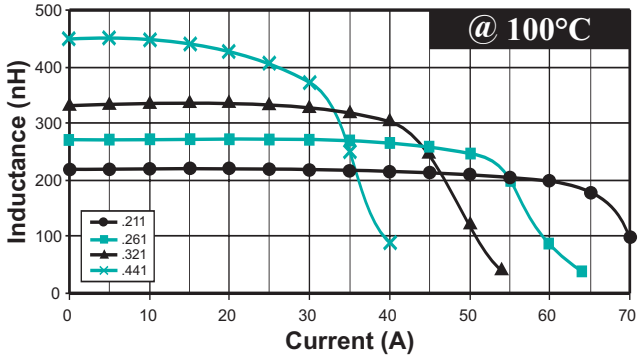


Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = $I_{RMS}^2 * R_{DC}$ (mΩ) / 1000
CoreLoss = (from table)

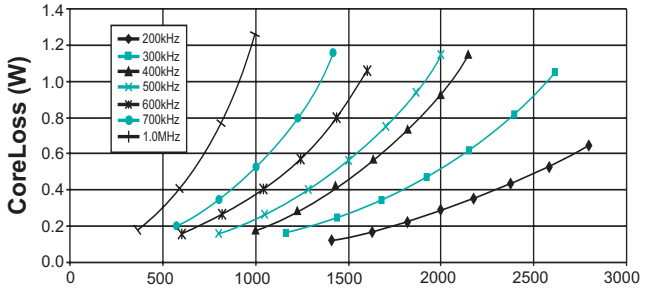
PA0513NL & PA1513NL

Typical Inductance vs Current



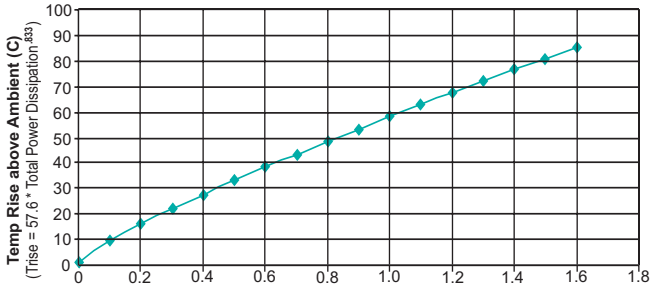


CoreLoss vs Flux Density



ΔB (gauss) where ΔB = .23 * L(nH) * ΔI

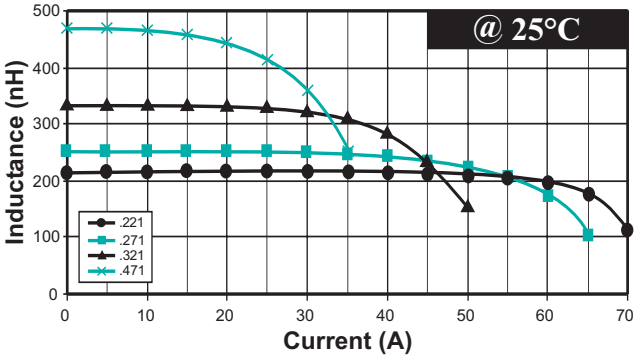
Temp Rise vs Power Dissipation

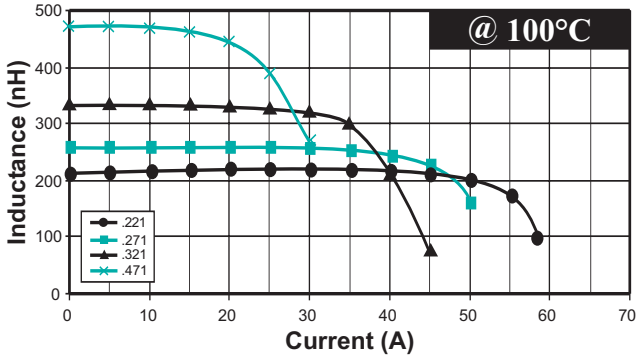


Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = I_{RMS}^2 * R_{DC} (mΩ) / 1000 - **CoreLoss** = (from graph)

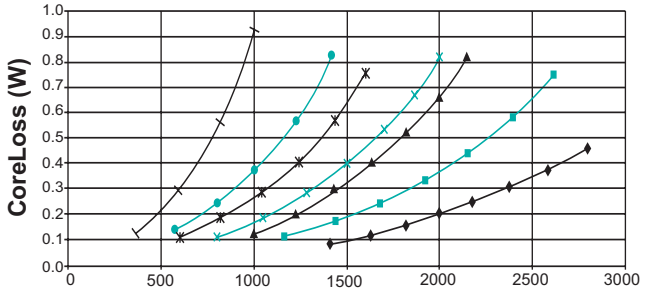
PA0515NL

Typical Inductance vs Current



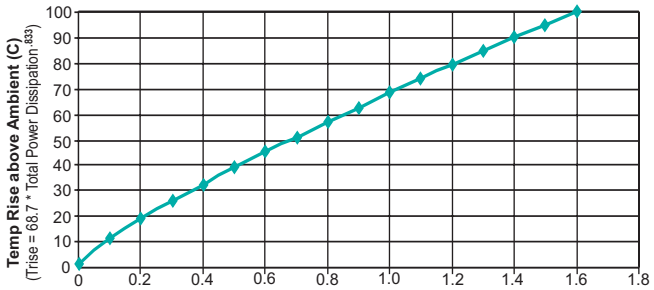


CoreLoss vs Flux Density



ΔB (gauss) where ΔB = .25 * L(nH) * ΔI

Temp Rise vs Power Dissipation



Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = I_{RMS}^2 * R_{DC} (mΩ) / 1000 - **CoreLoss** = (from graph)

SMT POWER INDUCTORS
Power Beads - PA1320NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- **Current Rating:** Over 75Apk
- **Inductance Range:** 120nH to 300nH
- **Height:** 6.5mm Max
- **Footprint:** 10.4mm x 8.0mm Max

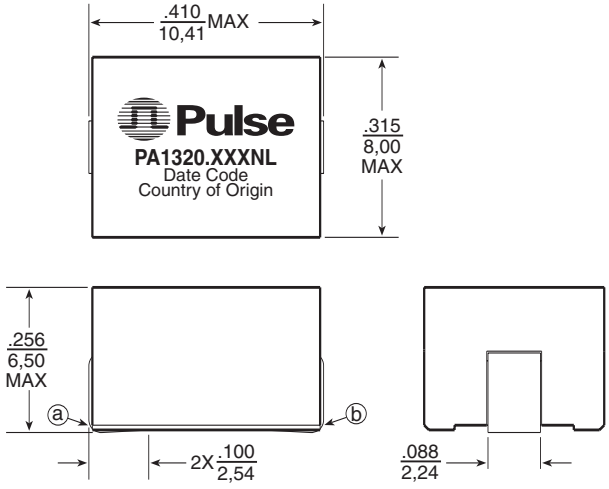
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [7]

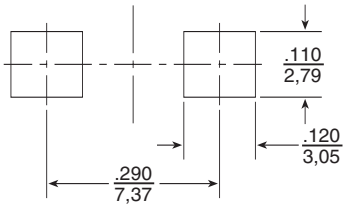
Part Number	Inductance @0Adc (nH ±20%)	Inductance @Irated (nH TYP)	Irated [1] (Adc)	DCR [2] (mΩ)	Saturation Current [3] (A TYP)		Heating [4] Current (A TYP)
					25°C	100°C	
PA1320.121NL	120	120	40	0.48 ±8%	74	65	40
PA1320.141NL	140	140	40		66	52	
PA1320.171NL	180	174	40		52	44	
PA1320.221NL	215	185	40		50	42	
PA1320.301NL	310	250	30		30	26	

NOTES:

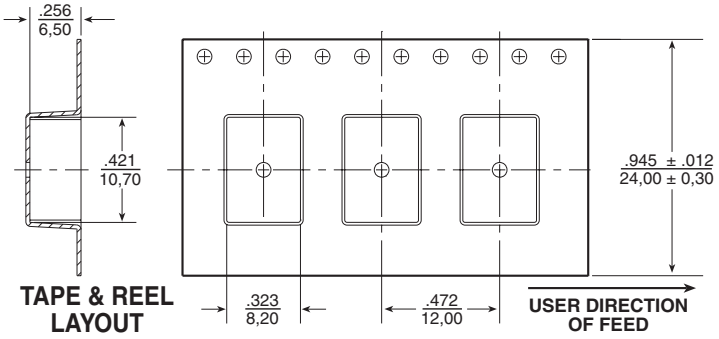
1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
2. The nominal DCR tolerance is by design. The nominal DCR is measured from point ⓐ to point ⓑ, as shown below on the mechanical drawing.
3. The saturation current is the typical current which causes the inductance to drop by 20% at the stated ambient temperatures (25°C and 100°C). This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
4. The heating current is the DC current which causes the part temperature to increase by approximately 40°C. This current is determined by soldering the component on a typical application PCB, and then applying the current to the device for 30 minutes with 25LFM of forced air cooling.
5. In high volt*time applications, additional heating in the component can occur due to core losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
6. Pulse complies to industry standard tape and reel specification EIA481.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical





SUGGESTED PAD LAYOUT



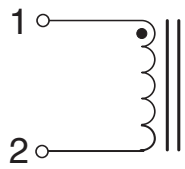
TAPE & REEL LAYOUT

Weight . . . . . .2.05 grams
Tape & Reel 750/reel

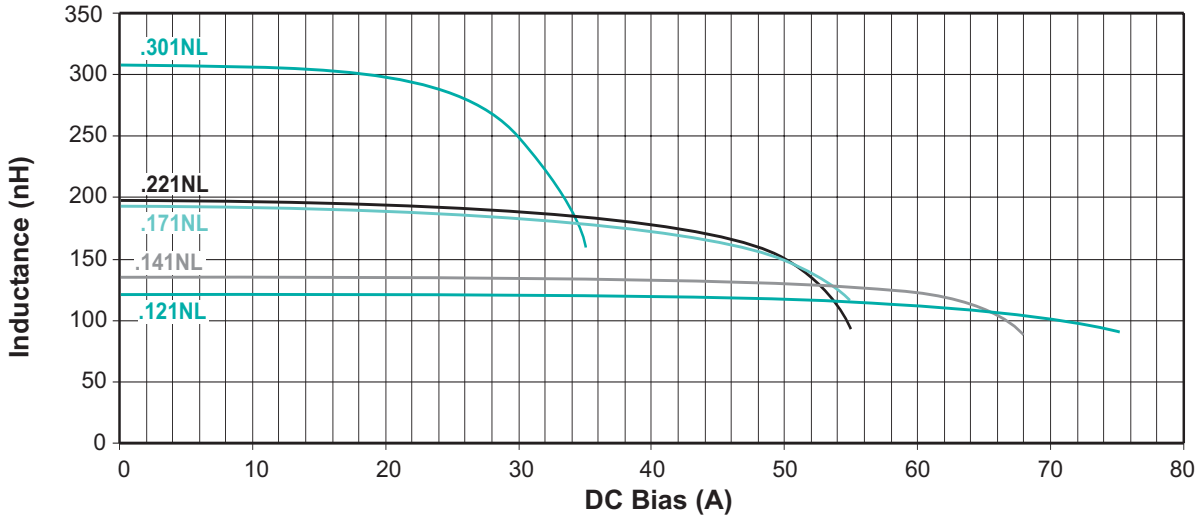
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

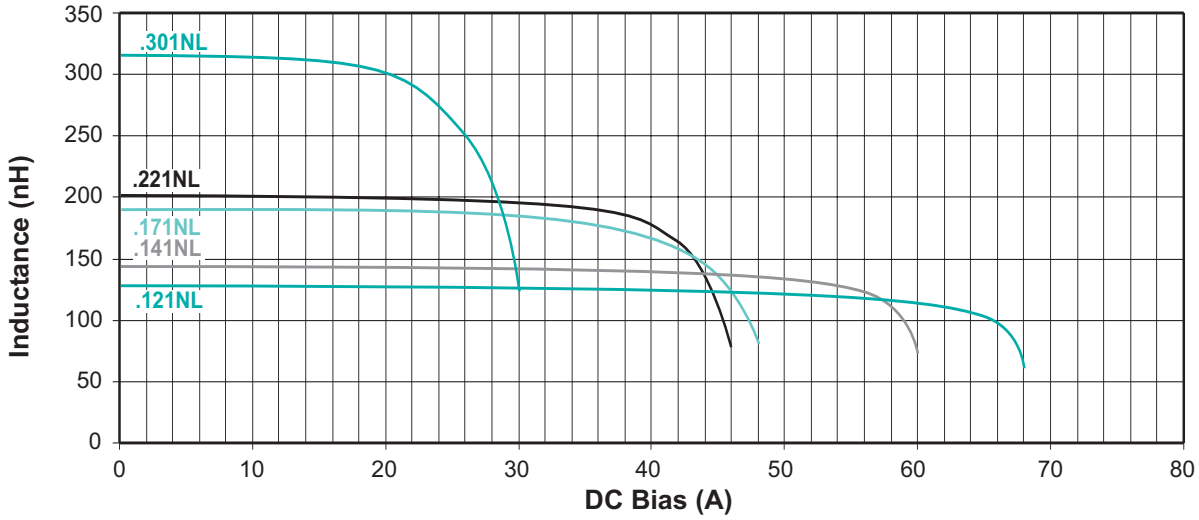
Schematic



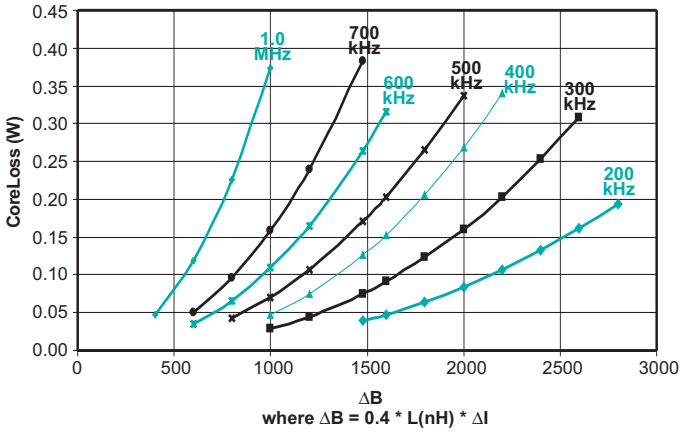
Typical Inducance vs DC Bias @ 25°C



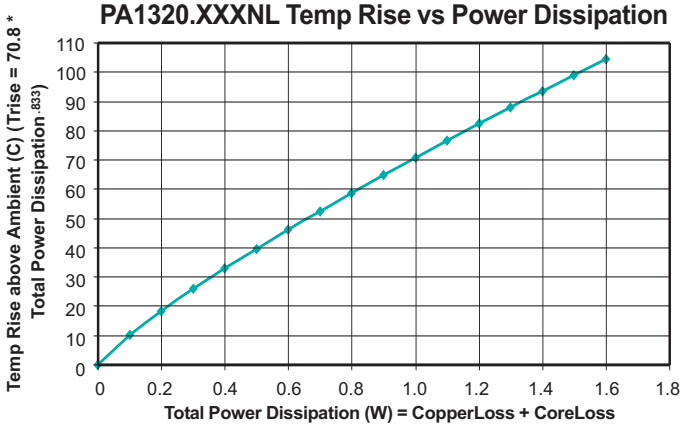
Typical Inducance vs DC Bias @ 100°C



CoreLoss (W)



PA1320.XXXNL Temp Rise vs Power Dissipation



SMT POWER INDUCTORS
Power Beads - PA0766NL Series

- Two independent inductors integrated into a single package
- Less board space and lower cost than two separate inductors
- Ideal for multi-phase and single phase applications
- **Current Rating:** 76Apk
- **Inductance Range:** 148nH to 1140nH
- **Footprint:** 14.0 x 13.5mm Max
- **Height:** 7.0mm Max

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [9]

Dual Phase Integrated Inductor Specifications for Multi-phase Systems[1]

Part Number	Inductance @Irated (nH TYP)		Irated [4] (ADC)		DCR/phase [1,2] (mΩ)		Inductance @0ADC (nH ± 20%)		Saturation Current [5] (ADC)		Heating [6] Current (ADC)	
	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2	L1	L2
PA0766.281NLT	285	285	26	26	0.75	0.75	296	296	38	38	26	26
PA0766.341NLT	325	325	26	26			352	352	31.5	31.5		
PA0766.421NLT	395	395	25	25			435	435	25	25		
PA0766.561NLT	495	495	18.5	18.5			568	568	18.5	18.5		

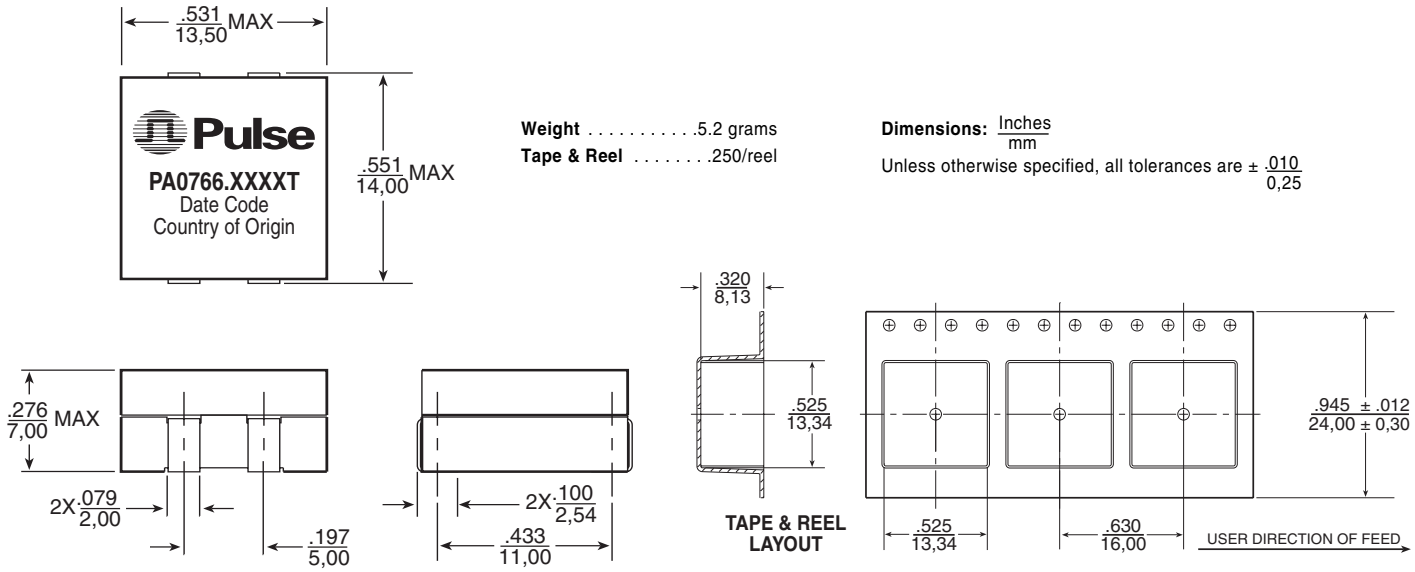
Single Phase Inductor Specifications for Series and Parallel Connections[1]

Part Number	Inductance @Irated (nH TYP)	Irated [4] (ADC)	DCR [1,2] (mΩ)	Inductance @0ADC (nH ± 20%)	Saturation Current [5] (ADC)	Heating Current [6] (ADC)	Connection
PA0766.281NLT	148	52	0.38	148	76	52	Parallel
PA0766.341NLT	160	52		176	63		
PA0766.421NLT	180	50		218	50		
PA0766.561NLT	240	37		284	37		
PA0766.281NLT	635	26	1.50	592	38	26	Series
PA0766.341NLT	700	26		704	31.5		
PA0766.421NLT	770	25		870	25		
PA0766.561NLT	1000	18.5		1140	18.5		

NOTES:

1. The **PA0766** consists of two separate and independent inductors integrated into a single package. The two inductors can be used for two separate phases within dual output or multi-phase application or they can be connected in series or parallel to form a single inductor within a single phase application.
2. The nominal DCR has a tolerance of ±9%. This tolerance is guaranteed by design, but is not a manufacturing production test. The nominal DCR is measured from point ⓐ to point ⓑ, as shown below on the mechanical drawing.
3. For manufacturing production test, a maximum DCR value of 0.9mΩ per phase is used.
4. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
5. The saturation current is the current which causes the inductance to drop a maximum of 26% from the nominal inductance at 0Adc at the stated ambient temperatures (25°C). This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
6. The heating current is the DC current which causes the part temperature to increase by approximately 40°C. This current is determined by soldering the component on a typical application PCB, and then applying the current to the device for 30 minutes.
7. In high volt*time applications, additional heating in the component can occur due to core losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
8. Pulse complies with industry standard tape and reel specification EIA481.
9. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

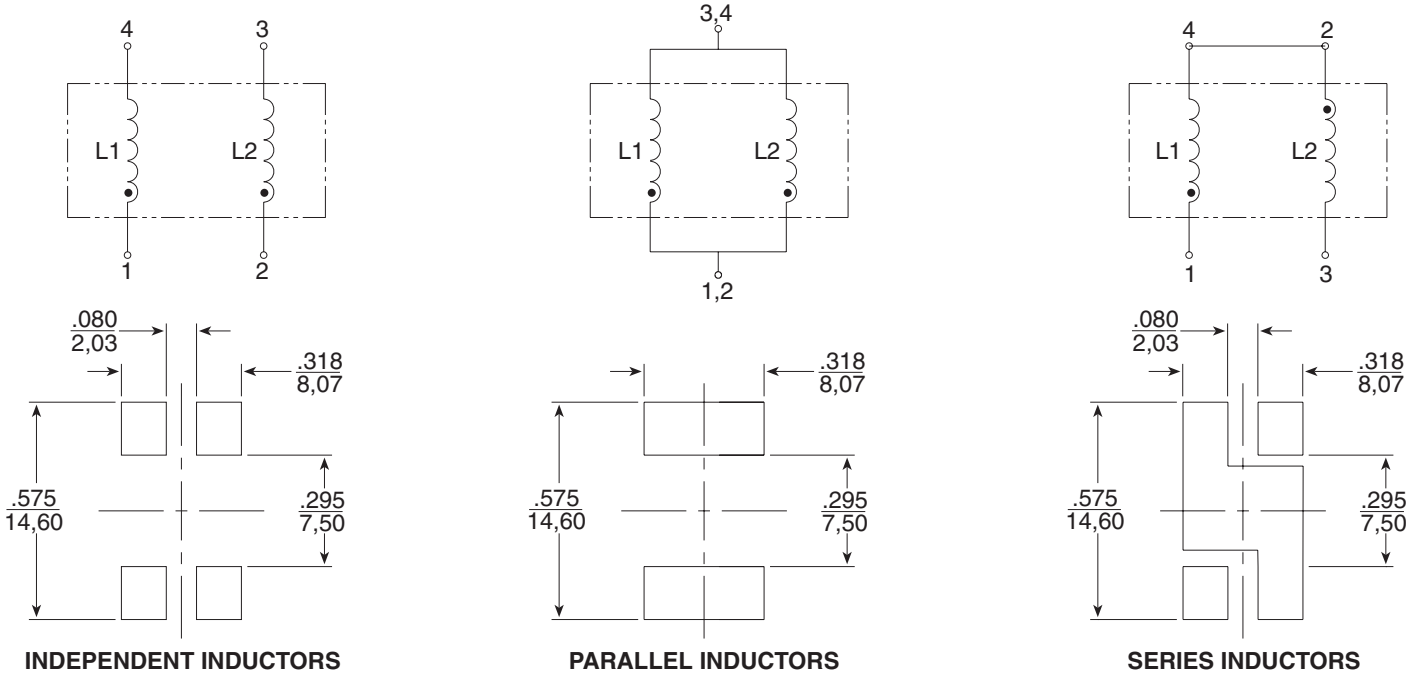
Mechanical



Weight . . . . . .5.2 grams
Tape & Reel 250/reel

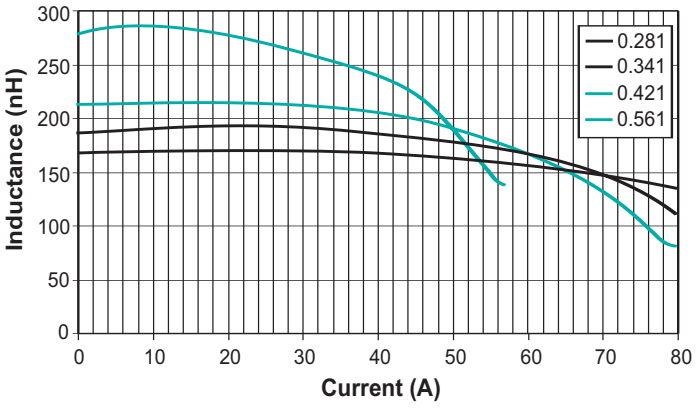
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematics and Footprints

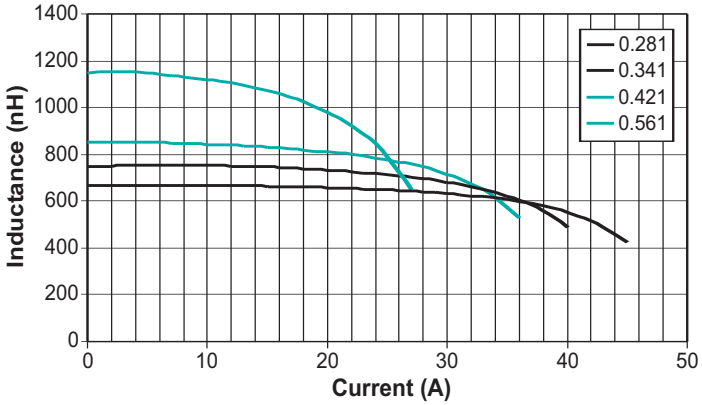


Typical Inductance vs Current

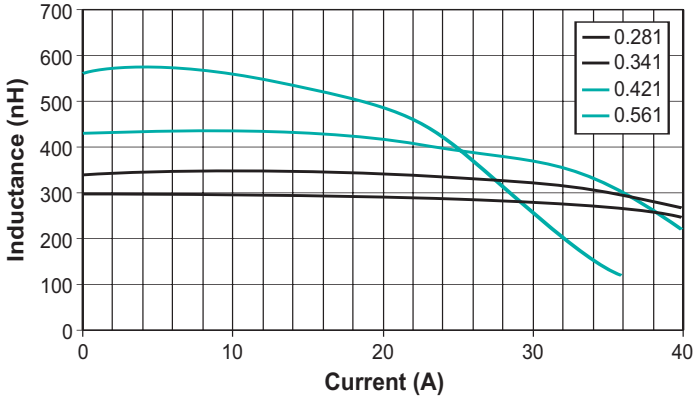
Single Inductor Parallel Connection



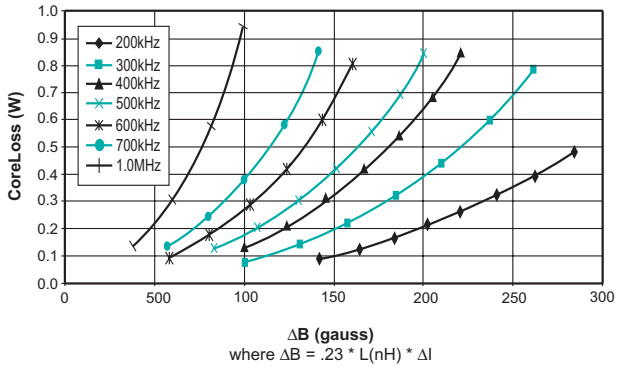
Single Inductor Series Connection



Two Independant Inductors

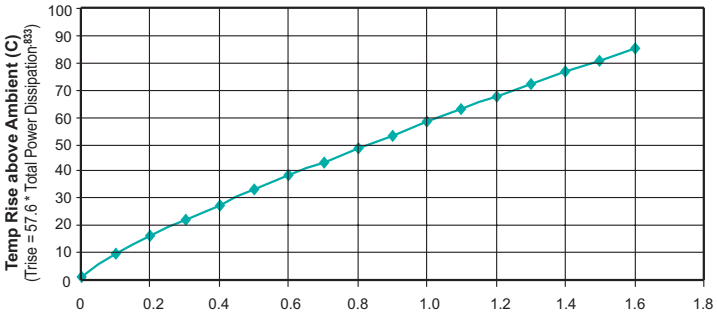


CoreLoss vs Flux Density



ΔB (gauss)
where ΔB = .23 * L(nH) * ΔI

Temp Rise vs Power Dissipation

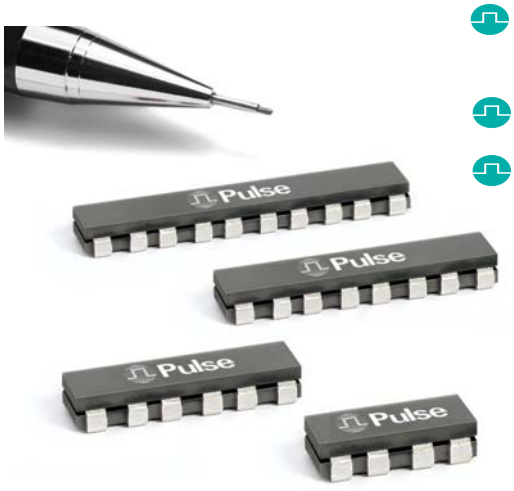


Total Power Dissipation (W) = CopperLoss + CoreLoss
CopperLoss = Irms ² * Rdc (mΩ) / 1000
CoreLoss = (from graph)

NOTE: When inductors are used as two independant inductors in multi-phase applications, the copper loss in both phases needs to be calculated.

SMT POWER INDUCTORS

Power Beads - PA131xNL Series Coupled Inductors



- Two, three, four and five phase Coupled Inductors for VR10/VR11 applications
- For use only with Volterra VT1105M®, VT1115M® chipsets
- **Coupled Inductors enable:**
  - Phase ripple current reduction due to AC magnetic field cancellation within the inductor core
  - Improved efficiency due to lower peak currents
  - Reduction in required output capacitance
  - Faster transient response due to the ability to use lower effective inductance values
  - Reduced overshoot/undershoot during load transients
  - Frequency range up to 2MHz

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Pulse Part No.	Number of Coupled Phases	Equivalent[1] Transient Inductance per Phase (nH)	Irated[2] per Phase (Adc)	Magnetizing Inductance per Phase[3] nH ±20%, 0Adc					Magnetizing Inductance per Phase[4] nH MIN, 5Adc					DCR/Phase[5] (mΩ)	
				L1 (1-2)	L2 (3-4)	L3 (5-6)	L4 (7-8)	L5 (9-10)	L1 (1-2)	L2 (3-4)	L3 (5-6)	L4 (7-8)	L5 (9-10)	TYP	MAX
PA1312NL	2	50	40	310	310	-	-	-	240	240	-	-	-	0.425	0.5
PA1313NL	3	50	40	370	450	370	-	-	285	350	285	-	-		
PA1314NL	4	50	40	370	490	490	370	-	285	385	385	285	-		
PA1315NL	5	50	40	370	470	490	470	390	285	365	385	365	285		

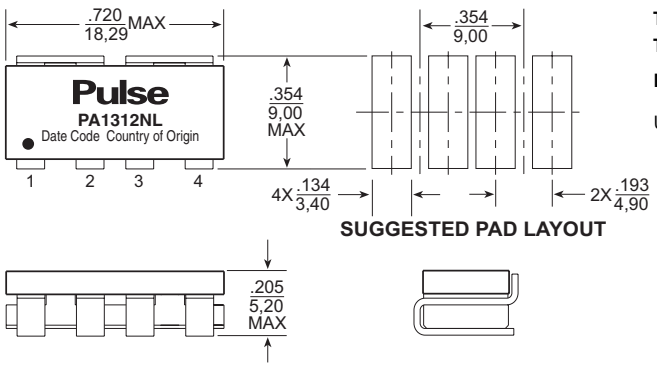
NOTES:

1. In a non-coupled multi-phase topology, the power supply sees the same inductance during transient and steady-state conditions. As a result, any attempt to lower the inductance to improve transient response has the negative result of increasing ripple and peak currents throughout the system during steady-state operation. However, in a coupled inductor multi-phase topology, the interaction of magnetic fields from each phase enables an overall reduction in ripple current during steady-state operation and a lower equivalent inductance during transient operation. The equivalent transient inductance per phase, as listed, represents the actual value of inductance that would be required in an non-coupled topology to realize the same transient performance. This value is achieved by core and winding geometry and is not directly measured by Pulse. For more information on the operation of the coupled inductor topology, please contact Volterrra.
2. The rated current per phase is based on Volterra's testing of the Pulse coupled inductors.
3. The magnetizing inductance per phase is the measured inductance (at 0Adc) across each phase when all other phases are open-circuit. This inductance is a Pulse production measurement. Although the equivalent inductance per phase during steady-state is significantly higher then the equivalent transient inductance as listed, it should not be confused with the magnetizing inductance.
4. The magnetizing inductance per phase is the measured inductance (at 5Adc) across each phase when all other phases are open-circuit. This inductance is a Pulse production measurement. This test is performed to verify that the inductor can withstand a phase-to-phase load imbalance of 5Adc without saturating.
5. The nominal value of DCR/phase is for reference only. For production testing, the maximum limit is used.
6. The VT1105M® and VT1115M® are registered trademarks of Volterra Semiconductor Corporation.

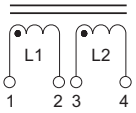
Mechanical

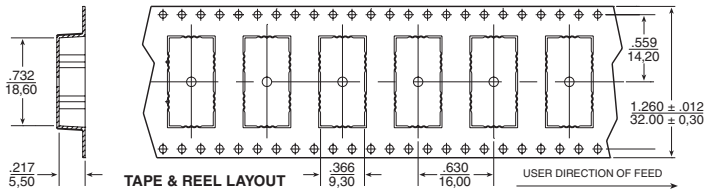
Schematic

PA1312NL



Weight . . . . . .3.0 grams
Tape & Reel 650/reel
Tray 60/tray
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25





SMT POWER INDUCTORS

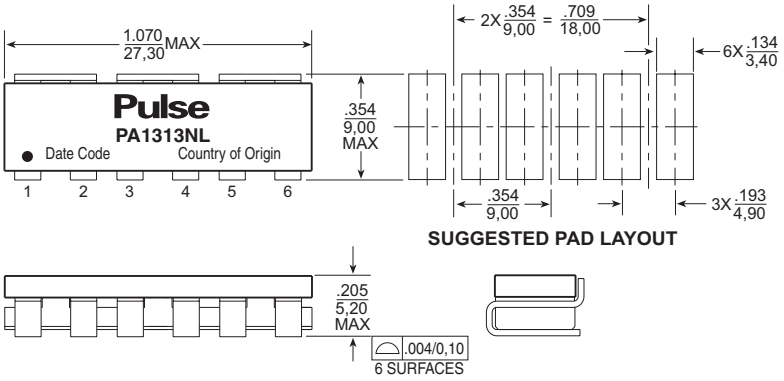
Power Beads - PA131xNL Series Coupled Inductors

Pulse
A TECHNITROL COMPANY

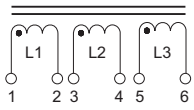
Mechanical

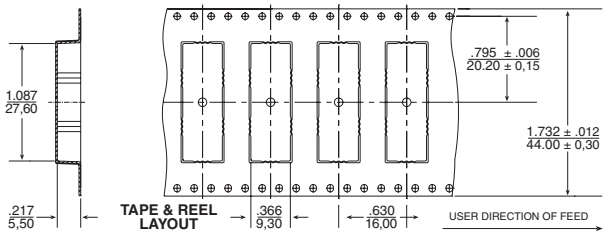
Schematic

PA1313NL

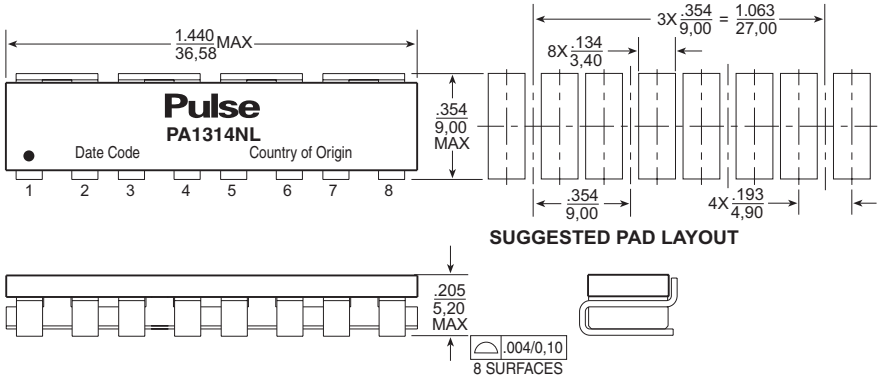


Weight . . . . . .4.5 grams
Tape & Reel 650/reel
Tray 45/tray

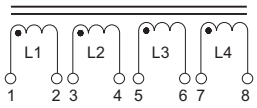


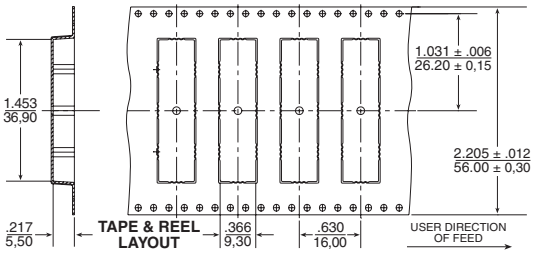


PA1314NL

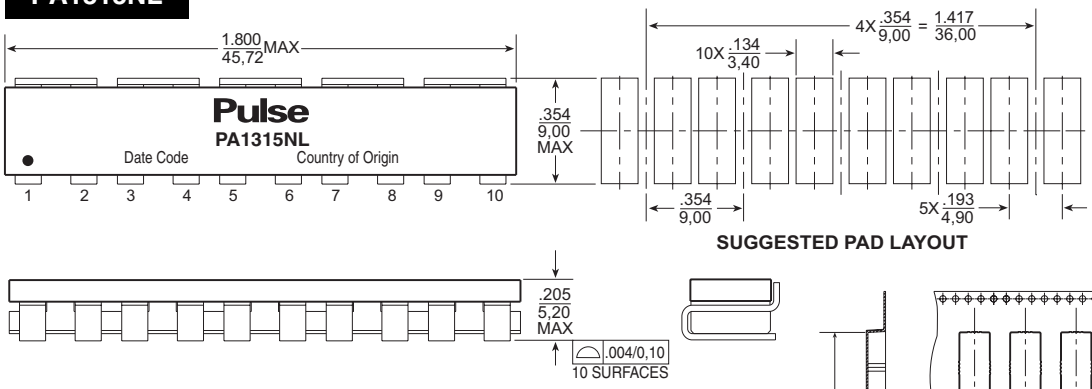


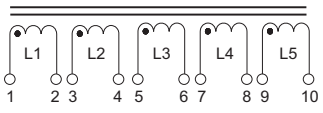
Weight . . . . . .6.0 grams
Tape & Reel . . .550/reel
Tray 30/tray



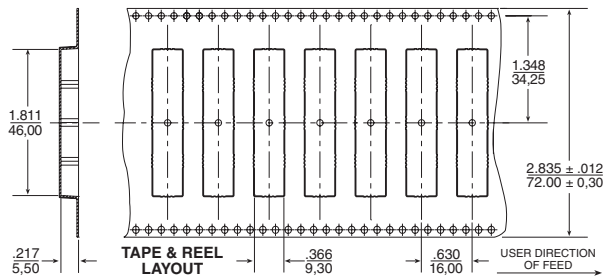


PA1315NL





Weight . . . . . .7.5 grams
Tape & Reel 500/reel
Tray 30/tray



All Part Numbers:

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

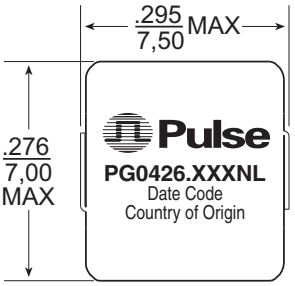
SMT POWER INDUCTORS
Flat Coils - PG0426NL Series

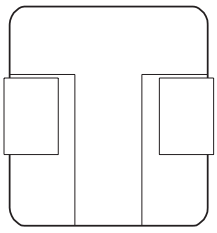
- **Height:** 3.2mm Max
- **Footprint:** 7.5mm x 7.0mm Max
- **Current Rating:** 60Apk
- **Inductance Range:** 0.1µH to 1.5µH
- High temperature core material, no thermal aging below 150°C

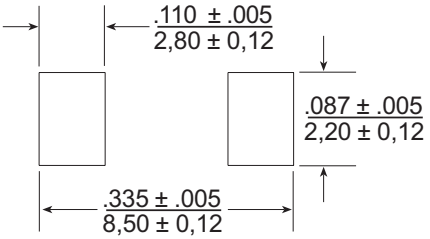
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part [6] Number	Inductance @0Adc (µH ±20%)	DCR (mΩ) TYP	DCR (mΩ) MAX	Saturation [2] Current Isat (A)	Heating [3] Current Idc (A)	Core Loss [4] Factor K2
PG0426.101NL	0.10	1.3	1.5	60	34.5	44.4
PG0426.151NL	0.15	2.0	2.2	57	26.0	40.0
PG0426.201NL	0.20	2.0	2.2	46	26.0	53.3
PG0426.221NL	0.22	2.0	2.2	40	26.0	58.6
PG0426.331NL	0.33	3.2	3.4	34	20.0	62.8
PG0426.471NL	0.47	3.2	3.4	26	20.0	89.4
PG0426.681NL	0.68	5.2	5.4	25	15.5	100.6
PG0426.821NL	0.82	7.8	8.0	24	13.0	99.3
PG0426.102NL	1.00	7.8	8.0	22	13.0	121.1
PG0426.152NL	1.50	11.5	11.8	18	9.0	153.6

Mechanical

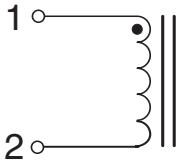






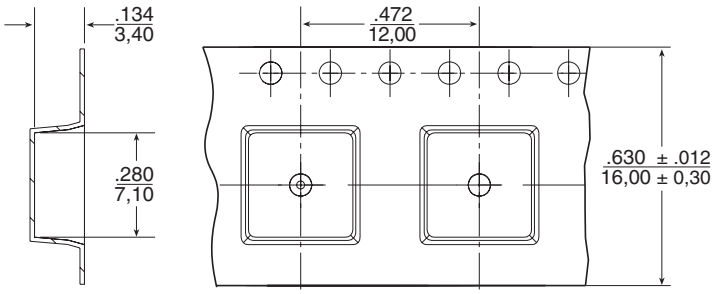
SUGGESTED PAD LAYOUT

Schematic



Weight.....0.6 grams
Tape & Reel 1400/reel
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25



TAPE & REEL LAYOUT

USER DIRECTION OF FEED

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the standard operating temperature range.
2. The saturation current, I_{SAT}, is the current at which the component inductance drops by 30% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
3. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
4. Core loss approximation is based on published core data:

   Core Loss = K1 * $(f)^{1.33}$ * $(K2\Delta I)^{2.51}$

   Where: Core Loss = in Watts

   K1= 1.4E-11

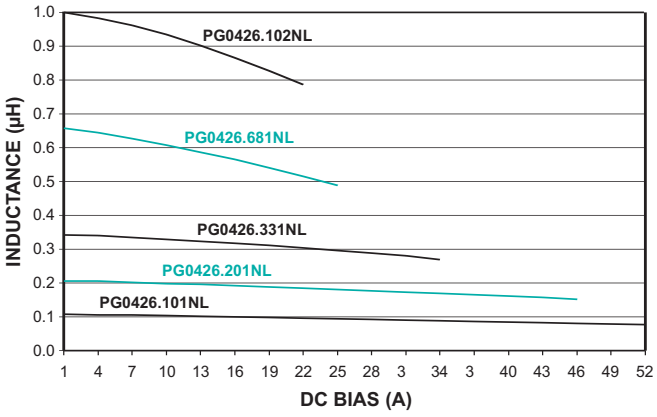
   f = switching frequency in kHz

   K1 & K2 = core loss factors

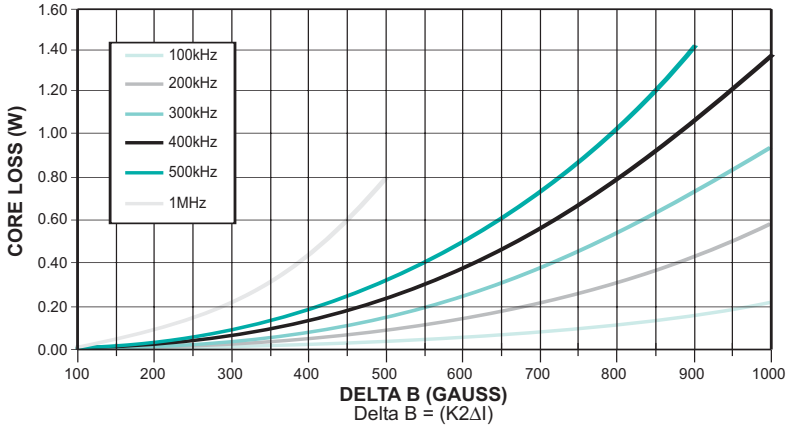
   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
5. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.
6. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0426.101NL becomes PG0426.101NL**T**). Pulse complies to industry standard tape and reel specification EIA481.

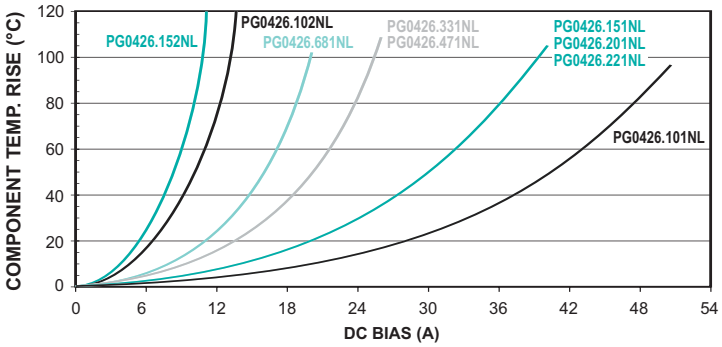
Inductance vs Current Characteristics



Typical Core Loss vs Peak Flux Density



Typical Component Temperature vs DC Bias Current



SMT POWER INDUCTORS
Flat Coils - PG0255NL Series

Pulse
A TECHNITROL COMPANY

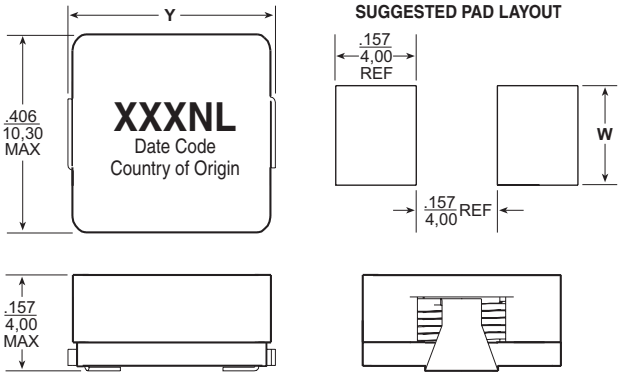
RoHS COMPLIANT

- **Height:** 4.0mm Max
- **Footprint:** 11.5mm x 10.3mm Max
- **Heating Current Rating:** up to 51A
- **Inductance Range:** 0.17µH to 2.1µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [1]

Part Number	Inductance [2] @Irated (TYP)	Irated [3] (A)	Controlled Electrical Specifications				Saturation [5] Current ISAT (A)	Heating [6] Current IDC (A)	Core Loss [7] Factor	
			DCR (mΩ)		Inductance @0ADC (µH ±15%)	Inductance [4] @Bias (µH ±20%)				
			TYP	MAX					K1	K2
PG0255.201NL	0.17	30	0.45	0.55	0.20	0.18 @ 21Adc	30	51	6.20e-10	47
PG0255.401NL	0.34	29	1.05	1.15	0.40	0.36 @ 17Adc	29	34	6.20e-10	56
PG0255.601NL	0.51	27	1.70	1.87	0.60	0.56 @ 15Adc	28	27	6.20e-10	60
PG0255.102NL	0.90	21	2.80	3.20	1.00	0.87 @ 26Adc	27	21	6.20e-10	78
PG0255.152NL	1.35	16	4.50	5.00	1.50	1.20 @ 17Adc	22	16	6.20e-10	95
PG0255.182NL	1.57	16	4.50	5.00	1.80	1.57 @ 16Adc	21	16	6.20e-10	115
PG0255.222NL	2.10	13	6.60	7.00	2.20	1.80 @ 20Adc	20	13	6.20e-10	118

Mechanical

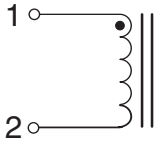


Weight . . . . . .1.8 grams
Tape & Reel 850/reel

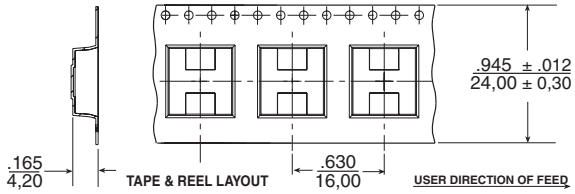
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic



Part No.	"Y" Dimension (in./mm MAX)	"W" Dimension (±0.12mm)
PG0255.201NL	.453/11,50	.177/4,50
PG0255.401NL	.453/11,50	.146/3,70
PG0255.601NL	.453/11,50	.143/3,30
PG0255.102NL	.425/10,80	.143/3,30
PG0255.152NL	.425/10,80	.143/3,30
PG0255.182NL	.425/10,80	.143/3,30
PG0255.222NL	.425/10,80	.143/3,30

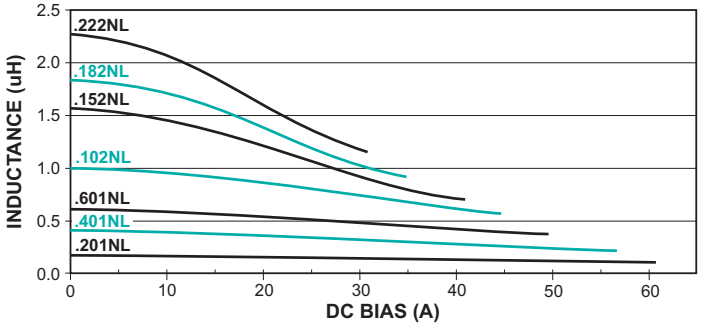


Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The inductance at Bias is the controlled inductance value measured after subjecting the part to the listed dc bias current.
5. The saturation current, ISAT, is the current at which the component inductance drops by 20% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
6. The heating current, IDC, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
7. Core loss approximation is based on published core data:

   Core Loss = K1 * $(f)^{1.48}$ * $(K2\Delta I)^{1.97}$

Typical Inductance vs DC Bias



Where: Core Loss = in Watts
f = switching frequency in kHz
K1 & K2 = core loss factors
ΔI = delta I across the component in Ampere
K2ΔI = one half of the peak to peak flux density across the component in Gauss

8. Unless otherwise specified, all testing is made at 100kHz, 0.1VAC.
9. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0255.601NL becomes PG0255.601NL**T**). Pulse complies to industry standard tape and reel specification EIA481.

SMT POWER INDUCTORS
Flat Coils - PG0437NL Series

Pulse
A TECHNITROL COMPANY

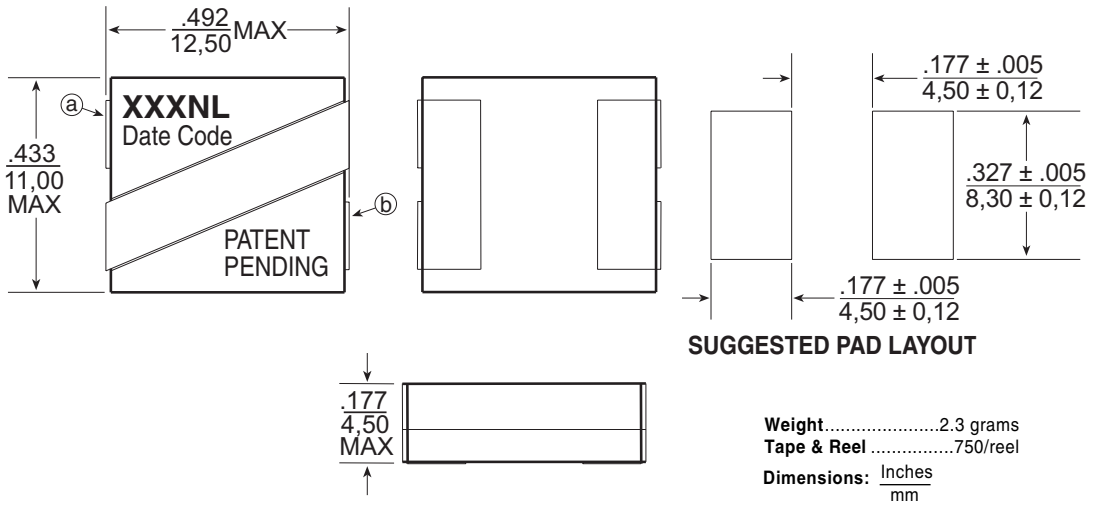
RoHS COMPLIANT

- **Height:** 4.5mm Max
- **Footprint:** 12.5mm x 11.0mm Max
- **Peak Current Rating:** up to 39A
- **Frequency Range:** 100kHz to 1MHz
- **Ferrite Core:** No thermal ageing, very low core losses
- Patent Pending

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part[8] Number	Inductance[2] @Irated (nH TYP)	Irated[3] (A)	DCR (mΩ ±10%)	Inductance @0ADC (nH ±20%)	Saturation[4] Current Isat (A TYP)		Heating[5] Current IDC (A TYP)	Core Loss[6] Factor K2
					25°	100°		
PG0437.321NL	300	33	0.85	320	39	33	38	43.5
PG0437.401NL	362	28		400	31	28		54.3
PG0437.451NL	390	26		450	28	26		61.2
PG0437.601NL	530	18		600	21	18		81.5

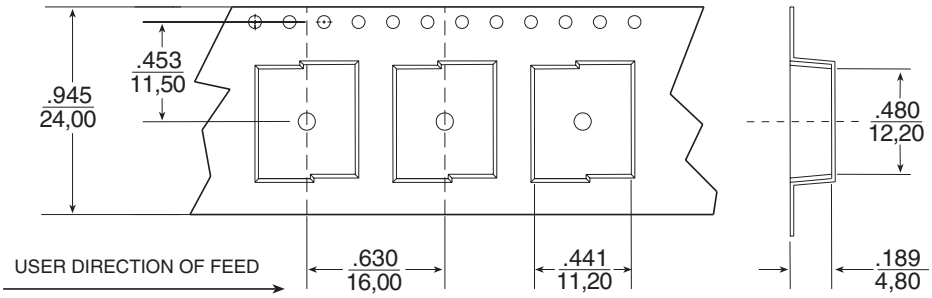
Mechanical



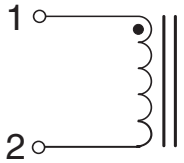
Weight.....2.3 grams
Tape & Reel 750/reel
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

TAPE & REEL LAYOUT



Schematic

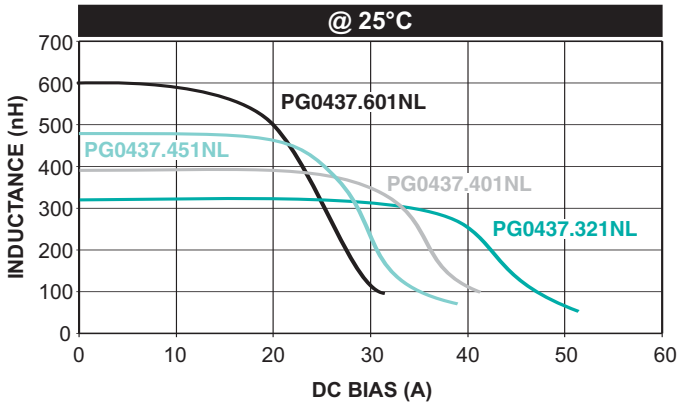


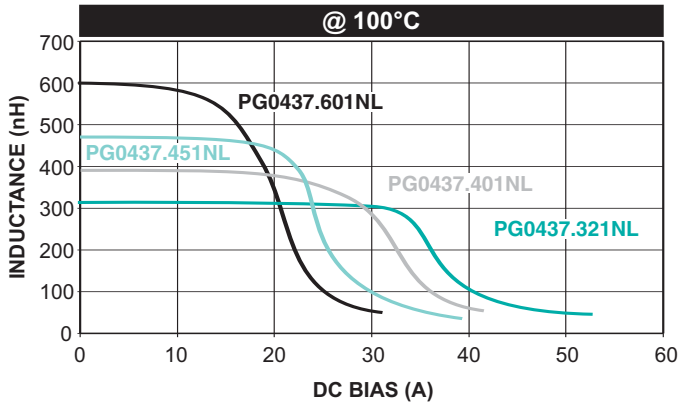
SMT POWER INDUCTORS
Flat Coils - PG0437NL Series

Notes from Tables

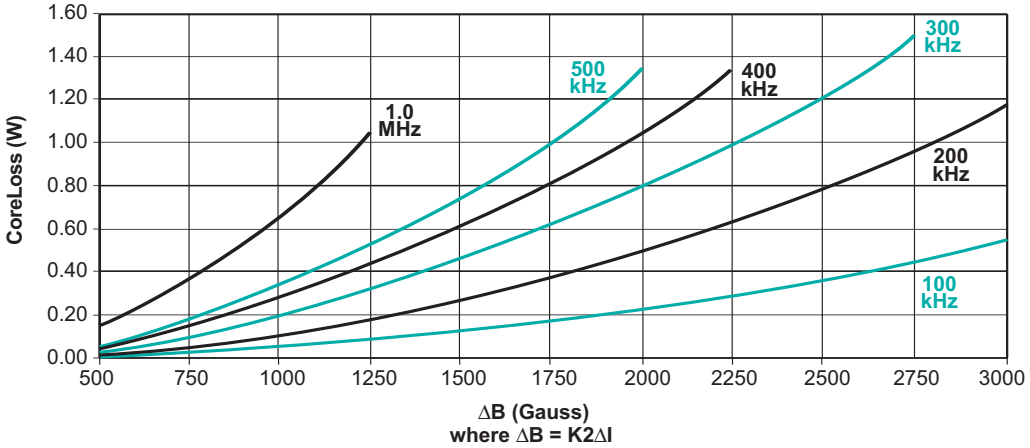
1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C, 100°C, or the heating current.
4. The saturation current, I_{SAT}, is the current at which the component inductance drops by 20% (typical) at an ambient temperature of 25°C and 100°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:
   Core Loss = $K1 * (f)^{1.12} * (K2\Delta I)^{2.17}$
   Where: Core Loss = in Watts
   K1= 8.74E-11
   f = switching frequency in kHz
   K1 & K2 = core loss factors
   ΔI = delta I across the component in Ampere
   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.
8. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0437.401NL becomes PG0437.401NL**T**). Pulse complies to industry standard tape and reel specification EIA481.

Typical Inductance vs DC Bias





Typical Core Loss vs Peak Flux Density

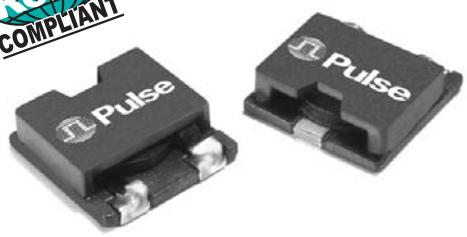


SMT POWER INDUCTORS

Flat Coils - PG0006NL and PG0138NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

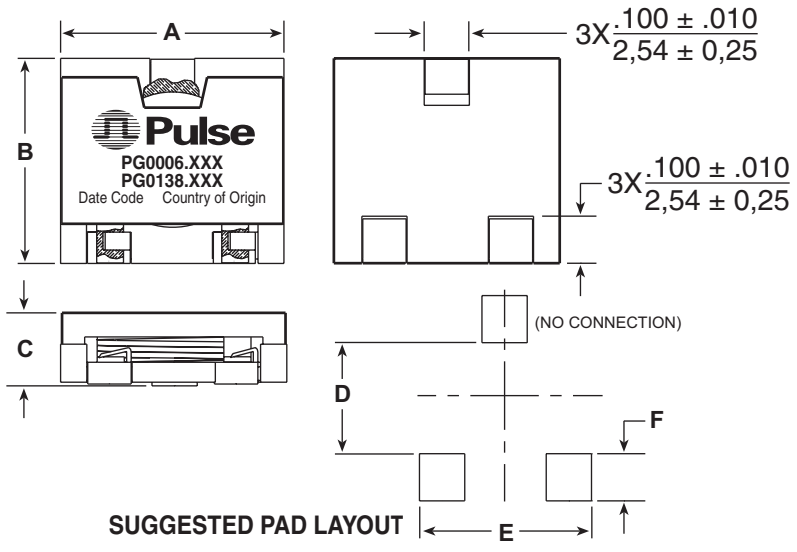


- **Height:** 6.0mm Max (PG0006) - 4.8mm Max (PG0138)
- **Footprint:** 13.4mm x 13.3mm (PG0006)
  13.0mm x 12.8mm (PG0138)
- **Current Rating:** up to 28.3ADC
- **Inductance Range** 0.50µH to 5.0µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part[7,8] Number	Inductance[2] @Irated (µH TYP)	Irated[3] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @0ADC (µH ±20%)	Saturation[4] Current ISAT (A)	Heating[5] Current IDC (A)	Core Loss[6] Factor K2
PG0006NL SERIES								
PG0006.601NL	0.5	23	0.6	0.75	0.60	23	47	69.3
PG0006.102NL	0.9	20	1.4	1.75	1.0	20	31	77.1
PG0006.212NL	1.9	14	3.0	3.6	2.1	14	21	121.3
PG0006.312NL	2.8	12	7.0	7.5	3.1	12	14	119.4
PG0006.422NL	3.8	10	7.0	7.5	4.2	10	14	161.8
PG0006.462NL	4.2	9	9.8	10.4	4.6	9	12	151.9
PG0006.552NL	5	8	11.8	12.4	5.5	8	11	158.9
PG0138NL SERIES								
PG0138.601NL	0.48	28.3	1.40	1.75	0.60	28.3	30.5	55.3
PG0138.102NL	0.8	21	3.0	3.6	1.0	22.8	21	69.1
PG0138.222NL	1.8	13.5	7.0	7.5	2.2	15.5	13.5	101.3
PG0138.332NL	2.8	11.5	9.8	10.4	3.3	12.2	11.5	130.3
PG0138.472NL	3.7	10.2	11.8	12.4	4.7	10.2	10.5	162.3
PG0138.552NL	4.4	8.2	11.8	12.4	5.5	8.2	10.5	190.0

Mechanical

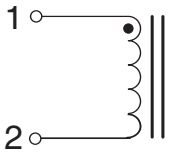


Dimensions: Inches / mm

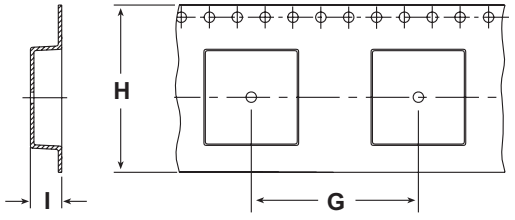
Unless otherwise specified, all tolerances are ± .010 / 0,25

	PG0006	PG0138
Weight	3.0 grams	2.4 grams
Tape & Reel	340/reel	600/reel

Schematic



Dim.	PG0006	PG0138
A	.528/13,40 MAX	.504/12,80 MAX
B	.523/13,28 MAX	.512/13,00 MAX
C	.236/6,00 MAX	.193/4,90 MAX
D	.260/6,60 ±.005/0,12	.260/6,60 ±.005/0,12
E	.417/10,60 ±.005/0,12	.425/10,80 ±.005/0,12
F	3x.146/3,70 ±.005/0,12	3x.146/3,70 ±.005/0,12
G	.787/20,00	.630/16,00
H	.945/24,00	.945/24,00
I	.272/6,91	.232/5,90



TAPE & REEL LAYOUT

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, I_{SAT}, is the current at which the component inductance drops by 10% typical (20% typical for **PG0138.XXX**) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss$_{PG0006\ SERIES}$ = $K1 * (f)^{1.02} * (K2\Delta I)^{2.29}$

   Core Loss$_{PG0138\ SERIES}$ = $\{K1a * (f)^{1.12} * (K2\Delta I)^{2.17}\} + \{K1b * (f)^{1.25} * (K2\Delta I)^{2.32}\}$

   Where: Core Loss = in Watts

   f = switching frequency in kHz

   K1= 4.75E-11

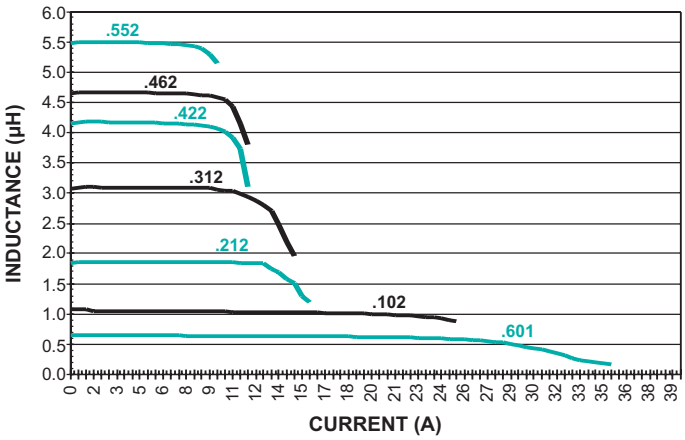
   K1a= 4.43E-11

   K1b= 1.73E-11

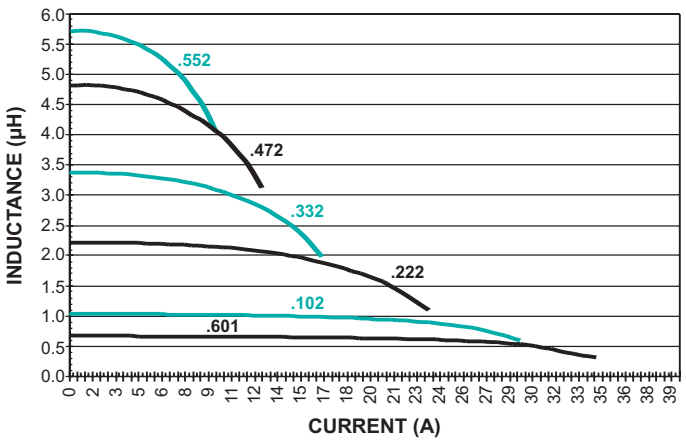
   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, 0.25V_{AC}.
8. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0006.102NL becomes PG0006.102NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
8. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

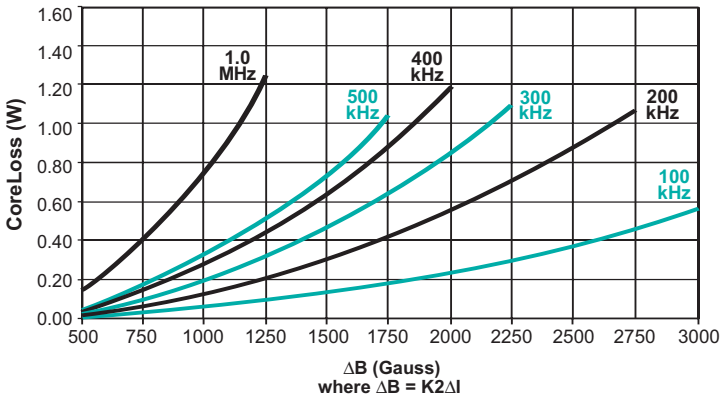
PG0006NL Typical Inductance vs DC Bias



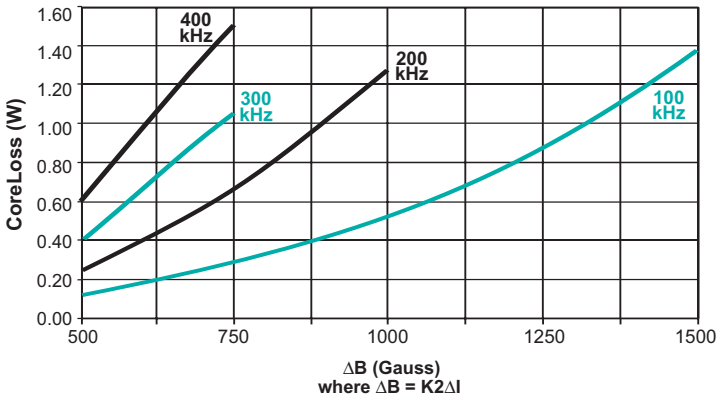
PG0138NL Typical Inductance vs DC Bias



PG0006NL Typical Core Loss vs Peak Flux Density



PG0138NL Typical Core Loss vs Peak Flux Density



SMT POWER INDUCTORS

Flat Coils - PG0077NL and PG0084NL Series

Pulse
A TECHNITROL COMPANY

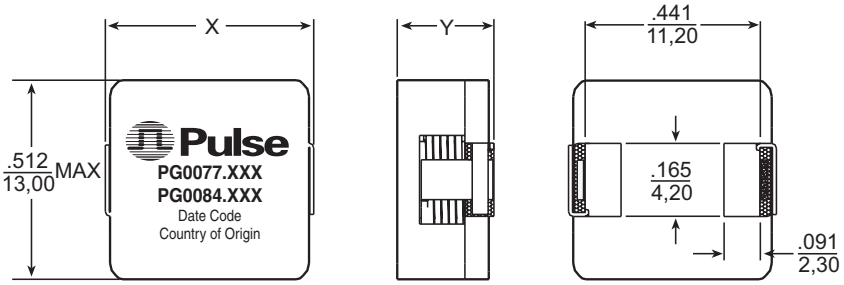
RoHS COMPLIANT

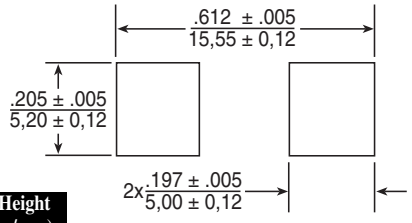
- **Height:** 6.5mm Max (PG0077) and 4.40mm Max (PG0084)
- **Footprint:** 14.5mm x 13.0mm Max
- **Current Rating:** up to 45A
- **Inductance Range:** 0.38µH to 2.65µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +95°C [1]

Part[8,9] Number	Inductance[2] @Irated (µH TYP)	Irated[3] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @0ADC (µH ±20%)	Saturation[4] Current Isat (A)	Heating[5] Current IDC (A)	Core Loss[6] Factor K1	Core Loss[6] Factor K2
PG0077.401NL	0.34	45	0.75	0.80	0.45	48	45	1.68E-9	33.5
PG0077.801NL	0.68	35	1.20	1.30	0.80	38	35	1.68E-9	42.5
PG0077.142NL	1.16	27	2.00	2.10	1.40	28	27	1.68E-9	57.8
PG0077.202NL	1.66	23	2.80	2.90	2.00	24	23	1.68E-9	67.6
PG0077.282NL	2.32	19	4.10	4.20	2.80	20	19	1.68E-9	80.1
PG0084.351NL	0.28	40	1.30	1.80	0.35	40	61	1.27E-9	28.7
PG0084.651NL	0.52	32	2.30	2.80	0.65	32	45	1.27E-9	38.1
PG0084.112NL	0.88	24	3.60	4.20	1.10	24	34	1.27E-9	50.1

Mechanical

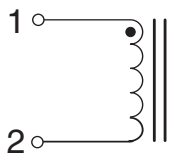




SUGGESTED PAD LAYOUT

Part Number	Max. Length "X" (in./mm)	Max. Height "Y" (in./mm)	Max. Height "Z" (in./mm)
PG0077.401	.571/14,50	.256/6,50	.276/7,00
PG0077.801	.571/14,50	.256/6,50	.276/7,00
PG0077.142	.551/14,00	.256/6,50	.276/7,00
PG0077.202	.551/14,00	.256/6,50	.276/7,00
PG0077.282	.551/14,00	.256/6,50	.276/7,00
PG0084.351	.551/14,00	.173/4,40	.173/4,40
PG0084.651	.551/14,00	.173/4,40	.173/4,40
PG0084.112	.543/13,80	.173/4,40	.173/4,40

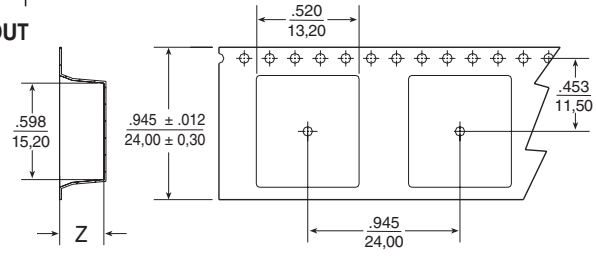
Schematic



	PG0077	PG0084
Weight	5.5 grams	3.5 grams
Tape & Reel	300/reel	400/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25



TAPE & REEL LAYOUT

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the standard operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, I_{SAT}, is the current at which the component inductance drops by 20% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss = $K1 * (f)^{1.035} * (K2\Delta I)^{2.263}$

   Where: Core Loss = in Watts

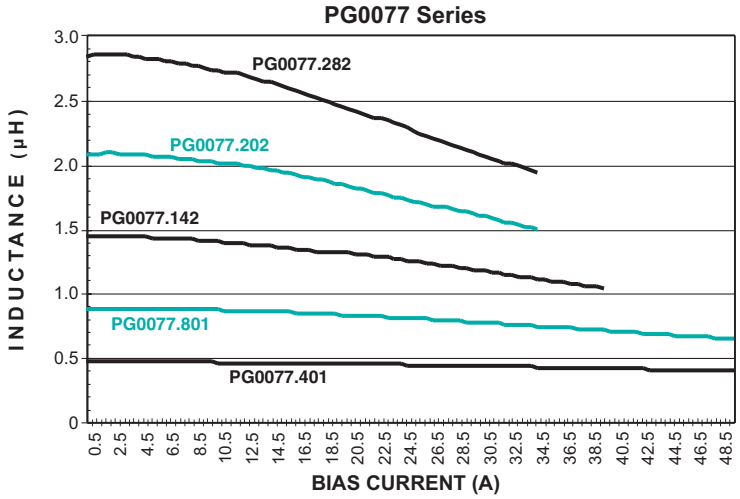
   f = switching frequency in kHz

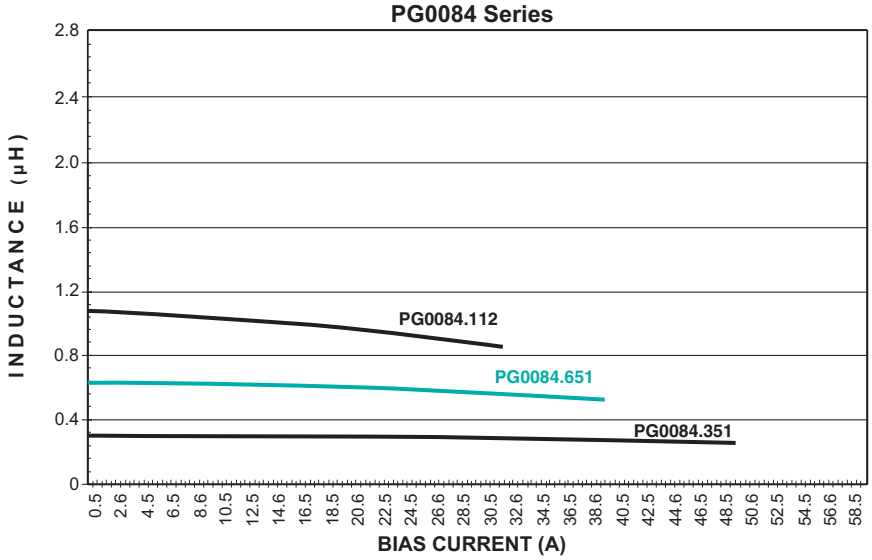
   K1 & K2 = core loss factors

   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.
8. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0077.401NL becomes PG0077.401NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
9. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Inductance vs Current Characteristics





SMT POWER INDUCTORS
Flat Coils - PG0434NL Series

Pulse
A TECHNITROL COMPANY

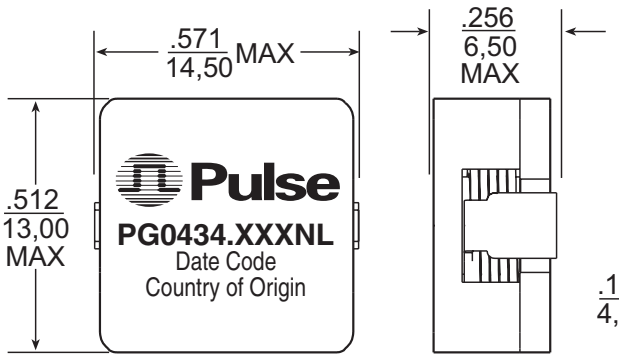
RoHS COMPLIANT

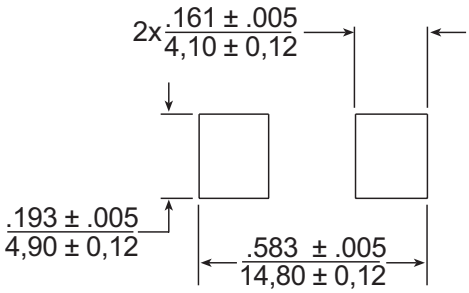
- **Height:** 6.5mm Max
- **Footprint:** 14.5mm x 13.0mm Max
- **Current Rating:** up to 58A
- **Inductance Range:** 0.14µH to 2.65µH
- RoHS compliant
- High temperature core material; no thermal aging below 150°C

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part[8] Number	Inductance[2] @Irated (µH TYP)	Irated[3] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @0ADC (µH ±20%)	Saturation[4] Current Isat (A)	Heating[5] Current IDC (A)	Core Loss[6] Factor K2
PG0434.181NL	0.15	58	0.45	0.50	0.18	60	58	22.3
PG0434.401NL	0.37	45	0.75	0.80	0.45	48	45	33.5
PG0434.801NL	0.66	35	1.20	1.30	0.80	38	35	42.5
PG0434.142NL	1.12	27	2.00	2.10	1.40	28	27	57.8
PG0434.202NL	1.64	23	2.80	2.90	2.00	24	23	67.6
PG0434.282NL	2.24	19	4.10	4.20	2.80	20	19	80.1

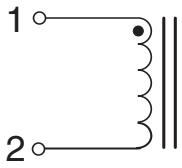
Mechanical

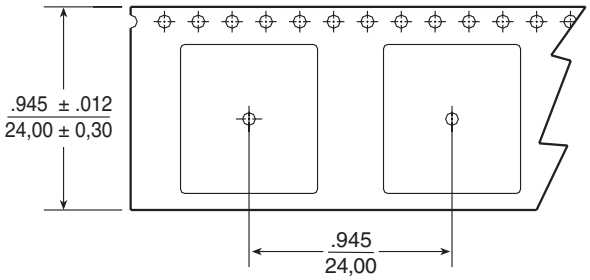




SUGGESTED PAD LAYOUT

Schematic





TAPE & REEL LAYOUT

Weight.....5.5 grams
Tape & Reel.....300/reel

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Flat Coils - PG0434NL Series

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, I_{SAT}, is the current at which the component inductance drops by 20% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss = $K1 * (f)^{1.33} * (K2\Delta I)^{2.51}$

   Where: Core Loss = in Watts

   K1= 1.05E-10

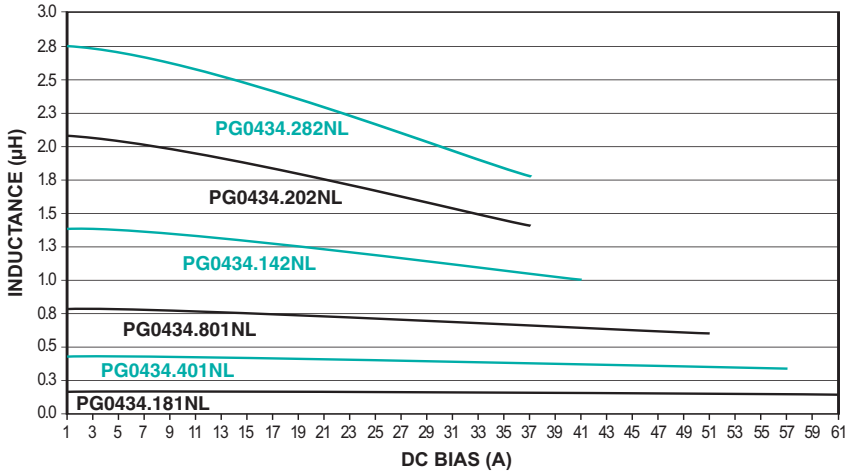
   f = switching frequency in kHz

   K1 & K2 = core loss factors

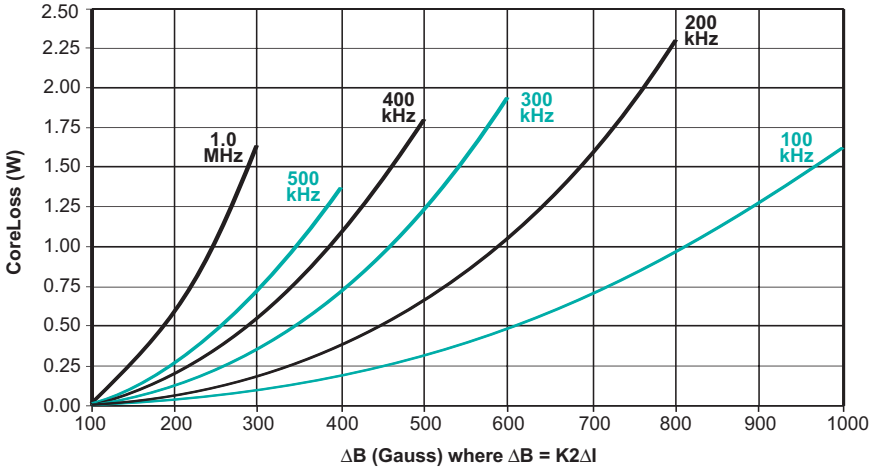
   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, $0.1V_{AC}$.
8. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PG0434.401NL becomes PG0434.401NL**T**). Pulse complies to industry standard tape and reel specification EIA481.

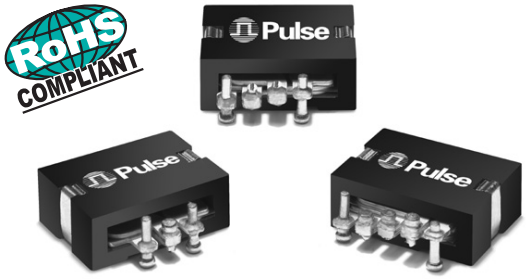
Typical Inductance vs Current Characteristics @ 25°C



Typical Core Loss vs Peak Flux Density



SMT POWER INDUCTORS
Planar - PA1X9XNL Series



- **Height:** 7.4mm Max
- **Footprint:** 19.8mm x 19.6mm Max
- **Current Rating:** up to 73A
- **Inductance Range:** .405µH to 6.2µH

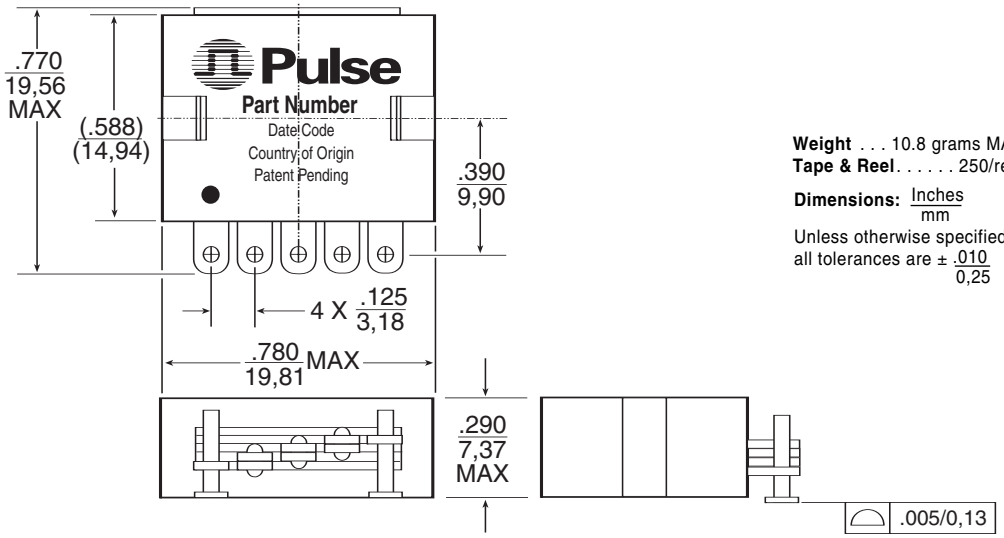
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [8]

Part Number [5,7]	Inductance @ Irated (µH ±15%)	Irated [1] (ADC)	DCR (mΩ)		Inductance @ 0 ADC (µH ±15%)	Saturation Current [2]		Heating Current [3] (A)
			TYP	MAX		25°C	100°C	
2-TURN (LOW - LOSS) SERIES								
PA1294.450NL	0.45	73	.38	.48	0.45	95	80	73
PA1294.650NL	0.63	54	.38	.48	0.65	63	53	73
PA1294.910NL	0.85	39	.38	.48	0.91	46	37	73
PA1294.112NL	1.05	30	.38	.48	1.10	35	30	73
PA1294.132NL	1.25	25	.38	.48	1.30	29	26	73
PA1294.152NL	1.45	21	.38	.48	1.50	24	22	73
2-TURN SERIES								
PA1292.450NL	0.45	52	.78	.98	0.45	95	80	52
PA1292.650NL	0.63	52	.78	.98	0.65	63	53	52
PA1292.910NL	0.85	39	.78	.98	0.91	46	37	52
PA1292.112NL	1.05	30	.78	.98	1.10	35	30	52
PA1292.132NL	1.25	25	.78	.98	1.30	29	26	52
PA1292.152NL	1.45	21	.78	.98	1.50	24	22	52
3-TURN SERIES								
PA1393.102NL	0.95	42	1.15	1.43	1.0	68	54	42
PA1393.152NL	1.40	36	1.15	1.43	1.5	43	35	42
PA1393.202NL	1.90	25	1.15	1.43	2.0	29	25	42
PA1393.252NL	2.40	20	1.15	1.43	2.5	23	21	42
PA1393.302NL	2.80	15	1.15	1.43	3.0	18	16	42
PA1393.352NL	3.40	12	1.15	1.43	3.5	15	13	42
4-TURN SERIES								
PA1494.162NL	1.60	37	1.44	1.80	1.60	55	43	37
PA1494.242NL	2.40	30	1.44	1.80	2.42	35	27	37
PA1494.362NL	3.30	17	1.44	1.80	3.60	20	18	37
PA1494.442NL	4.00	14	1.44	1.80	4.40	16	15	37
PA1494.532NL	4.90	11	1.44	1.80	5.34	13	12	37
PA1494.622NL	5.80	9	1.44	1.80	6.20	11	10	37

NOTES:

1. The rated current as listed is either 85% of the saturation current or the heating current, depending on which value is lower.
2. The saturation current is the current which causes the inductance to drop by 15% at the stated ambient temperatures (25°C and 100°C). This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
3. The heating current is the DC current which causes the temperature of the part to increase by approximately 45°C. This current is determined by mounting the component on a PCB with .25" wide, 2 oz. equivalent copper traces, and applying the current to the device for 30 minutes with no forced air cooling.
4. In high volt*time applications, additional heating in the component can occur due to core losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application, the total copper and core losses should be taken into account. For approximate value of core losses, in a given application, use the core loss graph on page 24.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PA1294.450NL becomes PA1294.450NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. Meets solderability test per IPC/EIA J-STD-002B using flux type ORL0.
7. The "NL" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "NL" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
8. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

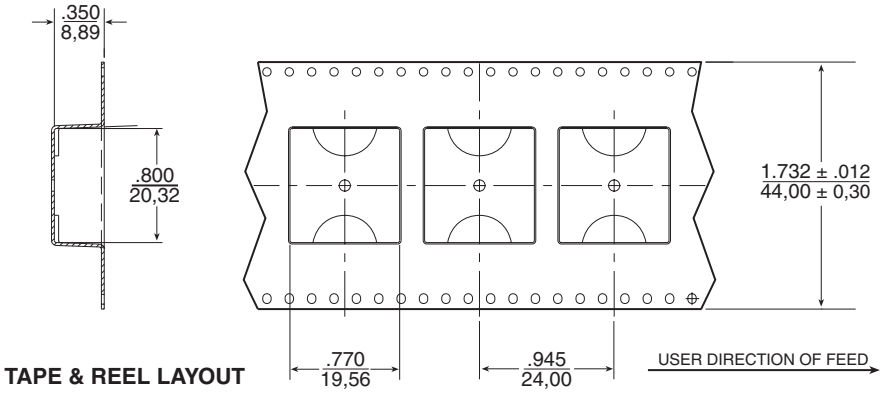
Mechanical



Weight . . . 10.8 grams MAX
Tape & Reel 250/reel

Dimensions: Inches / mm

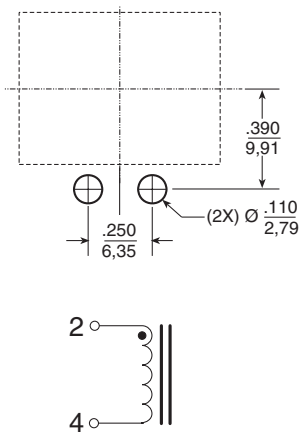
Unless otherwise specified, all tolerances are ± .010 / 0,25



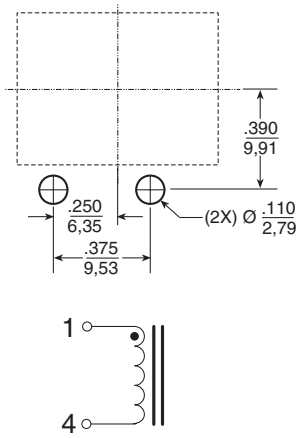
TAPE & REEL LAYOUT

Suggested Pad Layouts and Schematics

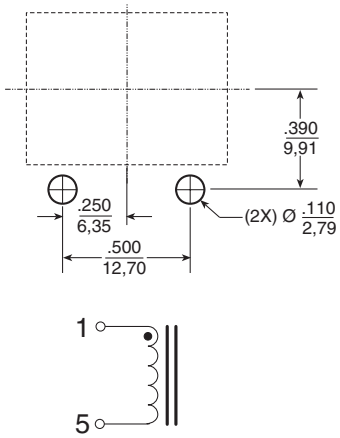
PA1292 & PA1294
.405 to 1.50 µH
21 to 73 Adc



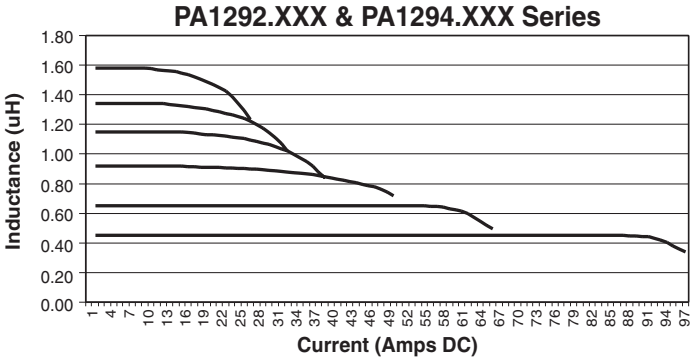
PA1393
1.00 to 3.40 µH
12 to 42 Adc

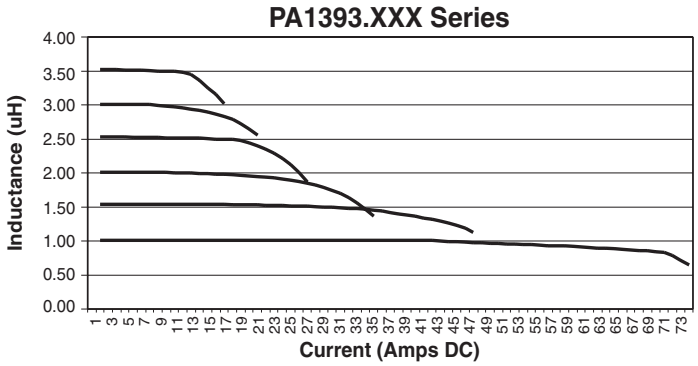


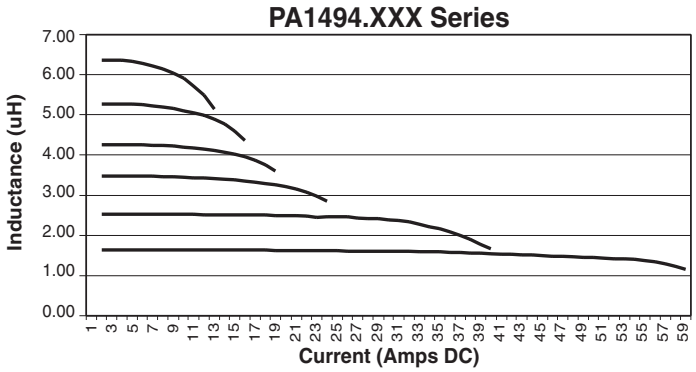
PA1494
1.60 to 6.20 µH
9 to 37 Adc

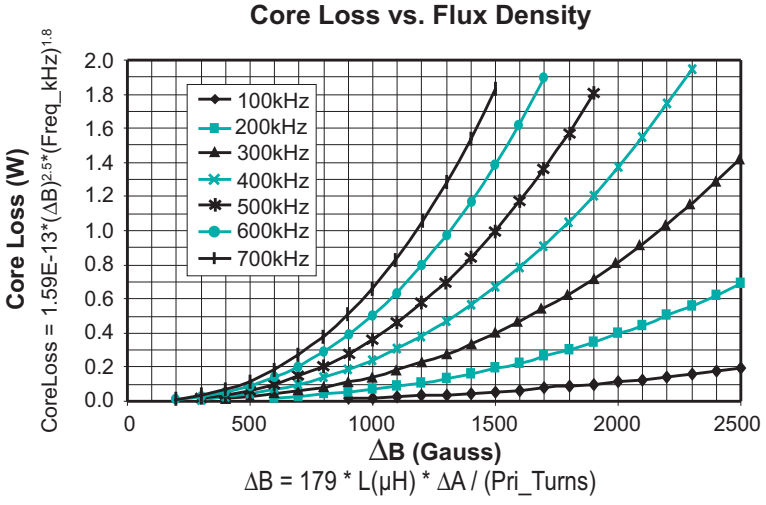


Inductance vs. Current Characteristics (25°C)

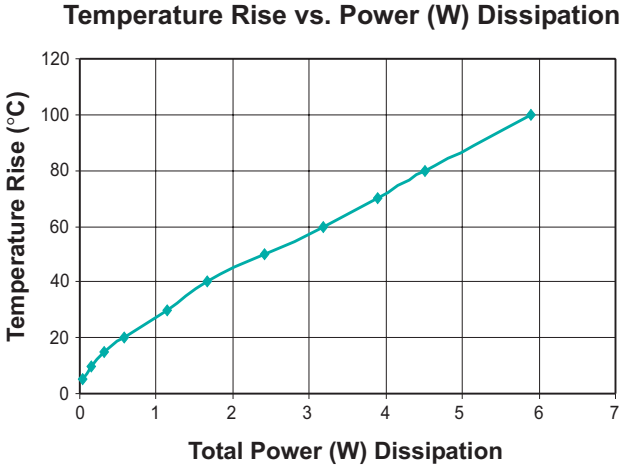








ΔB = 179 * L(µH) * ΔA / (Pri_Turns)



Total Power Dissipation = Copper Loss (W) + Core Loss (W)

Copper Loss (W) = Current (rms)^2 * DCR (mΩ) / 1000 Core Loss (W) = per table

SMT POWER INDUCTORS
Wirewound - PD0120NL Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

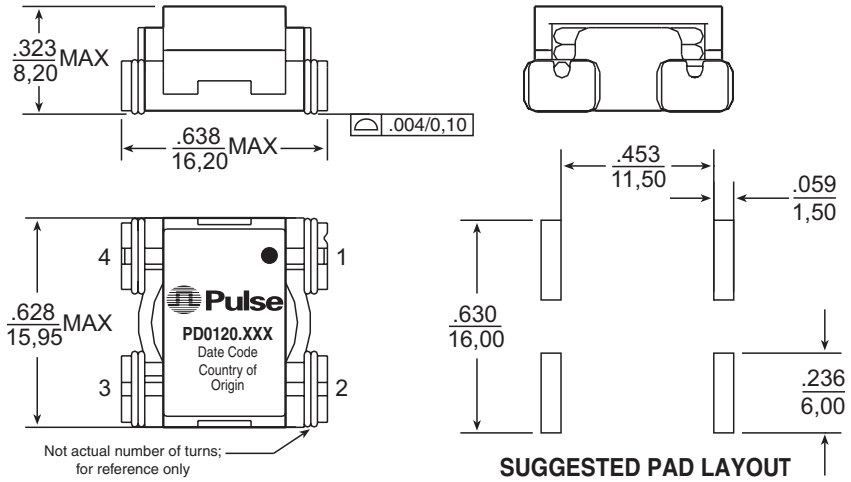
- **Height:** 8.2mm Max
- **Footprint:** 16.2mm x 16.0mm Max
- **Current Rating:** up to 15.4A
- **Inductance Range:** 1.2µH to 55.4µH

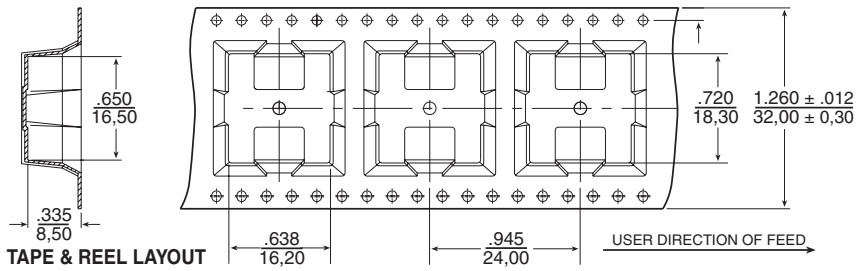
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [7]

Part Number [5,7]	Inductance @ Irated (µH ±10%)	Irated [1] (ADC)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0 ADC (µH ±10%)	Saturation Current [2] (A) 25°C	Saturation Current [2] (A) 100°C	Heating Current [3] (A)	Core Loss Factor [4] Kc
PD0120.102NL	1.2	15.4	1.5	2.0	1.2	29	24.6	15.4	5556
PD0120.152NL	1.8	14.2	2.5	3.0	1.8	24.3	19	14.2	4444
PD0120.222NL	2.5	11.4	4.0	4.2	2.6	20.6	17.6	11.4	3704
PD0120.332NL	4.5	11.2	6.3	6.8	4.6	15	13	11.2	2778
PD0120.532NL	5.6	10.4	8.0	8.5	5.7	13.6	11.6	10.4	2469
PD0120.702NL	7.1	8.6	9.5	10.0	7.2	12.6	10.6	8.6	2222
PD0120.113NL	12.0	7.6	15.0	16.0	12.2	9	8	7.6	1709
PD0120.183NL	18.3	6.4	21.5	25.5	18.7	7.6	6.6	6.4	1389
PD0120.223NL	22.6	5.3	30.5	35.5	23.1	6.8	6	5.3	1235
PD0120.373NL	39.9	4	51.5	58.5	40.7	5	4.6	4	926
PD0120.503NL	55.4	3.4	75.5	82.5	56.5	4.3	3.8	3.4	794

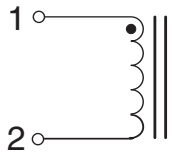
NOTE: To order RoHS compliant part, add the suffix "**NL**" to the part number (i.e. PD0120.102 becomes PD0120.102 **NL**).

Mechanical





Schematic



Weight . . . . . .4.25 grams
Tape & Reel 250/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Notes from Tables

1. The rated current as listed is either the saturation current or the heating current depending on which value is lower.
2. The saturation current is the current which causes the inductance to drop by 10% at the stated ambient temperatures (-40°C, 25°C and 125°C). This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
3. The heating current is the DC current which causes the temperature of the part to increase by approximately 45°C. This current is determined by mounting the component on a PCB with .25" wide, 3 oz. equivalent copper traces, and applying the current to the device for 30 minutes with no forced air cooling.
4. In high volt*time applications, additional heating in the component can occur due to losses in the inductor which may neccessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application both copper losses and core losses should be taken into account.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PD0120.102 becomes PD0120.102**T**). Pulse complies to industry standard tape and reel specification EIA481.

Estimated Temperature Rise:

$$Trise = \left[\frac{Coreloss\ (mW) + DCRloss\ (mW)}{7.05}\right]^{.833}\ (°C)$$

$$Coreloss = 1.86E\text{-}12 * (Freq\ (kHz))^{1.63} * (K_c * V\mu sec)^{2.17}\ (mW)$$

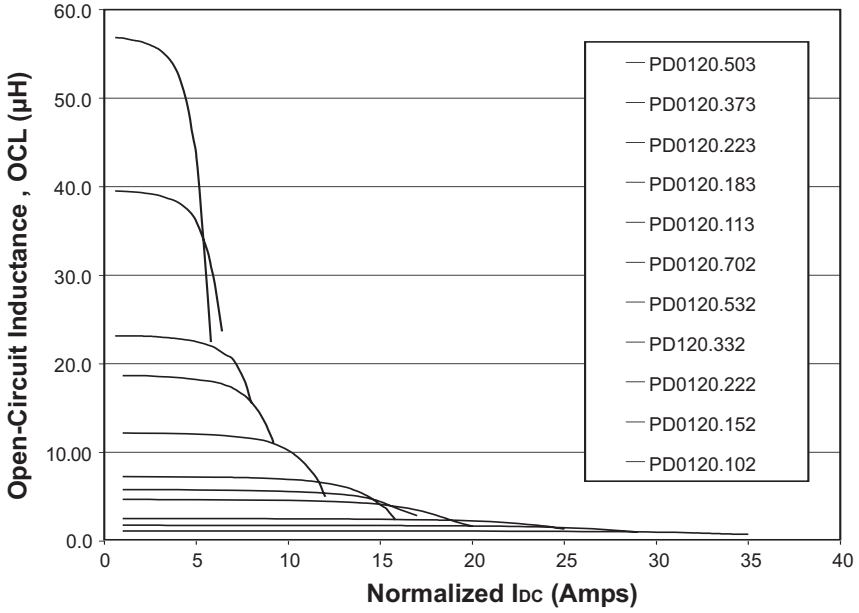
$$DCRloss = I_{rms}^2 * DCR(m\Omega)\ \ (mW)$$

$$I_{rms} = \left[I_{DC}^2 + \left[\frac{dI^{\ 2}}{12}\right]\right]^{1/2} (A_{rms})$$

Freq (kHz) = *switching frequency (kHz)*
Vμsec = *L (μH) * dI or V * D * 1000/Freq (kHz)*
dI = *pk – pk ripple current across the component (A)*
V = *Voltage across the component (V)*
D = *Duty cycle*

6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Inductance vs Current Characteristics



SMT POWER INDUCTORS
Toroid - Bobcat Series

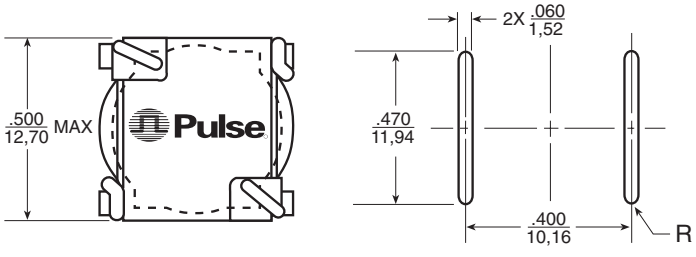
- **Height:** 5.5mm Max
- **Footprint:** 12.7mm x 12.7mm Max
- **Current Rating:** up to 3.8A
- **Inductance Range:** 9.4µH to 439µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [11]

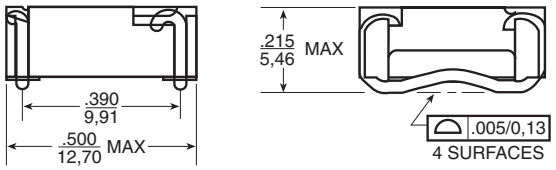
Part [9,10] Number	Inductance @ Irated (µH)	Irated (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	ET (V-µsec)	Inductance @ 0ADC (µH ±20%)	100 Gauss ET100 (V-µsec)	1 Amp DC H1 (Orsted)
P0144NL	9.4	3.80	27	31	15.2	10.4	2.65	11.95
P0145NL	13.3	3.13	40	46	18.8	14.6	3.13	14.12
P0146NL	23	2.43	65	75	24.3	25	4.10	18.46
P0147NL	50	1.65	121	139	37.0	56	6.15	27.69
P0148NL	75	1.35	181	208	44.3	83	7.47	33.67
P0149NL	90	1.23	246	283	49.2	100	8.19	36.93
P0150NL	137	0.99	387	445	59.4	152	10.12	45.61
P0151NL	200	0.81	585	673	71.3	220	12.17	54.85
P0152NL	305	0.65	845	972	85.8	331	14.94	67.34
P0153NL	439	0.53	1322	1520	99.6	472	17.83	80.37

NOTES:
1. The reference inductance at rated DC current is a typical value.
2. Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
3. Total loss in the inductor is 380mW for 50°C temperature rise above ambient.
4. To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
5. For the copper loss (mW), calculate $I_{DC}^2 \times R_N$.
6. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
7. For flux density (B in Gauss), calculate ET (V-µsec) for the application, divide by ET_{100} from the table, and multiply by 100.
8. Limit the DC bias (H) to 46 orsteds. Calculate H by multiplying H_1 from the table by I_{DC} of the application.
9. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0144NL becomes P0144NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
10. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
11. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

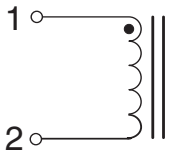


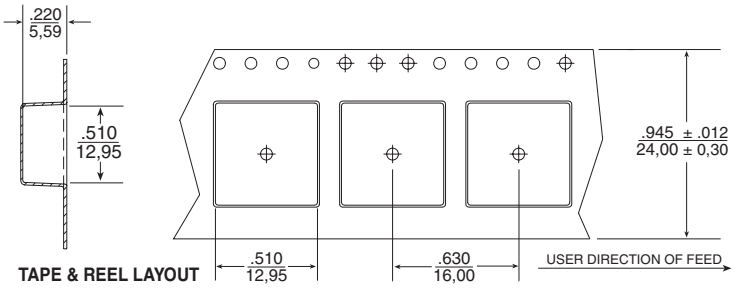
Suggested Pad Layout



Weight . . . . . 1.5 grams
Tape & Reel. 500/reel
Tube 40/tube
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic





TAPE & REEL LAYOUT

SMT POWER INDUCTORS
Toroid - Polecat Series

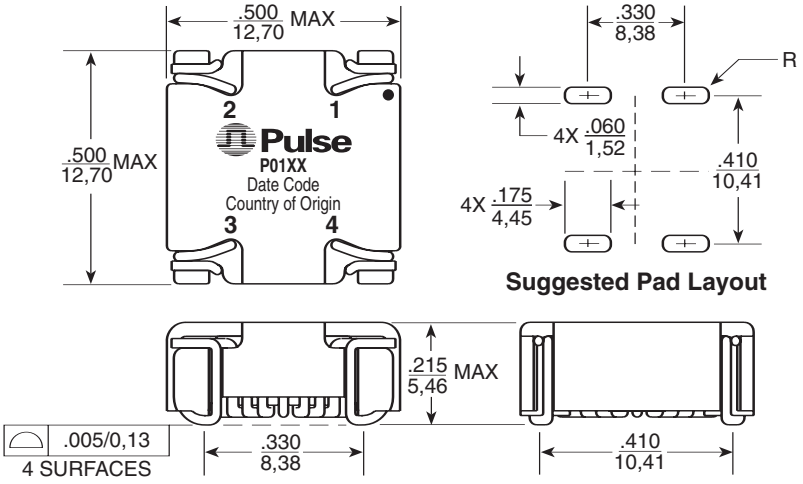
- **Height:** 5.5mm Max
- **Footprint:** 12.7mm x 12.7mm Max
- **Current Rating:** up to 8.3A
- **Inductance Range:** 2.0µH to 364µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [11]

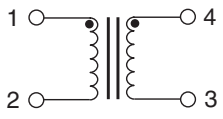
Part Number [9,10]	Inductance @ Irated (µH MIN)	Irated (A)	DCR (MAX) (mΩ)	ET (V-µsec)	Inductance @0ADC (µH ±10%)	100 Gauss ET_{100} (V-µsec)	1 Amp DC H_1 (Orsted)	Connection
P0174NL	2.0	8.30	7.6	7.31	2.2	1.20	5.43	Parallel
P0175NL	2.4	7.20	10.9	7.81	2.6	1.33	5.97	Parallel
P0176NL	5.0	5.20	19.0	11.72	5.5	1.93	8.69	Parallel
P0174NL	7.0	4.16	32.0	14.61	8.75	2.41	10.86	Series
P0177NL	9.3	3.80	29.8	16.12	10.4	2.65	11.95	Parallel
P0175NL	8.4	3.78	43.6	15.62	10.4	2.65	11.95	Series
P0178NL	14.1	3.10	45.3	19.73	15.7	3.25	14.66	Parallel
P0179NL	19.8	2.60	66.3	23.45	22.1	3.86	17.38	Parallel
P0176NL	17.9	2.60	76.0	23.43	22.45	3.86	17.38	Series
P0180NL	29.3	2.20	106	28.50	32.8	4.70	21.18	Parallel
P0177NL	33.8	1.89	120	32.25	41.7	5.30	23.89	Series
P0181NL	42.6	1.80	151	34.49	47.6	5.66	25.52	Parallel
P0178NL	50.9	1.54	182	39.46	62.8	6.51	29.32	Series
P0182NL	61.3	1.50	224	40.85	67.5	6.75	30.41	Parallel
P0179NL	71.5	1.30	266	46.90	88.2	7.71	34.75	Series
P0183NL	84.2	1.20	324	46.22	91.0	7.83	35.30	Parallel
P0180NL	106.1	1.07	404	57.00	131.0	9.40	42.36	Series
P0181NL	154.2	0.89	604	68.99	190.3	11.33	51.05	Series
P0182NL	218.9	0.74	888	81.70	270.2	13.50	60.82	Series
P0183NL	295.0	0.64	1272	92.43	364.0	15.66	70.59	Series

NOTES:
1. Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
2. Total loss in the inductor is 380mW for a 50°C temperature rise above ambient.
3. To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
4. For the copper loss (mW), calculate $I_{DC}^2 \times R_N$.
5. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
6. For flux density (B in Gauss), calculate ET (V-µsec) for the application, divide by ET_{100} from the table, and multiply by 100.
7. Limit the DC bias (H) to 46 orsteds. Calculate H by multiplying H_1 from the table by I_{DC} of the application.
8. The maximum DCR listed is approximately 17% over the nominal DCR.
9. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0174NL becomes P0174NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
10. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
11. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical



Schematic



Weight . . . . . 1.5 grams
Tape & Reel. 500/reel
Tube 40/tube

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Toroid - Tomcat Series

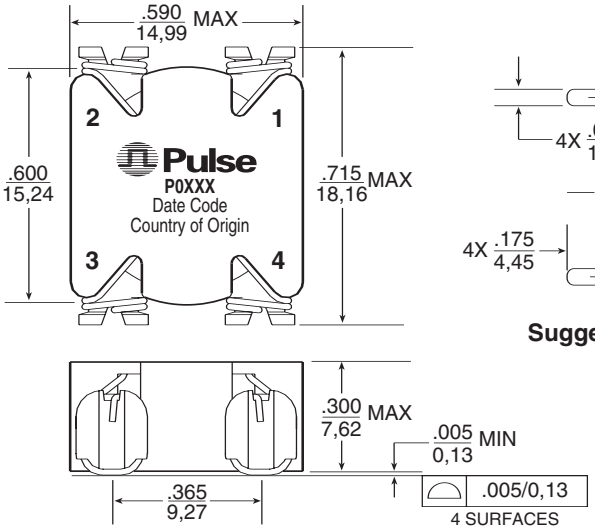
- **Height:** 7.6mm Max
- **Footprint:** 18.2mm x 15.0mm Max
- **Current Rating:** up to 14.4A
- **Inductance Range:** 1.5µH to 139µH

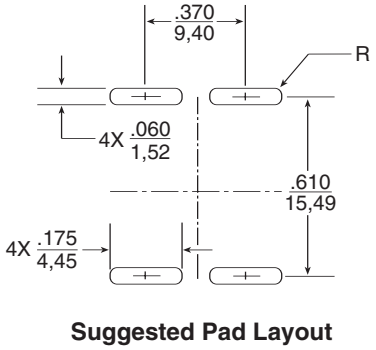
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [10]

Part Number [8,9]	Inductance @ Irated (µH)	Irated (A)	DCR (TYP) (mΩ)	ET (V-µsec)	Storage Capacity (µJoules)	Inductance @ 0ADC (µH ±20%)	100 Gauss ET_{100} (V-µsec)	1 Amp DC H_1 (Orsted)	Connection
P0395NL	1.5	14.40	4.41	4.80	159.01	2.2	1.71	3.77	Parallel
P0396NL	2.4	11.20	6.54	6.00	152.83	3.5	2.14	4.71	Parallel
P0397NL	4.2	8.20	10.47	7.85	142.57	5.9	2.78	6.12	Parallel
P0398NL	5.8	6.80	14.94	9.05	133.80	7.9	3.21	7.06	Parallel
P0395NL	6.1	7.20	17.60	9.60	159.01	9.0	3.42	7.53	Series
P0399NL	7.6	5.70	20.99	10.25	124.18	10.1	3.64	8.00	Parallel
P0396NL	9.7	5.60	26.20	12.00	152.83	14.0	4.28	9.42	Series
P0400NL	12.1	5.40	23.24	13.85	176.62	18.5	4.92	10.83	Parallel
P0397NL	17.0	4.10	41.90	15.70	142.57	23.7	5.56	12.24	Series
P0401NL	18.0	4.40	38.15	16.50	174.26	27.4	5.99	13.18	Parallel
P0398NL	23.1	3.40	59.70	18.10	133.80	31.5	6.42	14.12	Series
P0402NL	27.0	3.54	53.21	20.50	169.14	40.5	7.27	16.01	Parallel
P0399NL	30.6	2.85	84.00	20.50	124.18	40.5	7.27	16.01	Series
P0403NL	34.8	3.00	73.89	22.50	156.47	50.5	8.13	17.89	Parallel
P0400NL	48.5	2.70	93.00	27.70	176.62	74.1	9.84	21.66	Series
P0401NL	72.0	2.20	152.60	33.00	174.26	109.8	11.98	26.36	Series
P0403NL	139.1	1.50	295.60	45.00	156.47	202.2	16.26	35.78	Series
P0402NL	108.0	1.77	212.80	41.00	169.14	161.8	14.55	32.01	Series

NOTES:
1. The reference inductance is a typical value at the AC and DC excitation listed.
2. Temperature rise is 55°C in typical buck or boost circuits at 100kHz and with the reference ET applied to the inductor.
3. Total loss in the inductor is 634mW for a 55°C temperature rise above ambient.
4. To estimate temperature rise in a given application, determine copper and core losses, divide by 634 and multiply by 50.
5. For the copper loss (mW), calculate $I_{DC}{}^2 X R_N$.
6. For core loss (mW), using frequency (f in Hertz) and operating flux density (B in Gauss), calculate $2.24 \times 10^{-10} \times B^{2.11} \times f^{1.26}$.
7. For flux density (B in Gauss), calculate ET (V-µsec) for the application, divide by ET_{100} from the table, and multiply by 100.
8. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0395NL becomes P0395NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
9. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
10. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

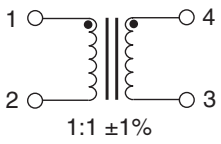
Mechanical





Suggested Pad Layout

Schematic



Weight . . . . . 4.2 grams
Tape & Reel 300/reel
Tube 35/tube

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT POWER INDUCTORS
Toroid - SLIC Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- Fifteen package sizes
- **Current Rating:** up to 23.8ADC
- **Frequency Range:** up to 1MHz

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [6]

Pulse [4,5] Part Number	Inductance @ Irated (µH)	Irated (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0ADC (µH)	Reference ET (Volt-µsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)
LCI-20									
PE-53630NL	1.01	3.40	9.35	11	1.1	0.53	5.43	3.29E-11	323.9
PE-53600NL	6.2	1.40	59.5	70	7	1.33	2.17	3.29E-11	323.9
PE-53601NL	17.6	1.00	106.25	125	22.7	2.4	1.21	3.29E-11	323.9
LCI-30									
PE-53650NL	3.8	4.80	14.705	17.3	5.2	1.76	1.28	1.39E-10	148.0
PE-53631NL	9.4	2.80	36.89	43.4	12.3	2.7	0.83	1.39E-10	148.0
PE-53602NL	29.7	1.40	141.1	166	35.3	4.6	0.49	1.39E-10	148.0
PE-53606NL	114	0.94	365	405	167	10	0.23	1.39E-10	148.0
LCI-37									
PE-53661NL	2.5	8.00	7.055	8.3	3.8	1.77	1.30	1.87E-10	114.2
PE-53651NL	5.1	5.40	15.045	17.7	7.5	2.51	0.92	1.87E-10	114.2
PE-53632NL	16.2	2.70	63	72	21.9	4.29	0.54	1.87E-10	114.2
PE-53604NL	58.1	1.30	246.5	290	73	7.83	0.29	1.87E-10	114.2
PE-53608NL	192	0.90	476	560	292	15.7	0.15	1.87E-10	114.2
PE-53611NL	383	0.72	732.7	862	672	23.5	0.10	1.87E-10	114.2
LCCI-37									
PE-53717NL	43.6	1.1	247.2	309	77	7.83	0.295	1.87E-10	114.23
LCI-44									
PE-53662NL	4.9	7.80	10.54	12.4	7.9	3.04	0.67	3.35E-10	85.7
PE-53652NL	9	5.50	25	28	14	4.06	0.51	3.35E-10	85.7
PE-53633NL	29.1	2.70	85	100	40.5	6.9	0.30	3.35E-10	85.7
PE-53613NL	645	0.74	1062.5	1250	1134	36.5	0.06	3.35E-10	85.7
HCI-37									
PE-53690NL	0.81	14.30	2.125	2.5	1.25	1.035	2.23	1.87E-10	114.2
PE-53680NL	1.32	11.50	3.4	4.0	2.1	1.33	1.74	1.87E-10	114.2
LCCI-44									
PE-53718NL	21.9	2.7	72.4	90.5	39.5	6.9	0.297	3.35E-10	85.71
HCI-44									
PE-53691*NL	1.68	13.90	3.06	3.6	2.8	1.83	1.12	3.35E-10	85.7
PE-53681NL	2.5	11.40	4.59	5.4	4.2	2.23	0.92	3.35E-10	85.7
LCI-50									
PE-53663NL	9.3	7.20	15.895	18.7	16	4.92	0.41	4.52E-10	67.9
PE-53653NL	16.1	5.10	27.2	32.0	25.9	6.27	0.32	4.52E-10	67.9
PE-53634NL	50	2.60	113.05	133	72.9	10.5	0.19	4.52E-10	67.9
PE-53614NL	1070	0.71	1445	1700	1950	54.4	0.04	4.52E-10	67.9
LCCI-50									
PE-53719NL	4.025	6.4	18.4	23	6.575	3.135	0.638	4.52E-10	67.89
HCI-50									
PE-53692*NL	3.5	12.40	5.61	6.6	6.5	3.1	0.64	4.52E-10	67.9
PE-53682NL	4.7	10.40	7.055	8.3	8.4	3.58	0.56	4.52E-10	67.9
HCCI-44									
PE-53361NL	0.53	23.8	1.0	3	0.88	1	2.020	3.35E-10	85.71
HCCI-50									
PE-53362NL	1.1	21	1.7	2.5	2.1	1.75	1.116	4.52E-10	67.89
HCI-68									
PE-53700*NL	5.2	15.40	5.27	6.2	10.5	5.21	0.35	9.58E-10	44.6
PE-53683NL	9.4	10.90	10.455	12.3	17.6	6.84	0.27	9.58E-10	44.6
HCCI-68									
PE-53363NL	2.1	22.4	2.5	3.4	4	3.25	0.559	9.58E-10	44.56

NOTES:

1. Reference values are for an inductor with a 55°C temperature rise. The core loss is 10% of the copper loss at the ET listed and 500kHz.
2. Core does not saturate abruptly. The ET and DC current are limited by the desired inductance and temperature rise.
3. In high volt-time applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application, both copper and core losses should be taken into account.

   Estimated Temperature Rise:
   Trise = K3 * (Coreloss(W) + Copperloss(W)$^{.833}$ (C)
   CopperLoss = Irms^2 * DCR_Typical (mΩ) / 1000
   CoreLoss = K2 * (Freq_kHz)$^{1.26}$ * (ΔB)$^{2.11}$
   ΔB = K1 * Volt-µsec * 100
4. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PE-53600NL becomes PE-53600NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
5. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

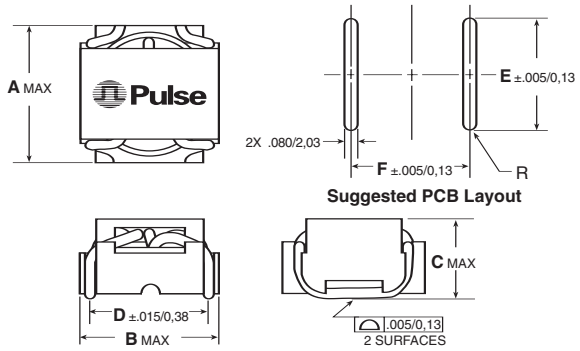
USA 858 674 8100 • Germany 49 7032 7806 0 • Singapore 65 6287 8998 • Shanghai 86 21 54643211 / 2 • China 86 755 33966678 • Taiwan 886 3 4641811

SMT POWER INDUCTORS
Toroid - SLIC Series

Pulse A TECHNITROL COMPANY

Mechanicals

High Current Inductors (HCI)

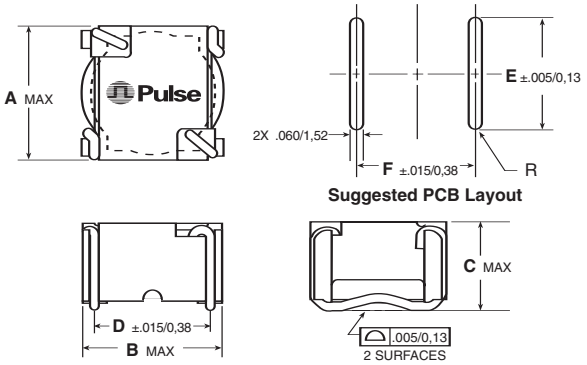


* Dimension "C" is .400/10,16 for the marked models because of heavier wire gage.

PKG	A	B	C	D	E	F
HCI-37	.620 15,75	.605 15,37	.370 9,40	.500 12,70	.440 11,18	.500 12,70
HCI-44	.670 17,02	.670 17,02	.390* 9,91	.560 14,22	.490 12,45	.570 14,48
HCI-50	.740 18,80	.740 18,80	.390* 9,91	.630 16,00	.560 14,22	.640 16,26
HCI-68	.940 23,88	.940 23,88	.390* 9,91	.820 20,83	.700 17,78	.830 21,08

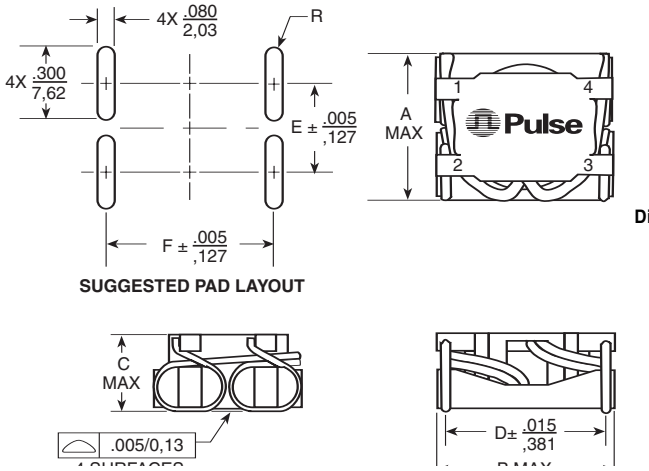
Dimensions: Inches / mm

Low Current Inductors (LCI)

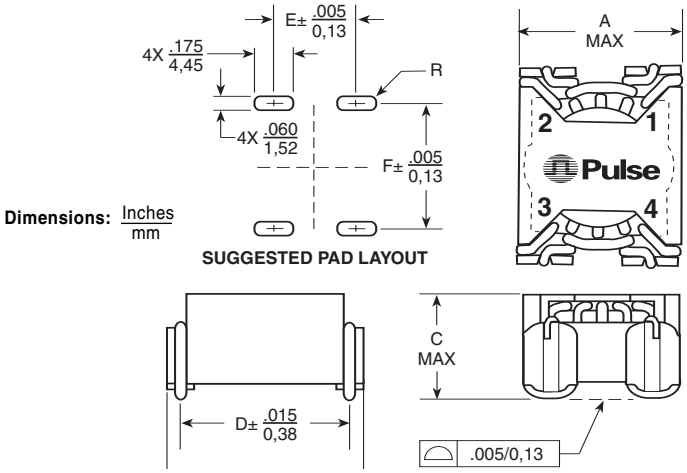


PKG	A	B	C	D	E	F
LCI-20	.340 8,64	.340 8,64	.270 6,86	.260 6,60	.300 7,62	.270 6,86
LCI-30	.435 11,05	.440 11,18	.360 9,14	.350 8,89	.400 10,16	.360 9,14
LCI-37	.565 14,35	.570 14,48	.360 9,14	.450 11,43	.520 13,21	.460 11,68
LCI-44	.600 15,24	.620 15,75	.390 9,91	.500 12,70	.550 13,97	.500 12,70
LCI-50	.670 17,02	.700 17,78	.390 9,91	.580 14,73	.620 15,75	.590 14,99

High Current Coupled Inductors (HCCI)

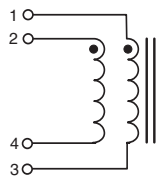


Low Current Coupled Inductors (LCCI)



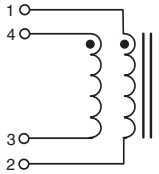
Dimensions: Inches / mm

Schematic



Size Codes	HCCI-44	HCCI-50	HCCI-68	LCCI-37	LCCI-44	LCCI-50
A	.715/18,16	.800/20,32	1.000/25,40	.560/14,22	.590/14,99	.670/17,02
B	.865/21,97	.910/23,11	1.110/28,19	.645/16,38	.715/18,16	.770/19,56
C	.390/9,91	.390/9,91	.390/9,91	.350/8,89	.390/9,91	.390/9,91
D	.760/10,30	.800/20,32	1.000/25,40	.520/13,21	.600/15,24	.650/16,51
E	.360/9,14	.440/11,18	.620/15,75	.340/8,64	.370/9,40	.445/11,30
F	.770/19,56	.810/20,57	1.010/25,65	.530/13,46	.610/15,49	.660/16,76

Schematic



Dimensions: Inches / mm

SMT POWER INDUCTORS
Toroid - HCCI-80 Series

- **Height:** 12.7mm Max
- **Footprint:** 31.0mm x 25.4mm Max
- **Current Rating:** up to 38A
- **Inductance Range:** 1.1µH to 18.1µH

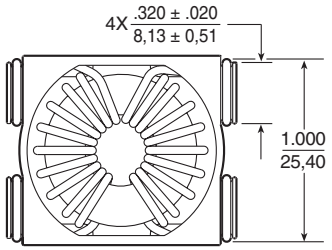
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [6]

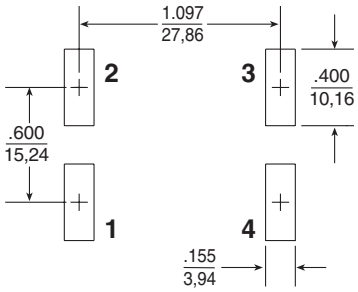
Pulse [4,5] Part Number	Inductance @ Irated (µH TYP)	Irated (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0Adc (µH ±15%)	Reference ET (Volt-µsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)	Connection
P0599NL	1.1	38	1.1	1.3	2.1	4.20	0.62	1.50E-09	33.8	Parallel
P0598NL	1.6	34	1.4	1.6	3.9	4.20	0.48	1.50E-09	33.8	Parallel
P0597NL	2.45	27	2.2	2.5	5.7	6.00	0.39	1.50E-09	33.8	Parallel
P0596NL	3.2	24	3.0	3.5	8.0	4.20	0.33	1.50E-09	33.8	Parallel
P0599NL	4.3	19	4.4	5.1	8.4	8.40	0.31	1.50E-09	33.8	Series
P0595NL	4.52	19	4.2	4.8	10.5	9.00	0.29	1.50E-09	33.8	Parallel
P0598NL	6.4	17	5.6	6.4	15.6	8.40	0.24	1.50E-09	33.8	Series
P0597NL	9.8	13.5	8.8	10.1	22.8	12.00	0.20	1.50E-09	33.8	Series
P0596NL	12.8	12	12.0	13.8	32.0	8.40	0.17	1.50E-09	33.8	Series
P0595NL	18.1	9.5	16.8	19.3	42.0	18.00	0.14	1.50E-09	33.8	Series

NOTES:

1. Temperature rise is 55°C in typical buck or boost circuits operating at 300kHz with the rated Idc current and reference ET applied to the inductor.
2. Total loss in the inductor is 1.8W for 55°C temperature rise above ambient.
3. In high volt-time applications, additional heating in the component can occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) for a given application, both copper and core losses should be taken into account.
   Estimated Temperature Rise:
   $Trise = K3 * (Coreloss(W) + Copperloss(W))^{.833}$ (C)
   $CopperLoss = Irms^2 * DCR\_Typical\ (m\Omega) / 1000$
   $CoreLoss = K2 * (Freq\_kHz)^{1.26} * (\Delta B)^{2.11}$
   $\Delta B = K1 * Volt\text{-}\mu sec * 100$
4. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0595NL becomes P0595NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
5. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

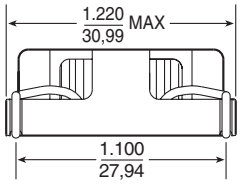




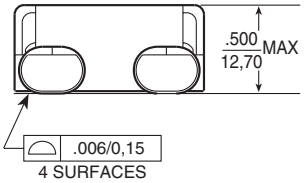
Weight . . . . . 18.7 grams
Tape & Reel. 75/reel
Tube 20/tube

Dimensions: Inches / mm

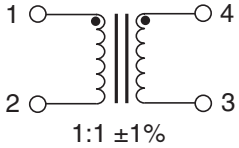
Unless otherwise specified, all tolerances are ± .010 / 0,25



SUGGESTED PAD LAYOUT



Schematic



THT/SMT POWER INDUCTORS
Toroid - Designed for National's 260kHz Simple Switcher™

- Tested and recommended by National Semiconductor for the LM267X series
- Base material meets flammability requirements of UL 94V-0
- Available in surface mount and through hole versions

Electrical Specifications @ 25°C— Operating Temperature -40°C to +130°C [7]

Pulse [5] THT Part Number	Pulse [4,5] SMT Part Number	National Part Number	In Circuit Operating Parameters [1]			Nominal DCR (Ω)	Package		
			Nominal Inductance (µH)	Rated Current (ADC)	Max [2] ETOP (V-µSec)		Through Hole	Surface Mount	Lead Diameter
P0841NL	—	LM267X-L41	22.8	4.9	23.3	.036	KM-3.0	—	.035
P0845NL	—	LM267X-L45	10.2	4.3	10.0	.026	KM-1.1	—	.031
P0846NL	—	LM267X-L46	14.8	5.0	17.0	.023	KM-2.1	—	.035
P0847NL	—	LM267X-L47	10	5.0	13.0	.025	KM-2.0	—	.031
P0848NL	—	LM267X-L48	50	5.0	40.0	.050	KM-4.0	—	.039
P0849NL	—	LM267X-L49	33	5.0	36.0	.047	KM-4.0	—	.035
P0850NL	—	LM267X-L50	23	5.0	24.0	.026	KM-3.0	—	.043
—	**P0841SNL**	LM267X-L41	22.8	4.9	23.3	.036	—	HCI-68	
—	**P0845SNL**	LM267X-L45	10	4.3	10.0	.050	—	LCI-44	
—	**P0846SNL**	LM267X-L46	15	5.0	17.0	.027	—	LCI-50	
—	**P0847SNL**	LM267X-L47	11	5.0	13.0	.025	—	LCI-50	
—	**P0848SNL**	LM267X-L48	52 [6]	5.0	40.0	.025	—	Bigfoot	
—	**P0849SNL**	LM267X-L49	36 [6]	5.0	36.0	.019	—	Bigfoot	
—	**P0850SNL**	LM267X-L50	24.7 [6]	5.0	24.0	.013	—	Bigfoot	

Notes :

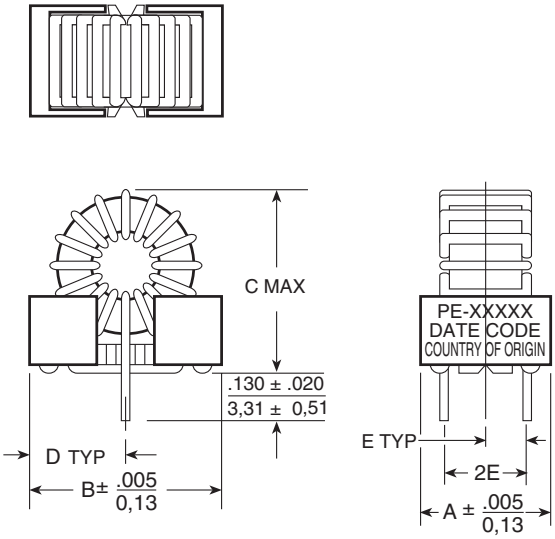
1. Inductance values may vary ±20%.
2. ETop rated at 260kHz.
3. SIMPLE SWITCHER™ is a trademark of National Semiconductor Corporation.
4. For SMT parts, optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0841SNL becomes P0841SNL**T**). Pulse complies to industry standard tape and reel specification EIA481.
5. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
6. Series connection (pins 2-4 connected)
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

KlipMount™ Series

PKG	A	B	C	D	E
KM-1.1	.350 / 8,89	.580 / 14,74	.715 / 18,17	.290 / 7,37	.110 / 2,80
KM-2.0	.450 / 11,43	.650 / 21,08	.700 / 17,78	.325 / 8,26	.150 / 3,81
KM-2.1	.460 / 11,69	.670 / 17,02	.750 / 19,05	.335 / 8,51	.150 / 3,81
KM-3.0	.450 / 11,43	.830 / 21,09	.950 / 24,13	.415 / 10,55	.150 / 3,81
KM-4.0	.600 / 15,24	.950 / 24,13	1.350 / 34,29	.475 / 12,07	.225 / 5,72

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

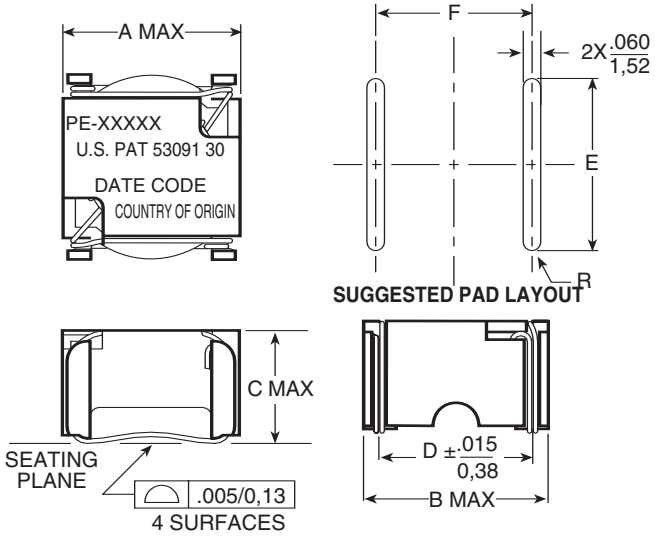


THT/SMT POWER INDUCTORS
Toroid - Designed for National's 260kHz Simple Switcher™

Pulse A TECHNITROL COMPANY

Mechanicals

LCI Series



PKG	A	B	C	D	E	F
LCI-44	.600 15,24	.620 15,75	.390 9,91	.500 12,70	.550 13,97	.510 12,95
LCI-50	.670 17,02	.700 17,78	.390 9,91	.580 14,74	.620 15,75	.590 14,99

Note:
Coil must clear seating plane by .010 0,25 MIN

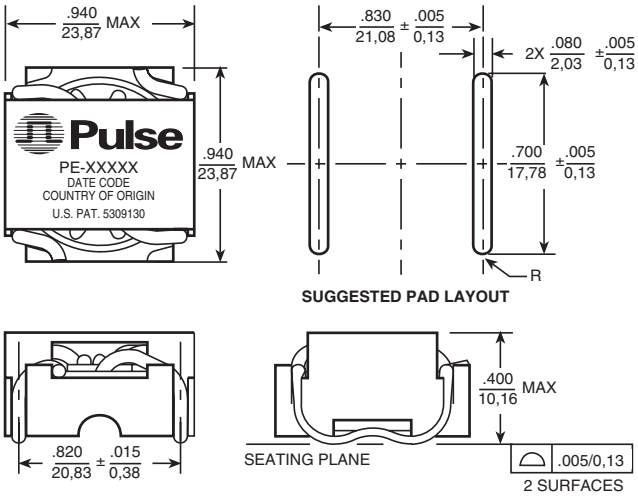
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 0,25

Notes:
1. Dimension "D" is measured across terminal blocks only.
2. Coil must clear seating plane by .010 0,25 MIN.

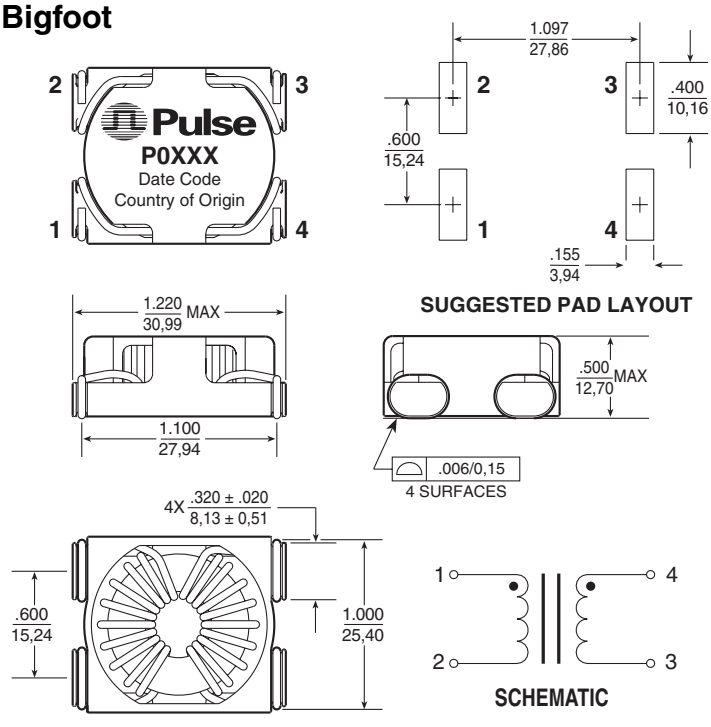
	LCI-44	LCI-50
Weight	3.6 grams	4.8 grams
Tape & Reel	200/reel	200/reel
Tube	30/tube	30/tube

HCI-68



Weight . . . . . .12.1 grams
Tape & Reel 100/reel
Tube 40/tube

Bigfoot

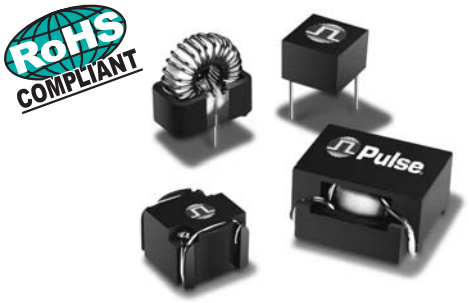


Weight . . . . . .18 grams
Tape & Reel 20/reel
Tube 75/tube

THT/SMT POWER INDUCTORS

Toroid - Designed for National's 150kHz Simple Switcher™

Pulse
A TECHNITROL COMPANY



- Tested and recommended by National Semiconductor
- Base material meets flammability requirements of UL 94V-0
- Available in surface mount and through hole versions

Electrical Specifications @ 25°C— Operating Temperature -40° to +130° C [7]

Pulse [6] THT Part Number	Pulse [5,6] SMT Part Number	National Part Number	In Circuit Operating Parameters [1]			Nominal DCR (Ω)	Package		
			Nominal Inductance (µH)	Rated Current (ADC)	Max [2] ETOP (V-µSec)		Through Hole	Surface Mount	Lead Diameter
PE-53801NL	PE-53801SNL	LM259X-L1	259	0.13	23.1	3.4	LP-25	LCI-20	—
PE-53802NL	PE-53802SNL	LM259X-L2	178	0.16	16.5	2.8	LP-25	LCI-20	—
PE-53803NL	PE-53803SNL	LM259X-L3	118	0.2	13.2	1.8	LP-25	LCI-20	—
PE-53804NL	PE-53804SNL	LM259X-L4	79	0.25	9.9	1.5	LP-25	LCI-20	—
PE-53805NL	PE-53805SNL	LM259X-L5	55	0.3	6.6	1.0	LP-25	LCI-20	—
PE-53806NL	PE-53806SNL	LM259X-L6	39	0.34	6.6	.80	LP-25	LCI-20	—
PE-53807NL	PE-53807SNL	LM259X-L7	26	0.45	6.6	.62	LP-25	LCI-20	—
PE-53808NL	PE-53808SNL	LM259X-L8	374	0.2	75.9	2.7	LP-30	LCI-30	—
PE-53809NL	PE-53809SNL	LM259X-L9	256	0.25	33	2.2	LP-30	LCI-30	—
PE-53810NL	PE-53810SNL	LM259X-L10	176	0.3	26.4	1.4	LP-30	LCI-30	—
PE-53811NL	PE-53811SNL	LM259X-L11	118	0.38	19.8	1.2	LP-30	LCI-30	—
PE-53812NL	PE-53812SNL	LM259X-L12	78	0.46	16.5	0.8	LP-30	LCI-30	—
PE-53813NL	PE-53813SNL	LM259X-L13	55	0.56	13.2	0.5	LP-30	LCI-30	—
PE-53814NL	PE-53814SNL	LM259X-L14	39	0.68	9.9	0.3	LP-30	LCI-30	—
PE-53815NL	PE-53815SNL	LM259X-L15	26	0.84	6.6	0.2	LP-30	LCI-30	—
PE-53816NL	PE-53816SNL	LM259X-L16	17	1.02	6.6	0.1	LP-30	LCI-30	—
PE-53817NL	PE-53817SNL	LM259X-L17	375	0.36	75.9	1.3	LP-37	LCI-37	—
PE-53818NL	PE-53818SNL	LM259X-L18	252	0.44	49.5	0.9	LP-37	LCI-37	—
PE-53819NL	PE-53819SNL	LM259X-L19	173	0.54	36.3	0.6	LP-37	LCI-37	—
PE-53820NL	PE-53820SNL	LM259X-L20	115	0.67	29.7	0.4	LP-37	LCI-37	—
PE-53821NL	PE-53821SNL	LM259X-L21	78	0.82	23.1	0.3	LP-37	LCI-37	—
PE-53822NL	PE-53822SNL	LM259X-L22	54	1.0	16.5	0.2	LP-37	LCI-37	—
PE-53823NL	PE-53823SNL	LM259X-L23	38	1.2	13.2	0.1	LP-37	LCI-37	—
PE-53824NL	PE-53824SNL	LM259X-L24	26	1.48	9.9	0.1	LP-37	LCI-37	—
PE-53825NL	PE-53825SNL	LM259X-L25	18	1.81	9.9	0.06	LP-37	LCI-37	—
PE-53826NL	PE-53826SNL	LM259X-L26	377	0.68	75.9	1.0	LP-44	LCI-44	—
PE-53827NL	PE-53827SNL	LM259X-L27	248	0.83	72.6	0.6	LP-44	LCI-44	—
PE-53828NL	PE-53828SNL	LM259X-L28	168	1.02	56.1	0.4	LP-44	LCI-44	—
PE-53829NL	PE-53829SNL	LM259X-L29	112	1.26	42.9	0.3	LP-44	LCI-44	—
PE-53830NL	PE-53830SNL	LM259X-L30	77	1.54	33	0.2	LP-44	LCI-44	—
PE-53831NL	PE-53831SNL	LM259X-L31	53	1.87	26.4	0.13	LP-44	LCI-44	—
PE-53932NL	PE-53932SNL	LM259X-L32	37	2.24	19.8	0.10	LP-44	LCI-44	—
PE-53933NL	PE-53933SNL	LM259X-L33	24	2.74	16.5	0.07	LP-44	LCI-44	—
PE-53934NL	PE-53934SNL	LM259X-L34	17	3.0	13.2	0.05	KM-1.0	LCI-44	.023
PE-53935NL	PE-53935SNL	LM259X-L35	250	1.5	72.6	0.23	KM-3.0	HCI-68	.023
PE-54036NL	PE-54036SNL	LM259X-L36	168	1.81	75.9	0.18	KM-3.0	HCI-68	.023
PE-54037NL	PE-54037SNL	LM259X-L37	114	2.22	62.7	0.10	KM-3.0	HCI-68	.025
PE-54038NL	PE-54038SNL	LM259X-L38	77	2.7	52.8	0.09	KM-3.0	HCI-68	.025
PE-54039NL	PE-54039SNL	LM259X-L39	53	3.0	42.9	0.08	KM-3.0	HCI-68	.025
PE-54040NL	PE-54040SNL	LM259X-L40	38	3.0	29.7	0.05	KM-3.0	HCI-68	.028
PE-54041NL	PE-54041SNL	LM259X-L41	25	3.0	19.8	0.04	KM-2.0	LCI-50	.028
PE-54042NL	—	LM259X-L42	167	2.5	75.9	0.14	KM-4.0	—	.028
PE-54043NL	—	LM259X-L43	121	3.0	75.9	0.09	KM-4.0	—	.031
PE-54044NL	PE-54044SNL	LM259X-L44	77	3.0	59.4	0.08	KM-3.0	HCI-68	.025
PE-53900NL	—	LM258X-L	19	4.5	32[3]	0.02	KM-3.0	—	.035

NOTES:

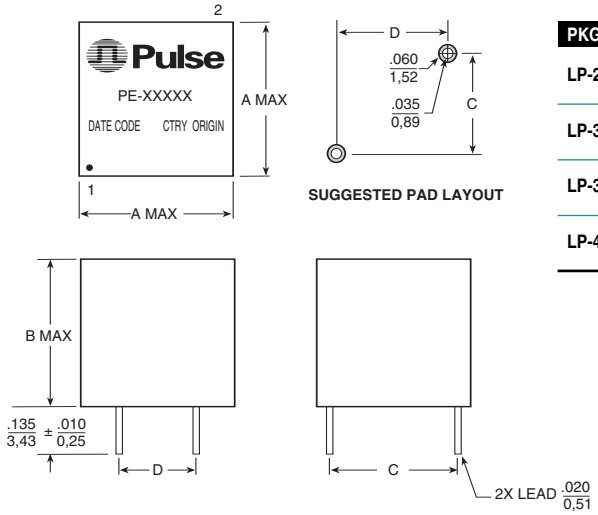
1. Inductance values may vary ±20%.
2. ETop rated at 150kHz except where designated.
3. ETop rated at 100kHz.
4. SIMPLE SWITCHER™ is a trademark of National Semiconductor Corp.
5. For SMT parts, optional Tape & Reel packaging can be ordered by addin a "**T**" suffix to the part number (i.e. PE-53801SNL becomes PE-53801SNL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
7. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

THT/SMT POWER INDUCTORS
Toroid - Designed for National's 150kHz Simple Switcher™

Pulse
A TECHNITROL COMPANY

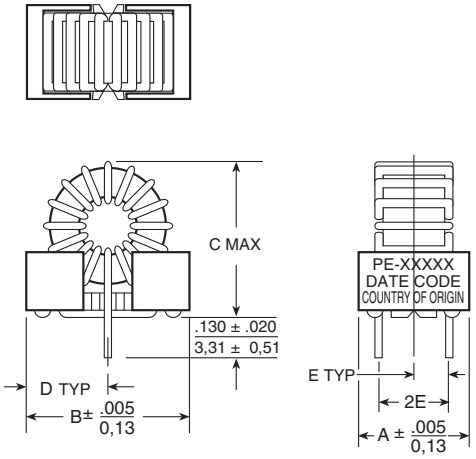
Mechanicals

LP Series



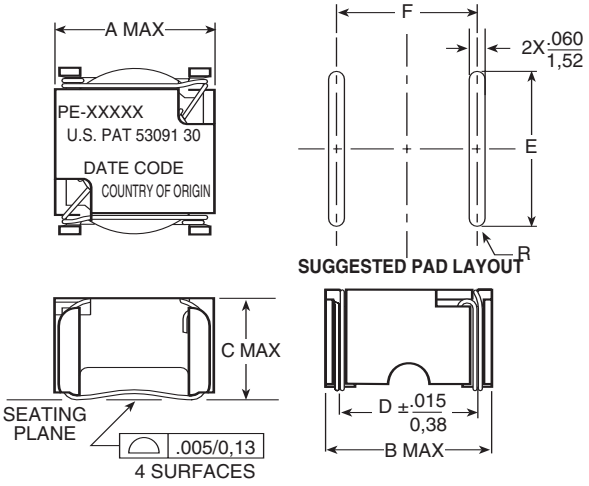
PKG	A	B	C	D
LP-25	.360 9,14	.310 7,87	.250 6,35	.250 6,35
LP-30	.400 10,16	.300 7,62	.300 7,62	.300 7,62
LP-37	.495 12,57	.375 9,52	.375 9,52	.375 9,52
LP-44	.635 16,13	.365 9,27	.500 12,7	.300 7,62

KM Series



PKG	A	B	C	D	E
KM-1.0	.340 8,64	.580 14,73	.650 16,51	.290 7,37	.110 2,79
KM-2.0	.450 11,43	.650 16,51	.700 17,73	.325 8,26	.150 3,81
KM-3.0	.450 11,43	830 21,08	.950 24,13	.415 10,54	.150 3,81
KM-4.0	.610 15,50	.970 24,64	1.10 27,94	.475 12,07	.225 5,72

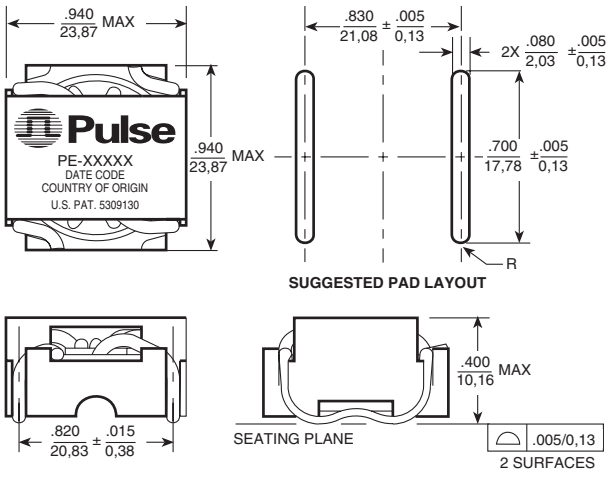
LCI Series



Notes:
1. Dimension "D" is measured across terminal blocks only.
2. Coil must clear seating plane by .010 / 0,25 MIN.

PKG	A	B	C	D	E	F
LCI-20	.340 8,64	.340 8,64	.270 6,86	.260 6,60	.300 7,62	.270 6,86
LCI-30	.435 11,05	.440 11,18	.360 9,14	.350 8,89	.400 10,16	.360 9,14
LCI-37	.565 14,35	.570 14,48	.360 9,14	.450 11,43	.520 13,21	.460 11,68
LCI-44	.600 15,24	.620 15,75	.390 9,91	.500 12,7	.550 13,97	.510 12,95
LCI-50	.670 17,02	.700 17,78	.390 9,91	.580 14,73	.620 15,75	.590 14,99

HCI-68



Note:
Coil must clear seating plane by .010 / 0,25 MIN

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

THT POWER INDUCTORS
Toroid - Bare Coil Series

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- Low cost solutions for VRM, Game Console and Consumer applications
- **Current Range:** up to 48A
- **Inductance Range:** 5µH to 12µH
- **Frequency Range:** up to 1MHz
- Custom configurations are possible

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part* Number	Reference Data				Build	Design Calculation Data					
	Inductance @ Irated (µH TYP)	Irated [2] (A)	DCR (mΩ MAX)	Inductance @0ADC (µH ±20%)		H1	K1	K2	K3	K4	K5
PG0122NL	0.48	30.5	2.0	0.60	Material 18 T60-18 3x18GA,4T	1.3	134	8.2E-03	1.2	2.3	47
PG0123NL	0.49	48.0	0.85	0.86	Material 18 T60-18 3x17GA,5T	1.7	107	8.2E-03	1.2	2.3	47
PA0690NL	0.50	22.5	1.5	0.88	Material 52 T44-52 1x16GA,5T	2.4	202	3.1E-03	1.3	2.1	80
PA0235LNL	0.67	22.5	2.6	0.86	Material 8/90 T50-8/90 1x17GA,7T	2.8	128	6.4E-03	1.1	2.4	64
PA0689NL	0.80	21.5	2.0	1.70	Material 52 T44-52 1x16GA,7T	3.3	144	3.1E-03	1.3	2.1	80
PA0430LNL	0.86	37.5	1.6	1.96	Material 52 T68-52 2x16GA,7T	2.1	80	8.8E-03	1.3	2.1	42
P1967LNL	0.93	23.8	3.8	1.44	Material 52 T68-52 1x16GA,6T	1.8	93	8.8E-03	1.3	2.1	42
PG0116NL	1.02	14.9	4.2	1.70	Material 52 T44-52 1x18GA,7T	3.3	144	3.1E-03	1.3	2.1	80
PA0489LNL	1.05	19.0	2.7	2.24	Material 52 T44-52 1x16GA,8T	3.8	126	3.1E-03	1.3	2.1	80
PG0112NL	1.10	13.8	7.0	2.50	Material 52 T50-52 3x22GA,9T	3.6	99	4.2E-03	1.3	2.1	64
P1715LNL	1.81	14.3	5.0	3.50	Material 52 T44-52 1x17GA,10T	4.7	101	3.1E-03	1.3	2.1	80
PA0431LNL	3.22	20.5	5.5	7.80	Material 52 T68-52 1x16GA,14T	4.2	40	8.8E-03	1.3	2.1	42
PA0432LNL	5.00	20.5	7.5	12.10	Material 52 T80-52 1x16GA,17T	4.2	25	1.4E-02	1.3	2.1	32

***NOTE:** The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

THT POWER INDUCTORS
Toroid - Bare Coil Series

Pulse
A TECHNITROL COMPANY

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
2. The rated current is the current that will cause the temperature of the part to increase by 40°C with 3.6 volt * µsec across the component and 100LFM of forced air cooling.
3. To determine the inductance of a component at a different operating current, use the graph below for the appropriate material type.
4. In high volt-µsec applications additional heating may occur due to core losses in the inductor which may necessitate derating the current in order to limit the temperature rise of the component. In order to determine the approximate total losses (or temperature rise) of the component in particular applications, the following formulas can be used.

Estimated Temperature Rise:

Trise = AirFlowFactor * K5 * (Coreloss(W) + Copperloss(W))$^{.833}$ (C)
Where
AirFlowFactor = 1 (no air flow), 0.53 (100LFM), 0.39 (200LFM), 0.35 (300LFM), 0.30 (400LFM)

CopperLoss = Irms^2 * DCR_Typical (mΩ) / 1000

DCR_Typical (mΩ) = .85 * DCR_Max(from table)

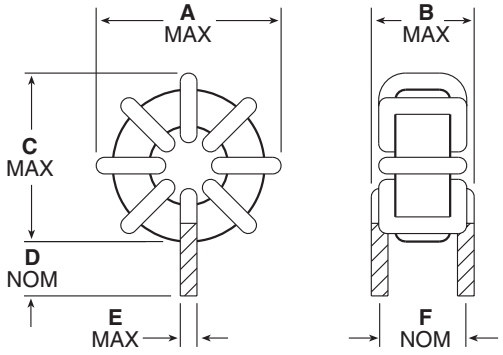
CoreLoss = K2 * (Freq_kHz)^{K3} * (ΔB/2000)^{K4}

ΔB = K1 * Volt-µsec

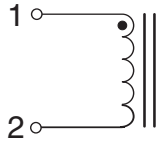
Dimensions (in/mm)

Part No.	A	B	C	D	E	F
PG0122	.807 20,50	.374 9,50	.748 19,00	.126 3,20	.098 2,50	.354 9,00
PG0123	.807 20,50	.413 10,50	.748 19,00	.126 3,20	.106 2,68	.354 9,00
PA0690	.625 15,90	.345 8,80	.545 13,80	.129 3,30	.052 1,30	.300 7,60
PA0235L	N/A	.400 10,20	.660 16,80	.150 3,80	.050 1,30	.300 7,60
PA0689	.625 15,90	.345 8,80	.545 13,80	.129 3,30	.052 1,30	.300 7,60
PA0430L	.874 22,20	.374 9,50	N/A	.250 6,40	N/A	.245 6,20
P1967L	.906 23,00	.492 12,50	.906 23,00	.130 3,30	.055 1,40	.300 7,60
PG0116	.571 14,50	.276 7,00	.571 14,50	.126 3,20	.041 1,05	.276 7,00
PA0489L	.604 15,30	.323 8,20	.556 14,10	.157 4,00	.048 1,20	.250 6,40
PG0112	.630 16,00	.374 9,50	.630 16,00	.126 3,20	.063 1,60	.295 7,50
P1715L	.610 15,50	.325 8,30	N/A	.130 3,30	.045 1,10	.300 7,60
PA0431L	.874 22,20	.374 9,50	N/A	.250 6,40	.054 1,40	.240 6,10
PA0432L	.980 24,90	.440 11,20	.980 24,90	.250 6,40	.054 1,40	.310 7,90

Mechanical

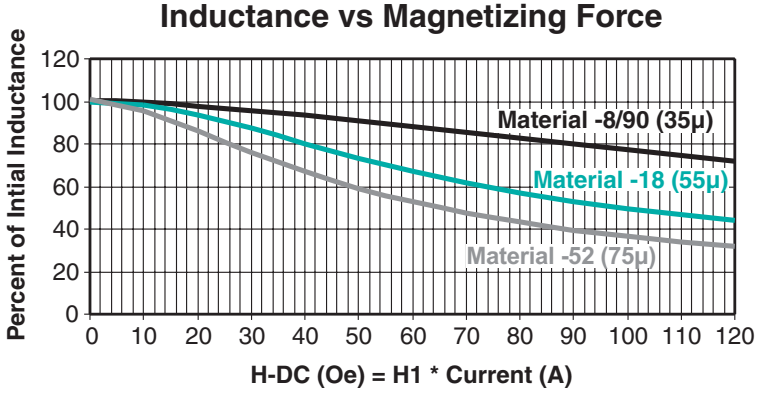


Schematic



Dimensions: Inches / mm

Inductance vs Magnetizing Force



THT POWER INDUCTORS

Power Cube Inductors - PG0220NL Series

Pulse
A TECHNITROL COMPANY

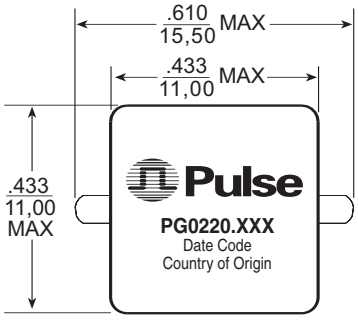
RoHS COMPLIANT

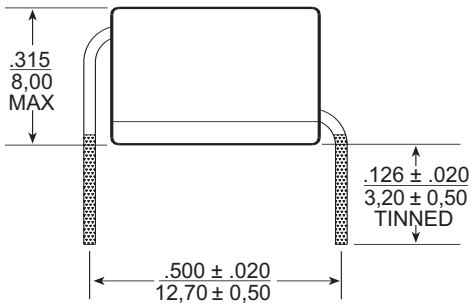
- **Height:** 8mm Max
- **Footprint:** 15.5mm x 11mm Max
- **Current Rating:** up to 50Apk
- **Inductance Range:** 0.14µH to 2.25µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [1]

Part[8] Number	Inductance @Irated[2] (µH TYP)	Irated[3] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @0Adc (µH ±15%)	Saturation[4] Current Isat (A)	Heating[5] Current Idc (A)	"Z" (REF)	Core Loss[6] Factor (K1)	Core Loss[6] Factor (K2)
PG0220.151NL	0.14	38.7	0.70	0.80	0.15	50	38.7	.063/1.6	1.14E-09	17.27
PG0220.281NL	0.25	38.7	0.70	0.80	0.28	45	38.7	.063/1.6	1.14E-09	32.24
PG0220.351NL	0.32	25.5	1.66	1.85	0.35	45	25.5	.051/1.3	1.14E-09	28.79
PG0220.451NL	0.41	25.5	1.66	1.85	0.45	35	25.5	.051/1.3	1.14E-09	37.01
PG0220.601NL	0.54	20.2	2.50	2.80	0.60	35	20.2	.043/1.1	1.14E-09	38.38
PG0220.801NL	0.72	20.2	2.50	2.80	0.80	25	20.2	.043/1.1	1.14E-09	51.18
PG0220.102NL	0.90	16.5	3.80	4.10	1.00	20	16.5	.039/1.0	1.14E-09	52.34
PG0220.132NL	1.17	16.5	3.80	4.10	1.30	20	16.5	.039/1.0	1.14E-09	68.04
PG0220.152NL	1.35	15.3	4.50	4.80	1.50	18	15.3	.039/1.0	1.14E-09	66.43
PG0220.182NL	1.62	15.3	4.50	4.80	1.80	18	15.3	.039/1.0	1.14E-09	79.72
PG0220.222NL	1.98	14.0	5.30	5.50	2.20	16	14.0	.039/1.0	1.14E-09	84.44
PG0220.252NL	2.25	14.0	5.30	5.50	2.50	16	14.0	.039/1.0	1.14E-09	95.95

Mechanical



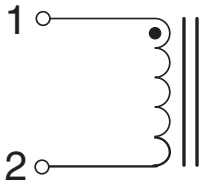


Weight . . . . . .4 grams TYP
Tray 90/tray

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

SUGGESTED PAD LAYOUT

Schematic



Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, Isat, is the current at which the component inductance drops by 10% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss = $K1 * (f)^{1.48} * (K2\Delta I)^{1.97}$

   Where: Core Loss = in Watts

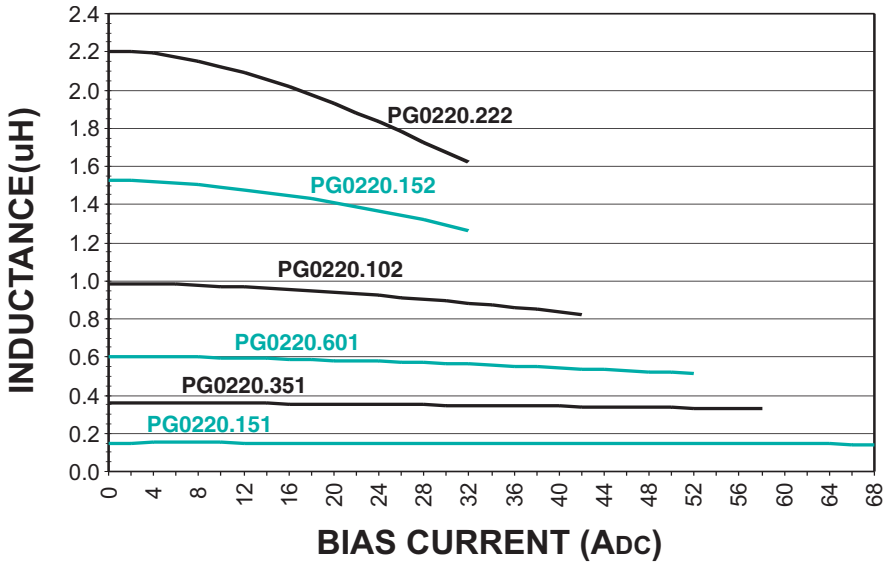
   f = switching frequency in kHz

   K1 & K2 = core loss factors

   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.
8. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Typical Inductance vs DC Bias Current Characteristics



THT POWER INDUCTORS
Power Cube Inductors - PG0200NL Series

Pulse
A TECHNITROL COMPANY

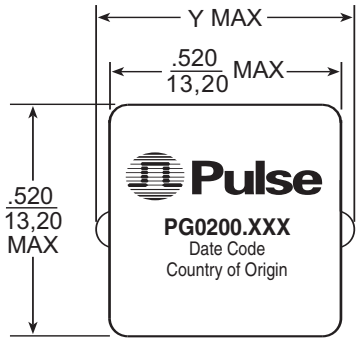
RoHS COMPLIANT

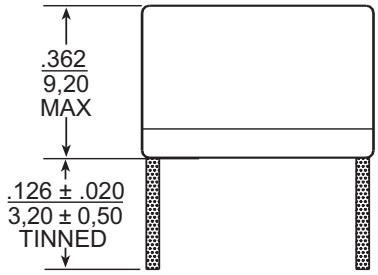
- **Height:** 9.2mm Max
- **Footprint:** 16.0mm x 13.2mm Max
- **Current Rating:** up to 60Apk
- **Inductance Range:** 0.21µH to1.60µH

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C [1]

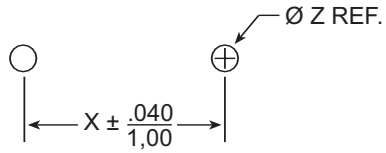
Part[8] Number	Inductance[2] @Irated (µH TYP)	Irated[3] (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @0ADC (µH ±15%)	Saturation[4] Current ISAT (A)	Heating[5] Current IDC (A)	Core Loss[6] Factor (K1)	Core Loss[6] Factor (K2)
PG0200.221NL	0.21	45	0.45	0.60	0.22	60+	45	5.12E-09	12.83
PG0200.351NL	0.32	45	0.45	0.60	0.35	55	45	5.12E-09	20.41
PG0200.451NL	0.43	29	1.10	1.45	0.45	50	29	5.12E-09	18.74
PG0200.601NL	0.57	29	1.10	1.45	0.60	45	29	5.12E-09	24.99
PG0200.801NL	0.76	23	2.10	2.40	0.80	44	23	5.12E-09	25.92
PG0200.102NL	0.88	23	2.10	2.40	1.0	35	23	5.12E-09	32.39
PG0200.132NL	1.23	19	2.55	3.00	1.3	34	19	5.12E-09	34.46
PG0200.152NL	1.42	19	2.55	3.00	1.5	25	19	5.12E-09	39.76
PG0200.182NL	1.60	19	2.55	3.00	1.8	20	19	5.12E-09	47.71

Mechanical



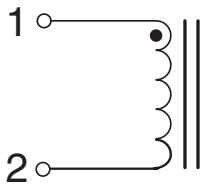


Part No.	X (in./mm)	Y (in./mm)	Z (in./mm)
PG0200.221	.492/12,50	.630/16,00	.087/2,20
PG0200.351	.492/12,50	.630/16,00	.087/2,20
PG0200.451	.500/12,70	.618/15,70	.063/1,60
PG0200.601	.500/12,70	.618/15,70	.063/1,60
PG0200.801	.394/10,00	.512/13,00	.051/1,30
PG0200.102	.394/10,00	.512/13,00	.051/1,30
PG0200.132	.433/11,00	.551/14,00	.051/1,30
PG0200.152	.433/11,00	.551/14,00	.051/1,30
PG0200.182	.433/11,00	.551/14,00	.051/1,30



SUGGESTED PAD LAYOUT

Schematic



Weight . . . . . .7.2 grams
Tray 130/tray

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, Isat, is the current at which the component inductance drops by 15% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss = $K1 * (f)^{1.26} * (K2\Delta I)^{2.11}$

   Where: Core Loss = in Watts

   f = switching frequency in kHz

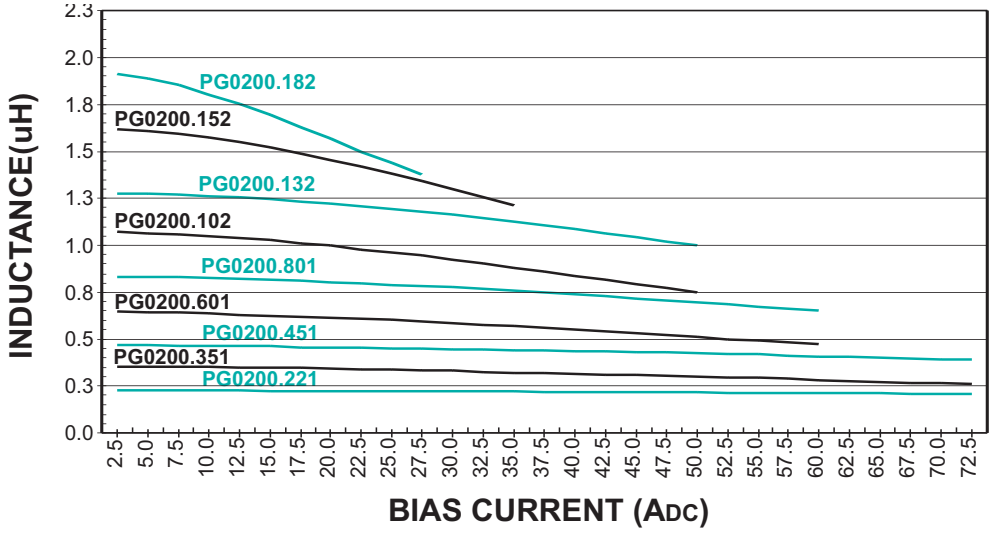
   K1 & K2 = core loss factors

   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss

7. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.
8. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Typical Inductance vs DC Bias Current Characteristics



THT POWER INDUCTORS
Power Cubes - PG0322NL Series

Pulse
A TECHNITROL COMPANY

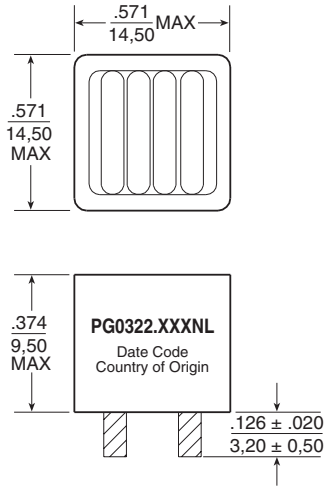
RoHS COMPLIANT

- **Height:** 9.5mm Max
- **Footprint:** 14.5mm x 14.5mm Max
- **Current Rating:** up to 60A
- **Inductance Range:** 0.25µH to 1.10µH

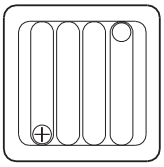
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [1]

Part Number	Inductance[2] @Irated (µH TYP)	Irated[3] (A)	DCR (mΩ ±8%)	Inductance @0ADC (µH ±15%)	Saturation[4] Current Isat (A)	Heating[5] Current IDC (A)	Core Loss[6] Factor K1	Core Loss[6] Factor K2
PG0322.281NL	0.25	50	0.47	0.28	50	60	3.55e-11	17.6
PG0322.451NL	0.41	43	0.96	0.45	47	43	3.55e-11	20.2
PG0322.601NL	0.54	40	0.96	0.60	40	43	3.55e-11	26.9
PG0322.801NL	0.72	37	1.25	0.80	37	38	3.55e-11	27.9
PG0322.122NL	1.10	30	1.55	1.20	30	32	3.55e-11	34.3

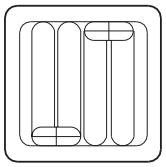
Mechanical



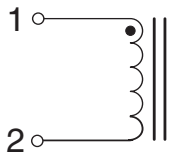
For Single Wire Assembly



For Double Wire Assembly



Schematic



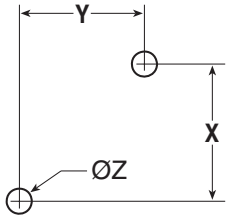
Weight (TYP) . . . . . .8.2 grams
Tray 100/tray

Dimensions: Inches / mm

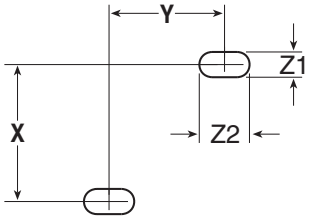
Unless otherwise specified, all tolerances are ± .010 / 0,25

Suggested Pad Layout

For Single Wire Assembly



For Double Wire Assembly



Pad Layout Dimensions (in./mm)

Part Number	X ±.039/1.0	Y ±.039/1.0	Z MAX	Z1 MAX	Z2 MAX
PG0322.281NL	.276/7,00	.295/7,50	–	.075/1,90	.114/2,90
PG0322.451NL	.276/7,00	.315/8,00	–	.059/1,50	.094/2,40
PG0322.601NL	.276/7,00	.315/8,00	–	.059/1,50	.094/2,40
PG0322.801NL	.295/7,50	.315/8,00	.063/1,60	–	–
PG0322.122NL	.295/7,50	.354/9,00	.063/1,60	–	–

Notes from Tables

1. The temperature of the component (ambient plus temperature rise) must be within the specified operating temperature range.
2. Inductance at Irated is a typical inductance value for the component taken at rated current.
3. The rated current listed is the lower of the saturation current @ 25°C or the heating current.
4. The saturation current, I_{SAT}, is the current at which the component inductance drops by 5% (typical) at an ambient temperature of 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current, I_{DC}, is the DC current required to raise the component temperature by approximately 40°C. The heating current is determined by mounting the component on a typical PCB and applying current for 30 minutes. The temperature is measured by placing the thermocouple on top of the unit under test. Take note that the component's performance varies depending on the system condition. It is suggested that the component be tested at the system level, to verify the temperature rise of the component during system operation.
6. Core loss approximation is based on published core data:

   Core Loss @ 100°C = $K1 * (f)^{1.6} * (K2\Delta I)^{2.36}$

   Where: Core Loss = in Watts

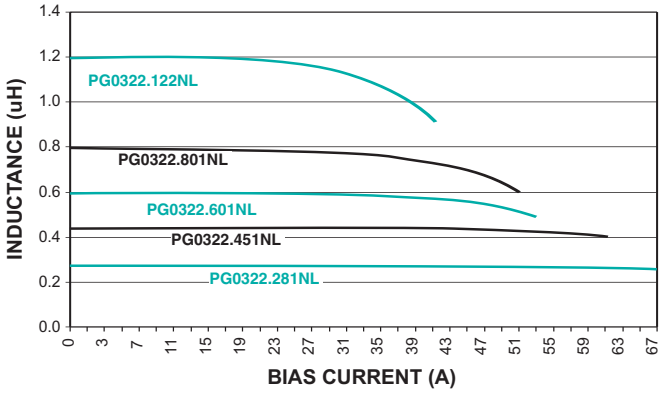
   f = switching frequency in kHz

   K1 & K2 = core loss factors

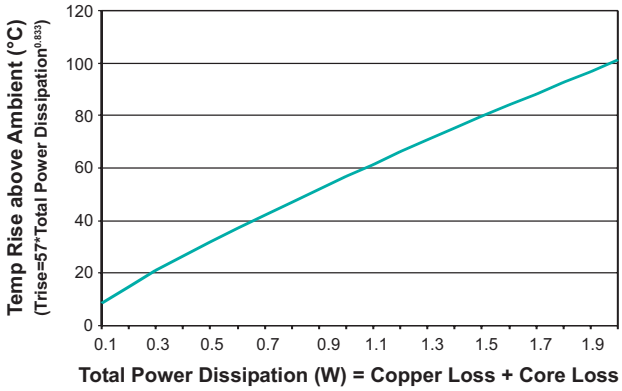
   ΔI = delta I across the component in Ampere

   K2ΔI = one half of the peak to peak flux density across the component in Gauss
7. Unless otherwise specified, all testing is made at 100kHz, 0.1V_{AC}.

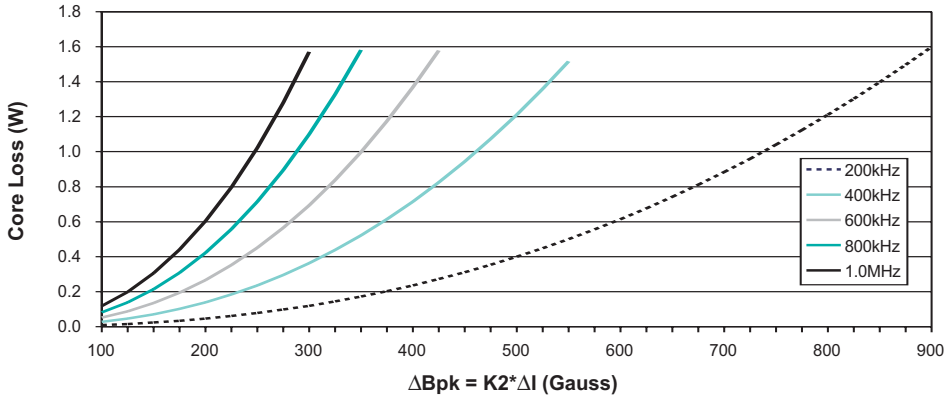
Inductance vs Current Characteristics



Temp. Rise vs Power Dissipation



Core Loss vs Flux Density



HIGH FREQUENCY PLANAR TRANSFORMERS

PA08XXNL Series (up to 140W)

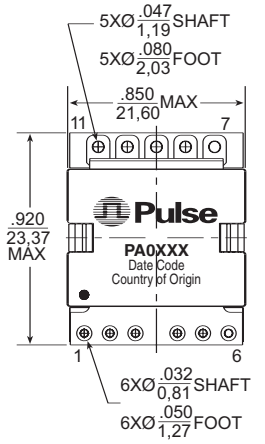
- **Power Rating:** up to 140W
- **Height:** 8.6mm to 9.7mm Max
- **Footprint:** 23.4mm x 21.6mm Max
- **Frequency Range:** 200kHz to 700kHz
- **Isolation (Primary to Secondary & Core):** 1750VDC

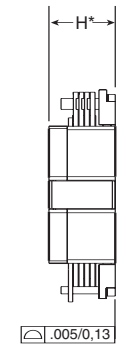
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C

Part [3] Number	Turns			Schematic	Primary [1] Inductance (µH MIN)	Leakage [2] Inductance (µH MAX)	DCR (mΩ MAX)			Maximum Height (mm)
	Primary A	Primary B	Secondary				Primary A	Primary B	Secondary	
PA0801NL	4T	4T	4T (1T:1T:1T:1T)	A1	153	0.45	17.5	17.5	7	8.6
PA0802	4T	5T			194	0.45	17.5	20	7	8.6
PA0803NL	5T	5T			240	0.55	20	20	7	8.6
PA0804NL	5T	6T			290	0.60	20	25	7	8.6
PA0805NL	6T	6T			345	0.65	25	25	7	8.6
PA0806NL	4T	4T	1T & 1T	A2	153	0.45	17.5	17.5	.875 & .875	8.6
PA0807	4T	5T			194	0.45	17.5	20	.875 & .875	8.6
PA0808NL	5T	5T			240	0.55	20	20	.875 & .875	8.6
PA0809NL	5T	6T			290	0.60	20	25	.875 & .875	8.6
PA0810NL	6T	6T			345	0.65	25	25	.875 & .875	8.6
PA0811NL	4T	4T	2T & 1T	A3	153	0.45	17.5	17.5	1.75 & 1.75	8.6
PA0812	4T	5T			194	0.45	17.5	20	1.75 & 1.75	8.6
PA0813NL	5T	5T			240	0.45	20	20	1.75 & 1.75	8.6
PA0814NL	5T	6T			290	0.50	20	25	1.75 & 1.75	9.7
PA0815NL	6T	6T			345	0.55	25	25	1.75 & 1.75	9.7

Notes: 1. Inductance is measured with both primary windings connected in series (2 to 5, with 3 and 4 shorted). **2.** Leakage inductance is measured on winding (2-5) with (3,4) and (7, 8, 9, 10, 11) shorted. **3.** The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability. **4.** Basic insulated parts can be made available. Please contact Pulse for availability.

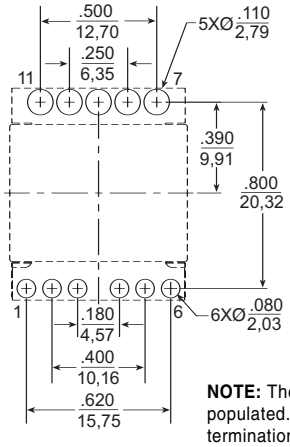
Mechanical





*H - Maximum Height (see table above)

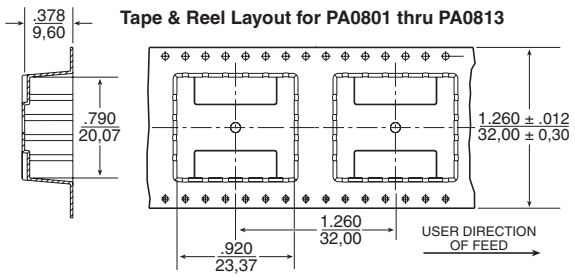
SUGGESTED PAD LAYOUT



Weight .....11.0 grams
Tape & Reel.....180/reel
Tray 40/tray

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

Tape & Reel Layout for PA0801 thru PA0813



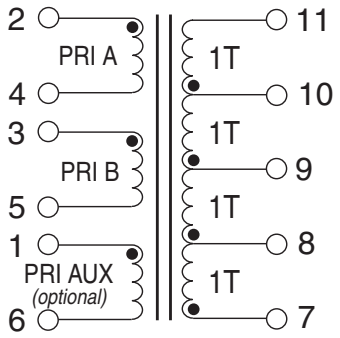
NOTE: The above is a universal footprint for a component that has all 11 pins populated. For a given part number, it is only necessary to provide pads for the terminations shown in the schematics on the next page.

HIGH FREQUENCY PLANAR TRANSFORMERS
PA08XXNL Series (up to 140W)

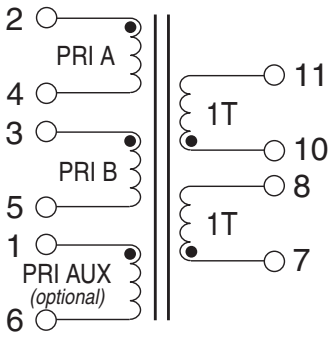
Pulse
A TECHNITROL COMPANY

Schematics

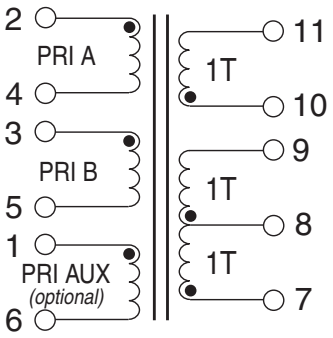
A1
PA0801 / 02 / 03 / 04 / 05



A2
PA0806 / 07 / 08 / 09 / 10



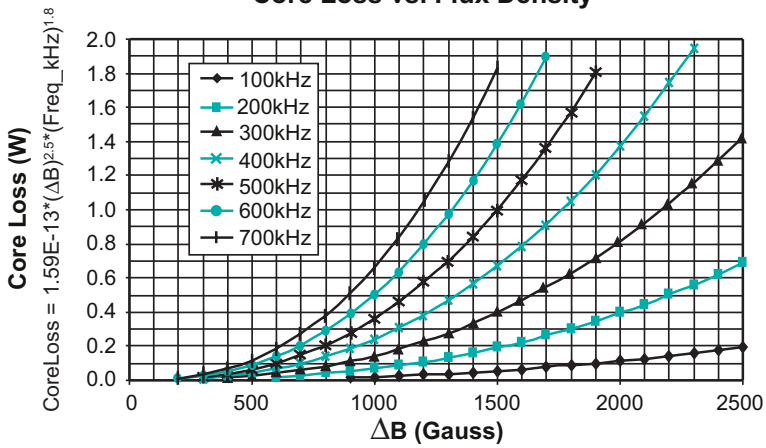
A3
PA0811 / 12 / 13 / 14 / 15



Notes

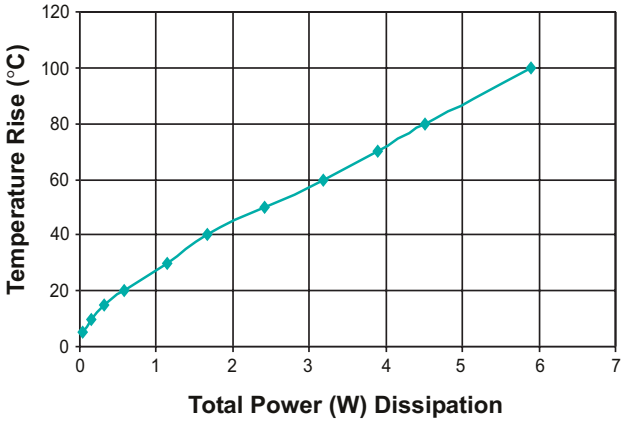
1. The above transformers have been tested and approved by Pulse's IC partners and are cited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC companies are matched with the above transformers, please refer to the IC cross reference on the Pulse web page. See the Spyglass transfomer matrix on the next page for other winding configurations that can be made available.
2. To determine if the transformer is suitable for your application, it is necessary to ensure that the temperature rise of the component (ambient plus temperature rise) does not exceed its operating temperature. To determine the approximate temperature rise of the transformer, refer to the graphs below.

Core Loss vs. Flux Density



ΔB = 180E3 * Vin_min * Dutycycle_max / (Freq_kHz * Pri_Turns)

Temperature Rise vs. Power (W) Dissipation



HIGH FREQUENCY PLANAR TRANSFORMERS
PA08XXNL Series (up to 140W)

Pulse
A TECHNITROL COMPANY

PA08XX Transformer Winding Configuration Matrix

The following is a matrix of the winding configurations that are possible with the Pulse PA08XX Planar Transformer Platform. The package is typically capable of handling between 80-140W of power depending on the application, ambient conditions and available cooling. Once a configuration is selected, the formulae and charts can be used to determine the approximate power dissipation and temperature rise of the component in a given application.

				SECONDARY WINDINGS									
				Single Winding				Tapped Winding				Dual Winding	
		Turns		1T	2T	3T	4T	1:1	1:2	1:3	2:2	1T & 1T	1T & 2T
			DCR (mΩ)	0.44	1.3	3.5	7	1.3	3.5	7	7	1.3	3.5
PRIMARY WINDINGS	Single Winding	4T	10	PA0806	PA0806	PA0811	PA0801	PA0806	PA0811	PA0801	PA0801	PA0806	PA0811
		5T	12.5	PA0808	PA0808	PA0813	PA0803	PA0808	PA0813	PA0803	PA0803	PA0808	PA0813
		6T	15	PA0810	PA0810	PA0815	PA0805	PA0810	PA0815	PA0805	PA0805	PA0810	PA0815
		8T	40	PA0806	PA0806	PA0811	PA0801	PA0806	PA0811	PA0801	PA0801	PA0806	PA0811
		9T	45	PA0807	PA0807	PA0812	PA0802	PA0807	PA0812	PA0802	PA0802	PA0807	PA0812
		10T	50	PA0808	PA0808	PA0813	PA0803	PA0808	PA0813	PA0803	PA0803	PA0808	PA0813
		11T	55	PA0809	PA0809	PA0814	PA0804	PA0809	PA0814	PA0804	PA0804	PA0809	PA0814
		12T	60	PA0810	PA0810	PA0815	PA0805	PA0810	PA0815	PA0805	PA0805	PA0810	PA0815
	Dual Winding	4T/4T	20/20	PA0806	PA0806	PA0811	PA0801	PA0806	PA0811	PA0801	PA0801	PA0806	PA0811
		4T/5T	20/25	PA0807	PA0807	PA0812	PA0802	PA0807	PA0812	PA0802	PA0802	PA0807	PA0812
		5T/5T	25/25	PA0808	PA0808	PA0813	PA0803	PA0808	PA0813	PA0803	PA0803	PA0808	PA0813
		5T/6T	25/30	PA0809	PA0809	PA0814	PA0804	PA0809	PA0814	PA0804	PA0804	PA0809	PA0814
		6T/6T	30/30	PA0810	PA0810	PA0815	PA0805	PA0810	PA0815	PA0805	PA0805	PA0810	PA0815

NOTES:

1. The primary inductance for any configuration can be calculated as:

   Primary Inductance (µH MIN) = 2.4 * (Primary_Turns)^2

2. The above base part numbers (**PA08XXNL**) are available from stock.
3. It is possible to add a small gap to the transformer. Gapped transformers are non-standard and can be made available upon request, but are not typically available from stock. To request a gapped version of the transformer, add a suffix '**G**' to the base number (ie: PA0801NL**G** or PA0801.004NL**G** etc.). The nominal inductance with the a gap can be calculated as:

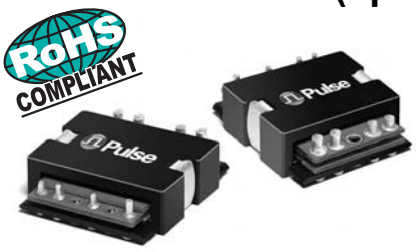
   Primary Inductance (µH nominal) = 0.69 * (Primary Turns)^2

4. It is possible to add a primary side aux. winding to any of the above configurations as shown in the schematics. Transformers with primary side aux. windings are non-standard and can be made available upon request, but are not typically available from stock. The primary aux. winding can be between 2 and 16 turns. To add a primary aux. winding to a given base, use the extension **.0XX**. For example, to add a 4T aux. winding to the base part number **PA0801NL**, use the part number **PA0801.004NL**. To add a 16T aux. winding, use the part number **PA0801.016NL**.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the complete part number (i.e. PA0801 becomes PA0801**T** for no AUX - PA0801.009NL becomes PA0801T.009NL**T** for 9T AUX). Pulse complies to industry standard tape and reel specification EIA481.

HIGH FREQUENCY PLANAR TRANSFORMERS

PA09XXNL Series (up to 250W)

Pulse
A TECHNITROL COMPANY



- **Power Rating:** up to 250W
- **Height:** 9.1mm to 10.4mm Max
- **Footprint:** 29.5mm x 25.4mm Max
- **Frequency Range:** 200kHz to 700kHz
- **Isolation (Primary to Secondary):** 1750VDC

Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C

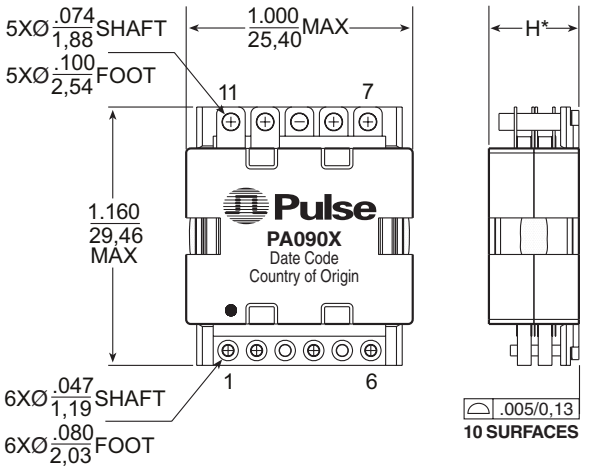
Part Number	Turns Ratio		Schematic	Primary* Inductance (µH MIN)	Leakage** Inductance (µH MAX)	DCR (mΩ MAX)				Maximum Height (mm)
	Primary	Secondary				Primary A	Primary B	Primary Aux.	Secondary	
DOUBLE INTERLEAVE DESIGNS (HIGHER EFFICIENCY, LOWER DCR AND LOWER LEAKAGE)										
PA0901NL	4T & 4T	4T (1T:1T:1T:1T)	A1	216	0.3	12	12	—	4.5	10.2
PA0903NL	5T & 5T (w/5T aux)			340	0.3	15	15	235		
PA0905NL	6T & 6T (w/2T aux)			480	0.3	21	21	78		
PA0907	7T & 7T (w/3T aux)			660	0.3	50	50	100		
PA0909NL	8T & 8T			860	0.3	60	60	—		
PA0908NL	4T & 4T	1T & 1T	A2	216	0.3	12	12	—	0.56 & 0.56	10.2
PA0910NL	5T & 5T (w/5T aux)			340	0.3	15	15	235		
PA0912NL	6T & 6T (w/2T aux)			480	0.3	21	21	78		
PA0914NL	7T & 7T (w/3T aux)			660	0.3	50	50	100		
PA0916	8T & 8T			860	0.3	60	60	—		
SINGLE INTERLEAVE DESIGNS (LOWER COST)										
PA0930	4T	4T (1T:1T:1T:1T)	B1	54	0.3	12	—	—	4.5	9.1
PA0931NL	5T (w/5T aux)			85	0.3	15	—	470		
PA0932	6T (w/2T aux)			120	0.3	21	—	156		
PA0933	7T (w/3T aux)			165	0.3	50	—	200		
PA0946	8T			215	0.3	60	—	—		
PA0934	4T	7T & 7T	B2	54	0.3	12	—	—	40 & 40	9.1
PA0935	5T (w/5T aux)			85	0.3	15	—	470		
PA0936	6T (w/2T aux)			120	0.3	21	—	156		
PA0937	7T (w/3T aux)			165	0.3	50	—	200		
PA0947NL	8T			215	0.3	60	—	—		
PA0938	4T	1T & 1T	B2	54	0.3	12	—	—	1.12 & 1.12	9.1
PA0939	5T (w/5T aux)			85	0.3	15	—	470		
PA0940	6T (w/2T aux)			120	0.3	21	—	156		
PA0941	7T (w/3T aux)			165	0.3	50	—	200		
PA0948	8T			215	0.3	60	—	—		
PA0942	4T	2T & 1T	B3	54	0.3	12	—	—	1.8 & 0.6	9.1
PA0943NL	5T (w/5T aux)			85	0.3	15	—	470		
PA0944	6T (w/2T aux)			120	0.3	21	—	156		
PA0945	7T (w/3T aux)			165	0.3	50	—	200		
PA0949	8T			215	0.3	60	—	—		

Notes: *Inductance is measured, where applicable, with both primary windings connected in series (2 to 5, with 3 and 4 shorted).
**Leakage inductance is measured with both primary windings connected in series (where applicable) with all other windings shorted.

HIGH FREQUENCY PLANAR TRANSFORMERS
PA09XXNL Series (up to 250W)

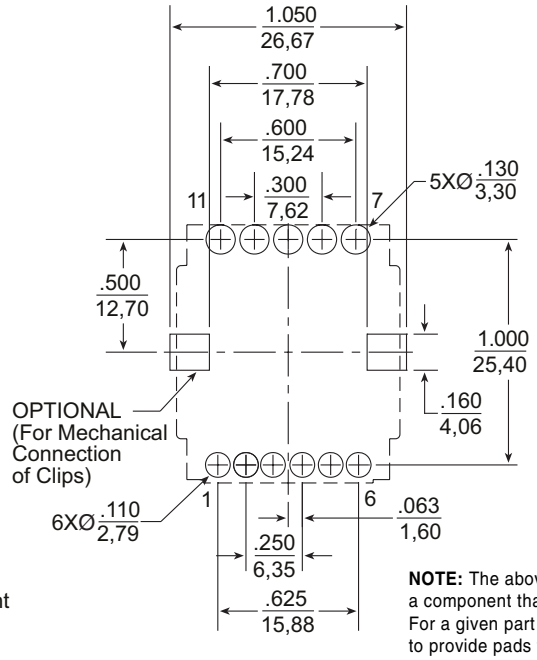
Mechanical

Weight .....19.8 grams
Tray.....30/tray
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25



*H - Maximum Height (see table above)

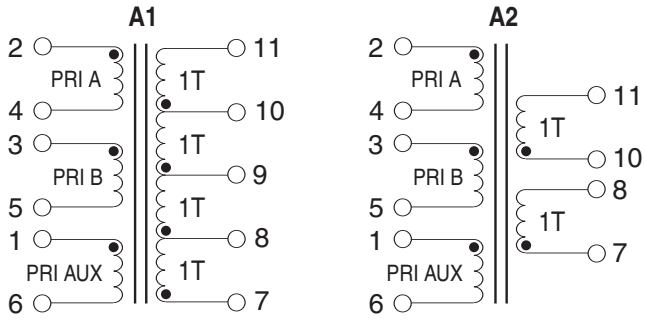
SUGGESTED PAD LAYOUT



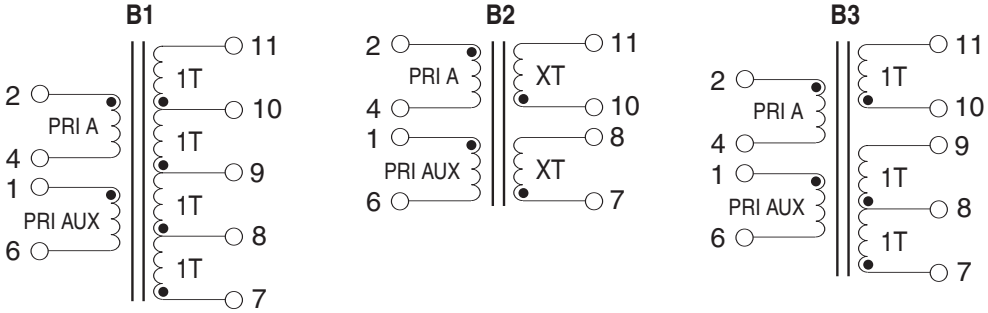
NOTE: The above is a universal footprint for a component that has all 11 pins populated. For a given part number it is only necessary to provide pads for the terminations shown in the schematic below.

Schematics

— DOUBLE INTERLEAVE SCHEMATICS —



— SINGLE INTERLEAVE SCHEMATICS —



HIGH FREQUENCY PLANAR TRANSFORMERS
PA09XXNL Series (up to 250W)

Pulse
A TECHNITROL COMPANY

PA09XX Transformer Winding Configuration Matrix

The following is a matrix of the winding configurations that are possible with the Pulse PA090X Planar Transformer Platform. The package is typically capable of handling between 150-250W of power depending on the application, ambient conditions and available cooling. Once a configuration is selected, the formulae and charts can be used to determine the approximate power dissipation and temperature rise of the component in a given application.

High Efficiency Double Interleaved Designs

				SECONDARY WINDINGS						
				Single Winding			Tapped Winding			Dual Winding
		Turns		1T	2T	4T	1:1	1:3	2:2	1T & 1T
			DCR (mΩ)	0.28	1.12	4.5	1.12	4.5	4.5	1.12
PRIMARY WINDINGS	Single Winding	4T	5	PA0908	PA0908	PA0901	PA0908	PA0901	PA0901	PA0908
		5T	7.5	PA0910	PA0910	PA0903	PA0910	PA0903	PA0903	PA0910
		6T	12	PA0912	PA0912	PA0905	PA0912	PA0905	PA0905	PA0912
		7T	30	PA0914	PA0914	PA0907	PA0914	PA0907	PA0907	PA0914
		8T	20	PA0908	PA0908	PA0901	PA0908	PA0901	PA0901	PA0908
		10T	30	PA0910	PA0910	PA0903	PA0910	PA0903	PA0903	PA0910
		12T	48	PA0912	PA0912	PA0905	PA0912	PA0905	PA0905	PA0912
		14T	120	PA0914	PA0914	PA0907	PA0914	PA0907	PA0907	PA0914
		16T	140	PA0916	PA0916	PA0909	PA0916	PA0909	PA0909	PA0916
	Dual Winding	4T & 4T	20	PA0908	PA0908	PA0901	PA0908	PA0901	PA0901	PA0908
		5T & 5T	30	PA0910	PA0910	PA0903	PA0910	PA0903	PA0903	PA0910
		6T & 6T	48	PA0912	PA0912	PA0905	PA0912	PA0905	PA0905	PA0912
		7T & 7T	120	PA0914	PA0914	PA0907	PA0914	PA0907	PA0907	PA0914
		8T & 8T	140	PA0916	PA0916	PA0909	PA0916	PA0909	PA0909	PA0916

Lower Cost Single Interleaved Designs

				SECONDARY WINDINGS											
				Single Winding					Tapped Winding					Dual Winding		
		Turns		1T	2T	3T	4T	7T	1:1	1:2	1:3	2:2	7:7	1T & 1T	1T & 2T	7T & 7T
			DCR (mΩ)	0.56	2.24	3.4	4.5	20	2.24	3.4	4.5	4.5	80	2.24	4.5	80
PRIMARY WINDINGS	Single Winding	4T	10	PA0938	PA0938	PA0942	PA0930	PA0934	PA0938	PA0942	PA0930	PA0930	PA0934	PA0938	PA0942	PA0934
		5T	15	PA0939	PA0939	PA0943	PA0931	PA0935	PA0939	PA0943	PA0931	PA0931	PA0935	PA0939	PA0943	PA0935
		6T	24	PA0940	PA0940	PA0944	PA0932	PA0936	PA0940	PA0944	PA0932	PA0932	PA0936	PA0940	PA0944	PA0936
		7T	60	PA0941	PA0941	PA0945	PA0933	PA0937	PA0941	PA0945	PA0933	PA0933	PA0937	PA0941	PA0945	PA0937
		8T	70	PA0948	PA0948	PA0949	PA0946	PA0947	PA0948	PA0949	PA0946	PA0946	PA0947	PA0948	PA0947	PA0947

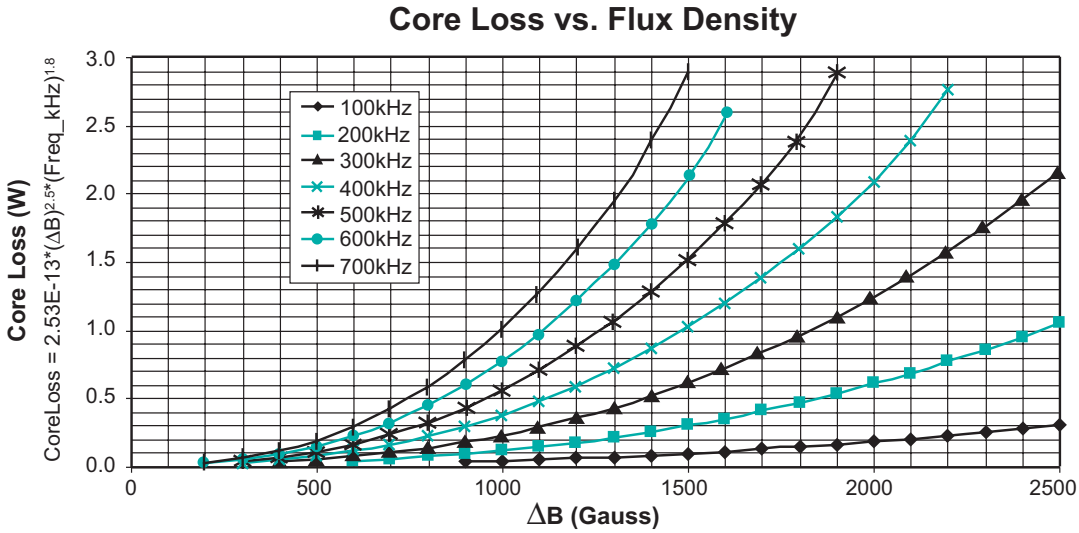
NOTES:

1. The base PN (ie: **PA0901**) uses an ungapped core. The minimum primary inductance for any configuration can be calculated as:
   Primary Inductance (µH Min) = 3.4 * (Primary Turns)^2
2. The above base part numbers (**PA09XX**) are available from stock
3. It is possible to add a small gap to the transformer. Gapped transformers are non-standard and can be made available upon request, but are not typically available from stock. To request a gapped version of the transformer, add a suffix "**G**" to the base number (ie: PA0901NL**G**). The nominal inductance with a gap can be calculated as: Primary Inductance (µH Nominal) = 2.2 * (Primary Turns)^2

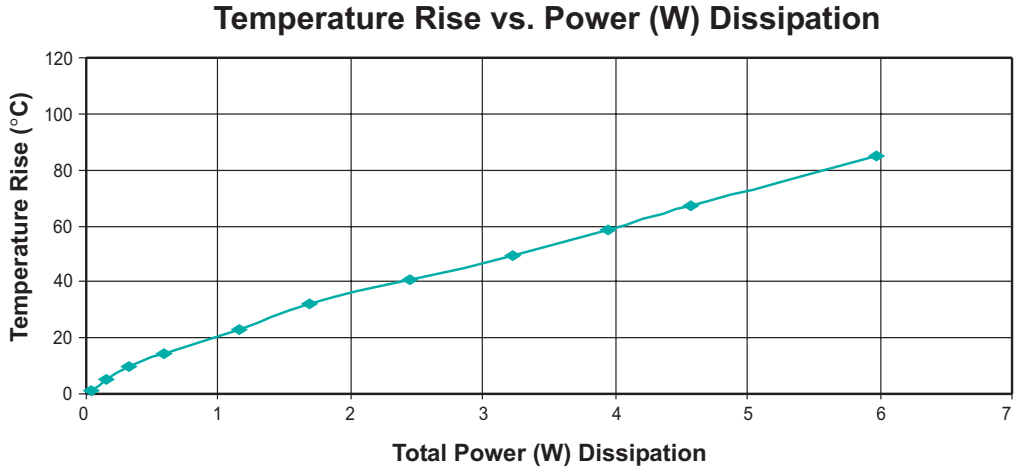
HIGH FREQUENCY PLANAR TRANSFORMERS
PA09XXNL Series (up to 250W)

Notes from Tables

1. The above transformers have been tested and approved by Pulse's IC partners and are cited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC companies are matched with the above transformers, please refer to the IC cross reference on the Pulse web page.
2. To determine if the transformer is suitable for your application, it is necessary to ensure that the temperature rise of the component (ambient plus temperature rise) does not exceed its operating temperature. To determine the approximate temperature rise of the transformer, refer to the graphs below.
3. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.



ΔB = 120E3 * Vin_min * Dutycycle_max / (Freq_kHz * Pri_Turns)



Total Power Dissipation (W) = .001 * (DCRprimary * $I_{RMS\_primary}^2$ + DCRsecondary * $I_{RMS\_secondary}^2$) + Core Loss (W)

HIGH FREQUENCY WIRE WOUND TRANSFORMERS

ER Platforms - ER9.5, ER11 and ER14.5

Pulse
A TECHNITROL COMPANY

- Transformers and Inductors
- Power: 1W to 9W
- Three Different SMT Platforms
- Custom designs available

Electrical Specifications @ 25°C — Operating Temperature -40°C to 125°C

TRANSFORMERS

Part Number [3,4]	Application [2]	Turns Ratio			Primary Secondary Isolation	Primary Inductance (µH MIN)	Leakage Inductance (µH MAX)	DCR (mΩ MAX)			
		Pri.	Sec.	Pri. Aux.				Pri.	Pri. Aux.	Sec. A	Sec. B
ER9.5 - 8 PIN SMT - (12.1MM x 10.7MM x 6.6MM MAX)											
PB2090	2.4W Flyback Transformer Vin=36-72v, Freq.=200kHz Vout=12v/0.2A, 12v/.05mA	1	0.33	0.330	1500Vdc Operational	132 @ 0.41A	5	700	820	185	N/A
PB2109	1.25W Flyback Transformer Vin=18-36v, Freq.=200kHz Vout=5v/0.25A, 12v/50mA	1	0.714	0.287	1500Vdc Operational	62 @ 0.52A	3	350	650	50	N/A
PB2110	2.4W Flyback Transformer Vin=18-36v, Freq.=200kHz Vout=12v/0.2A, 12v/50mA	1	0.68	0.680	1500Vdc Operational	32 @ 0.8A	2	180	820	185	N/A
PB2135	.5W Flyback Transformer Vin=20-30v, Freq.=200kHz Vout=±5v/50mA	1	0.42 0.42	N/A	1000Vac Operational	814 @ 0.8A	11	5772	N/A	364	364
PA0663NL	2.6W Flyback Transformer Vin=4.5-5.5v, Freq.=200kHz Vout=±5v/0.5A, 6v/0.02mA	1	1.11 (5v) 1.33 (6v)	N/A	2500Vdc Basic	4.6	0.15	100	N/A	97	73
ER11 - 10 PIN SMT - (12.7MM x 11.4MM x 6.6MM MAX)											
PA1032NL	5W Flyback Transformer Vin=30-57v, Freq.=250kHz Vout=3.3v/1.5A, 10v/15mA	1	0.166	0.500	1500Vdc Operational	46.6	1.65	380	250	15	N/A
PB2162	6W Flyback Transformer Vin=18-36v, Freq.=200kHz Vout=±12v/0.25A, 12v/20mA	1	0.393	0.393	500Vdc Operational	85 @ 0.8A	2.5	490	1100	298	298
ER14.5 - 10 PIN SMT - (16.5MM x 15.5MM x 7.6MM MAX)											
PA1006NL	7.5W Flyback Transformer Vin=36-65v, Freq.=250kHz Vout=5.0v/1.5A, 15v/30mA	1	0.154	0.462	1500Vdc Operational	152	5	670	750	21	N/A
PA1026NL	7.5W Flyback Transformer Vin=36-65v, Freq.=250kHz Vout=3.3v/2.25A, 16v/30mA	1	0.115	0.500	1500Vdc Operational	152	5	670	830	10	N/A
PA1085NL	8.5W Flyback Transformer Vin=36-65v, Freq.=250kHz Vout=3.3v/2.57A, 8v/20mA	1	0.115	0.269	1500Vdc Operational	152	5	670	450	10	N/A

HIGH FREQUENCY WIRE WOUND TRANSFORMERS

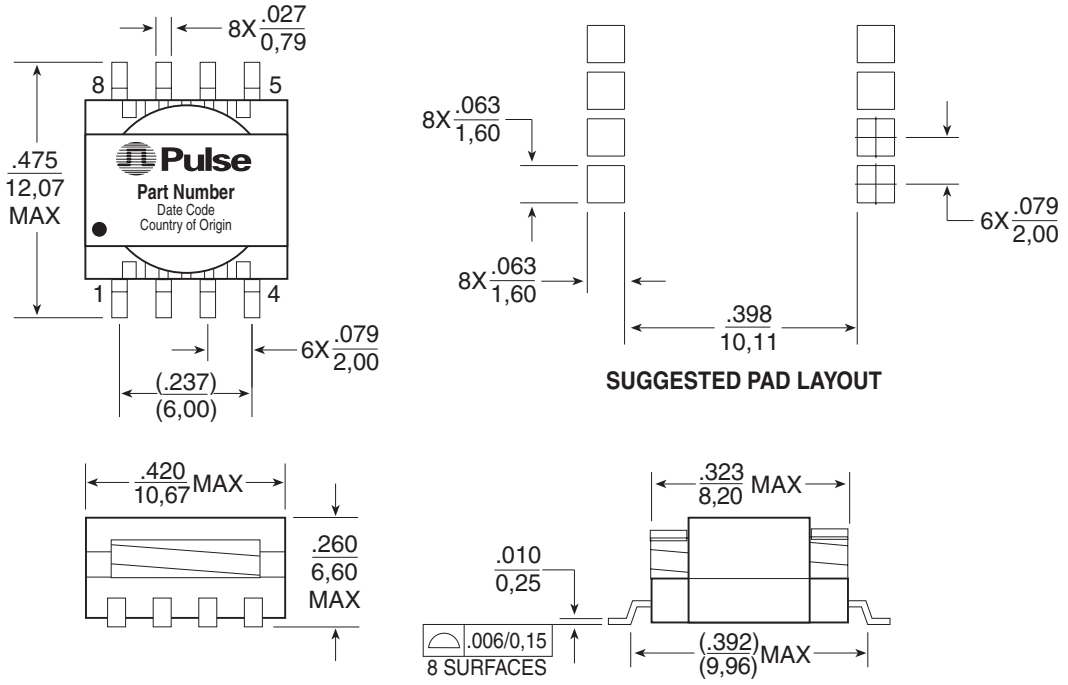
ER Platforms - ER9.5, ER11 and ER14.5

NOTES :

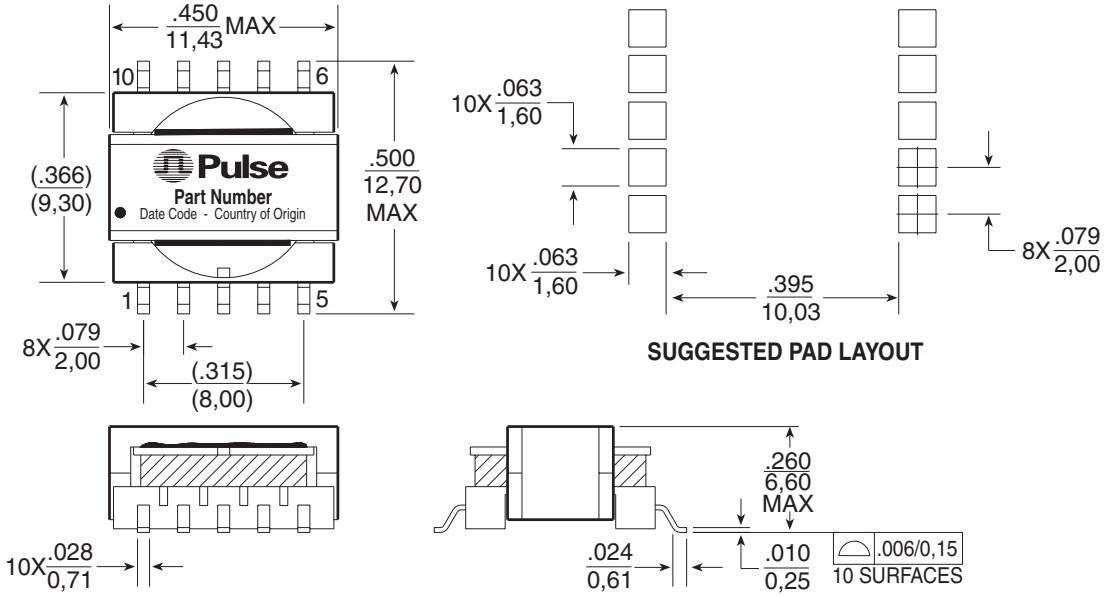
1. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
2. The above transformers and inductors have been tested and approved by Pulse's power IC partners and are sited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC partners are matched with the above Pulse part numbers please consult the IC Cross Reference on the Pulse website.
3. Add '**T**' suffix to the part number for Tape & Reel version (ie: PA1032NL**T**).
4. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanical

ER9.5



ER11



HIGH FREQUENCY WIRE WOUND TRANSFORMERS

ER Platforms - ER9.5, ER11 and ER14.5

Pulse
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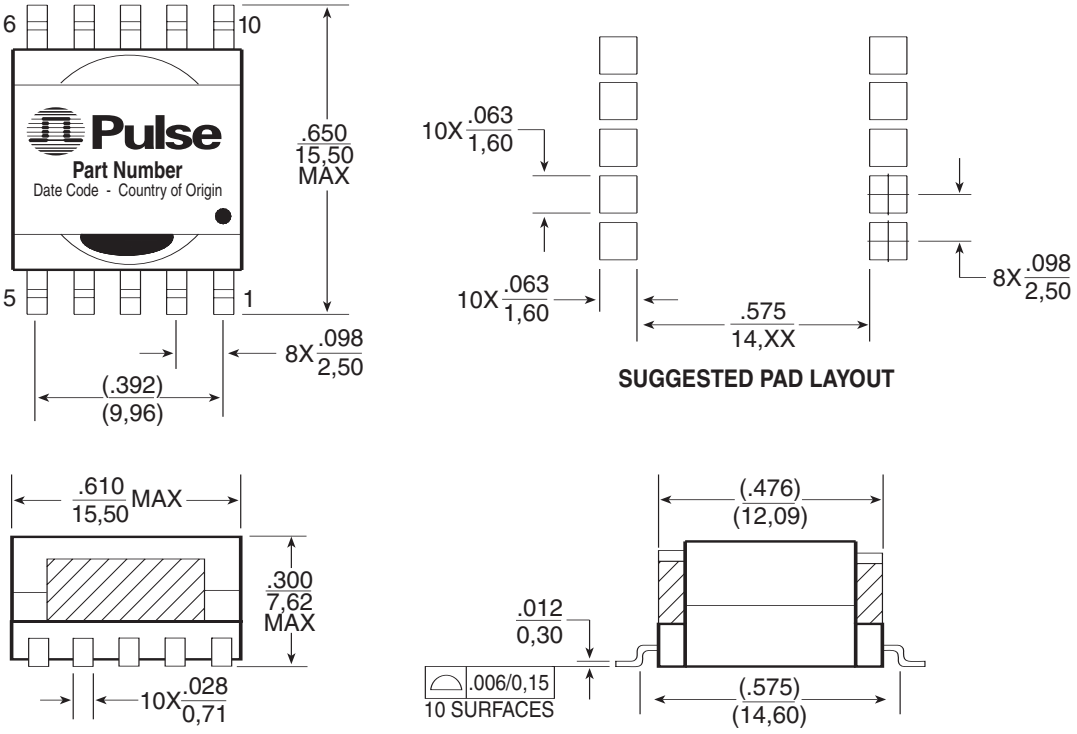
Mechanical

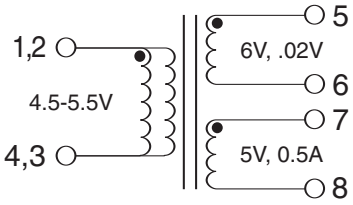
ER14.5



Schematics

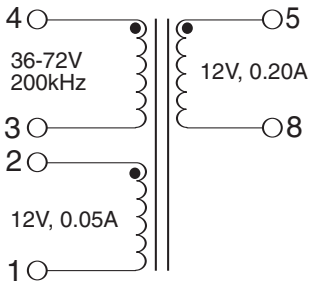
ER9.5

PA0663

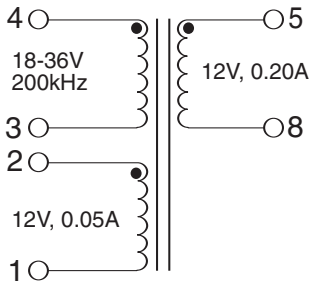


Sec2 should be stacked on top of Sec1 to achieve desired output

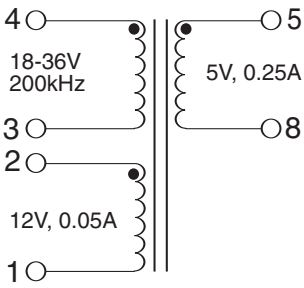
PB2090



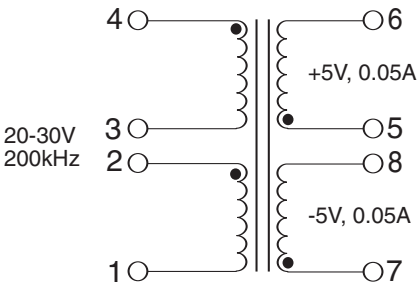
PB2110



PB2109



PB2135

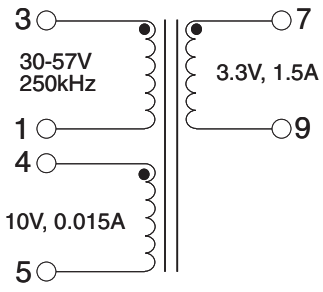


Connect pins 2 and 3 on PCB to complete Primary

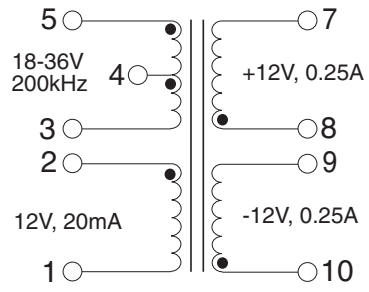
Schematics

ER11

PA1032

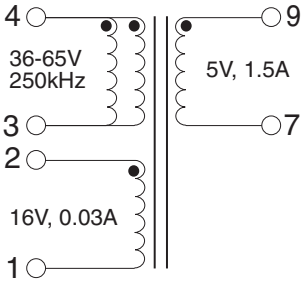


PB2162

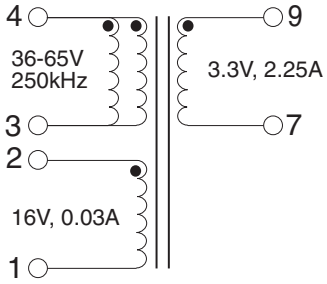


ER14.5

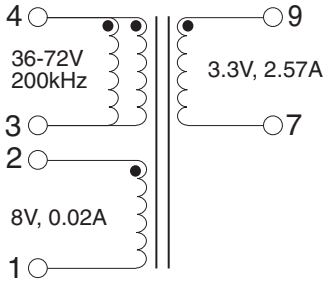
PA1006



PA1026

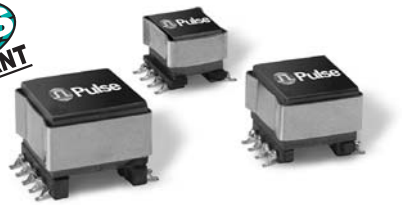


PA1085



HIGH FREQUENCY WIRE WOUND TRANSFORMERS

PoE Power Transformers - EP7, EP10 & EP13



- Transformers for Power over Ethernet (PoE)
- Power: 3W to 15W
- Three different SMT platforms
- Custom designs available

Electrical Specifications @ 25°C — Operating Temperature -40°C to 125°C [1]

Part [3,4] Number	Application [2]	Turns Ratio			Primary Secondary Isolation	Primary Inductance (µH ±10%)	Leakage Inductance (µH MAX)	DCR (mΩ MAX)			
		Pri.	Sec.	Pri. Aux.				Pri.	Pri. Aux.	Sec. A	Sec. B
EP7 - 8 Pin SMT - (13.3mm x 10.7mm x 9.3mm MAX) - 3W PoE Flyback Transformers											
PA1130NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/3W, 8v/20mA	1	0.083	0.208	1500Vrms Operational	500	7.5	1750	215	15	N/A
PA1279NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/3W, 12v/20mA	1	0.182	0.682		310	5	1600	2600	45	N/A
PA1131NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/3W, 8v/20mA	1	0.125	0.208		500	7.5	1750	215	35	N/A
PA1280NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/3W, 12v/20mA	1	0.273	0.682		310	5	1600	2650	87	N/A
PA1132NL	Vin=33-57v, Freq.=200kHz Vout=12v/3W, 8v/20mA	1	0.286	0.204		521	7.5	1750	220	100	N/A
PA1281NL	Vin=33-57v, Freq.=200kHz Vout=12v/3W, 12v/20mA	1	0.682	0.682		310	5	1600	2600	550	N/A
EP10 - 8 Pin SMT - (15.2mm x 13.1mm x 11.5mm MAX) - 7W to 10W PoE Flyback Transformers											
PB2115NL	Vin=36-72v, Freq.=300kHz Vout=3.3v/10W, 5.0v/100mA	1	0.100	0.150	1500Vdc Operational	25.2	2	250	20	3.25	N/A
PA1133NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/7W, 8v/20mA	1	0.083	0.208	1500Vrms Operational	253	7.5	420	115	7.5	N/A
PA1253NL	Vin=33-57v, Freq.=200kHz Vout=1.8v/1A, 3.3v/1.5A, 12v/20mA	1	.0420 (1.8v) .0625 (3.3v)	0.271		253	8.5	420	335	(1.8v)	(3.3v)
PA1282NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/7W, 12v/20mA	1	0.182	0.682		155	5	530	900	31	N/A
PA1277NL	Vin=9-50v, Freq.=200kHz Vout=3.3v/10W, 8v/20mA	1	0.222	0.555		20.4	1.5	80	150	7.5	N/A
PA1370NL	Vin=9-50v, Freq.=200kHz Vout=3.3v/10W, 5v/20mA	1	0.444	0.388		20.4	1.5	80	105	30	N/A
PA1134NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/7W, 8v/20mA	1	0.125	0.208		253	7.5	420	115	16	N/A
PA1283NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/7W, 12v/20mA	1	0.273	0.682		155	5	570	1000	40	N/A
PA1135NL	Vin=33-57v, Freq.=200kHz Vout=12v/7W, 8v/20mA	1	0.286	0.204		264	7.5	800	115	45	N/A
PA1284NL	Vin=33-57v, Freq.=200kHz Vout=12v/7W, 12v/20mA	1	0.682	0.682		155	5	540	920	370	N/A
EP13 - 10 Pin SMT - (17.7mm x 14.0mm x 12.7mm MAX) - 11W to 27W PoE Flyback Transformers											
PA1136NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/13.5W, 8v/20mA	1	0.083	0.208	1500Vrms Operational	127	7.5	440	88	6	N/A
PA1267NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/11W, 12v/20mA	1	0.167	0.639		155.5	5	330	650	11	N/A
PA1269NL	Vin=33-57v, Freq.=200kHz Vout=3.3v/13.5W, 12v/20mA	1	0.182	0.682		77.4	5	100	270	8.5	N/A
PA1137NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/13.5W, 8v/20mA	1	0.125	0.208		127	7.5	460	94	12	N/A
PA1260NL	Vin=33-57v, Freq.=200kHz Vout=5.0v/13.5W, 12v/20mA	1	0.273	0.682		77.4	0.8	220	250	18	N/A
PA1138NL	Vin=33-57v, Freq.=200kHz Vout=12v/13.5W, 8v/20mA	1	0.292	0.208		127	7.5	460	94	55	N/A
PA1276NL	Vin=33-57v, Freq.=200kHz Vout=12v/13.5W, 12v/20mA	1	0.682	0.682		77.4	5	100	270	75	N/A
PA1528NL	Vin=33-57v, Freq.=200kHz Vout=15v/27W, 12v/20mA	1	0.470	0.294		28.9	1	58	55	27	N/A

HIGH FREQUENCY WIRE WOUND TRANSFORMERS

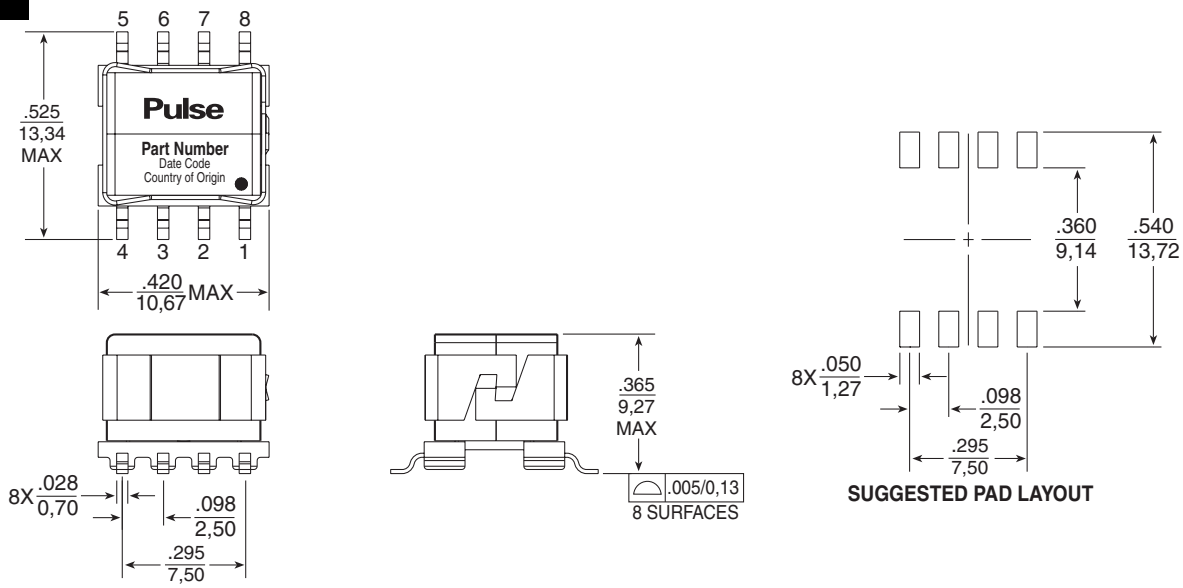
PoE Power Transformers - EP7, EP10 & EP13

Notes from Tables

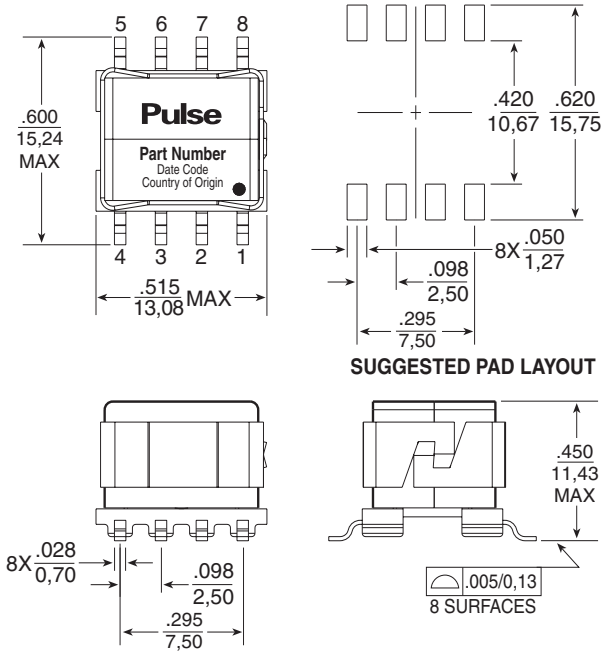
1. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
2. The above transformers have been tested and approved by Pulse's power IC partners and are sited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC partners are matched with the above Pulse part numbers please consult the IC Cross Reference on the Pulse website.
3. Add '**T**' suffix to the part number for Tape & Reel version (ie: PA1130NL**T**).
4. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanicals

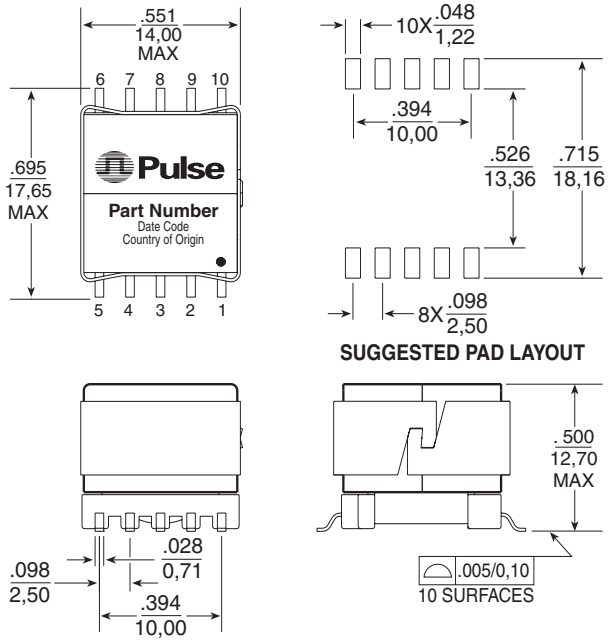
EP7



EP10



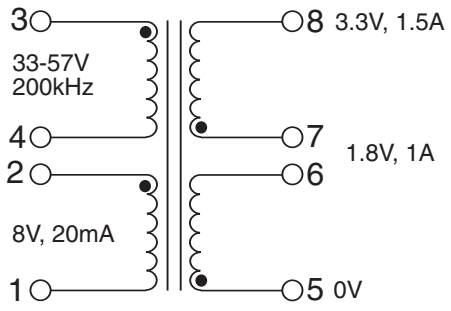
EP13



Schematics

EP7/10/13

PA1253NL



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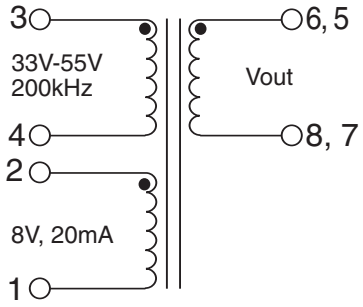
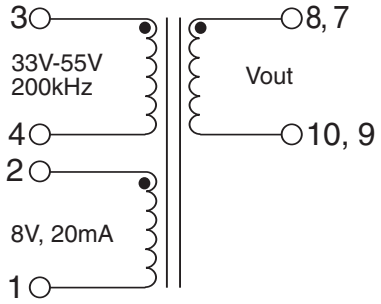
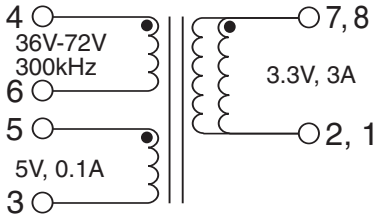


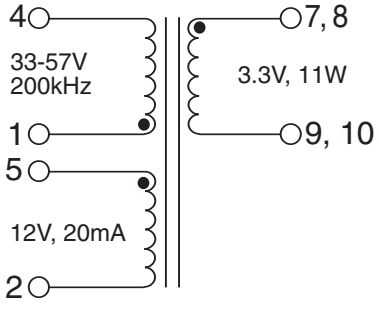
PA1136NL, PA1137NL, PA1138NL PA1260NL, PA1269NL, PA1276NL, PA1528NL



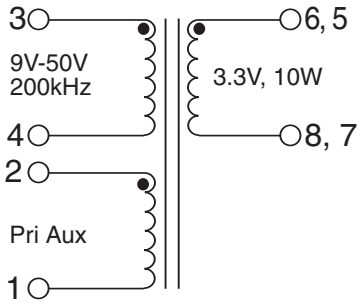
PB2115



PA1267



PA1277NL, PA1370NL

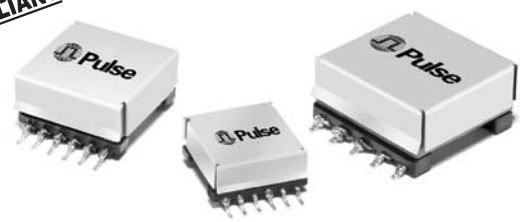


HIGH FREQUENCY WIRE WOUND TRANSFORMERS

EFD Platforms - EFD15, EFD20 and EFD25

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT



- Transformers and Inductors
- **Power:** 30W to 180W
- **Three Different Platforms:** THT and SMT
- **Low Profile Platforms:** 8.4mm to 13.5mm
- Custom designs available

Electrical Specifications @ 25°C — Operating Temperature -40°C to 125°C

TRANSFORMERS

Part [6,7] Number	Application [2]	Turns Ratio			Primary Secondary Isolation	Primary Inductance (µH MIN)	Leakage Inductance (µH MAX)	DCR (mΩ MAX)			
		Pri.	Sec.	Pri. Aux.				Pri.	Pri. Aux.	Sec. A	Sec. B
EFD 15 Platforms - Up to 30W											
EFD 15 - 10 Pin SMT - (21.6mm x 16.3mm x 8.4mm)											
PB2187NL	15W Flyback Transformer Vin=36-75v, Freq.=225kHz Vout=12v/1.7A, 15v/20mA	24	12	16	1500Vrms Operational	38 @ 2.2A	0.6	190	410	50	N/A
EFD 15 - 12 Pin SMT - (22.2mm x 17.2mm x 8.4mm)											
PA0476NL	15W Flyback Transformer Vin=18-72v, Freq.=500kHz Vout=5v/3A, 10v/20mA	16	3	7	500Vrms Operational	35.5	0.15	23.5	87	8	N/A
PA0691NL	15W Flyback Transformer Vin=30-57v, Freq.=100kHz Vout=3.3v/3A, 5.6v/10mA10v/20mA	52	8 & 14	26	500Vdc Operational	146 @ 1.2A	2.4	600	2000	20 (3.3v)	720 (5.6v)
PA1039NL	15W Flyback Transformer Vin=29-59v, Freq.=100kHz Vout=5v/2A, 7.5v/10mA10v/20mA	50	10 & 15	22	500Vdc Operational	137.5 @ 1.2A	2.0	500	1300	25	760
PA1067NL	20W Forward Transformer Vin=34-75v, Freq.=555kHz Vout=3.3v/6A, 12v/25mA	12	3	10 & 12 (reset)	500Vrms	79	1	70	70 & 70 (reset)	6	N/A
EFD 20 Platforms - Up to 80W											
EFD 20 - 8 Pin THT - (21.0mm x 21.0mm x 13.0mm)											
PA1040NL	80W Forward Transformer Vin=30-57v, Freq.=250kHz Vout=12v/5A, -12v/1.6A, 12v/0.1A	14	7 & 7	7	1500Vdc Operational	154	2	45	80	15	24
EFD 20 - 10 Pin SMT - (26.2mm x 21.8mm x 10.4mm)											
PB2003NL	30W Flyback Transformer Vin=36-72v, Freq.=300kHz Vout=5v/6A, 15v/0.1A	16	2	7	1500Vrms Operational	29.2 @ 3.0A	1.7	75	75	4.5	N/A
EFD 20 - 12 Pin SMT - (29.2mm x 21.8mm x 11.4mm)											
PA0273NL	50W Forward Transformer Vin=36-72v, Freq.=250kHz Vout=12v/4.5A, 12v/0.1A	16	10	10	1500Vrms Basic	230	0.35	65	240	27	N/A
PA0751NL	13W Flyback Transformer Vin=25-75v, Freq.=250kHz Vout=3.3v/4.5A, 15v/0.1A	26	6	18	700Vdc Operational	99	2	85	300	12	N/A
PA0769NL	100W Forward Transformer Vin=36-75v, Freq.=250kHz Vout=±12v/2.1A, 5v/9A	15	7 & 7 & 3	5	1500Vdc Operational	74	1.5	50	110	35 & 35 (±12v)	3.8 (5v)
PA1066NL	45W Forward Transformer Vin=30-75v, Freq.=550kHz Vout=±5v/4.5A, 12v/20mA	11	4 & 4	9 & 11 (reset)	500Vrms	93	1	35	100	15 & 15	N/A
PB2041NL	48W Forward Transformer Vin=36-75v, Freq.=230kHz Vout=12v/3A, -12v/1A	10 + 10	12 & 12	N/A	1500Vrms Basic	324	1	82	N/A	30.8 (+12v)	86.4 (-12v Sec)
PB2089NL	33W Forward Transformer Vin=36-72v, Freq.=250kHz Vout=3.3v/10A, 2.2v/0.05A	13	3 & 2	13 (reset)	1500Vrms Basic	141	1	31	923	5.5 (3.3v Sec)	112 (2.2v Sec)
PB2134NL	12W Flyback Transformer Vin=36-57v, Freq.=200kHz Vout=3.3v/3.5A, 12v/0.1A	32	4	15	1800Vdc Operational	195 @ 1.0A	5	200	215	12	N/A

(Transformers continued on next page)

HIGH FREQUENCY WIRE WOUND TRANSFORMERS

EFD Platforms - EFD15, EFD20 and EFD25

Pulse A TECHNITROL COMPANY

Electrical Specifications @ 25°C — Operating Temperature -40°C to 125°C

TRANSFORMERS *(continued)*

Part [6,7] Number	Application [2]	Turns Ratio			Primary Secondary Isolation	Primary Inductance (µH MIN)	Leakage Inductance (µH MAX)	DCR (mΩ MAX)			
		Pri.	Sec.	Pri. Aux.				Pri.	Pri. Aux.	Sec. A	Sec. B
EFD 25 Platforms - Up to 180W											
EFD 25 - 10 Pin THT - (26.4mm x 26.1mm x 14.0mm)											
PA0397NL	100W Forward Transformer Vin=36-75v, Freq.=250kHz Vout=3.3v/30A, 12v/0.1A	9	2	8	1500Vdc Basic	113	0.64	21	570	3.3	N/A
EFD 25 - 10 Pin SMT - (32.0mm x 26.2mm x 13.5mm)											
PA0302NL	165 F-Bridge Transformer Vin=21-56v, Freq.=230kHz Vout=15v/11A	1	1	1	500Vrms Operational	24	0.1	8	130	8	8
EFD 25 - 12 Pin SMT - (32.0mm x 26.2mm x 13.7mm)											
PA0700NL	72W Forward Transformer Vin=12v, Freq.=250kHz Vout=48v/1.5A	3	22	N/A	2250Vrms Operational	21.4	0.5	4	N/A	95	N/A

INDUCTORS

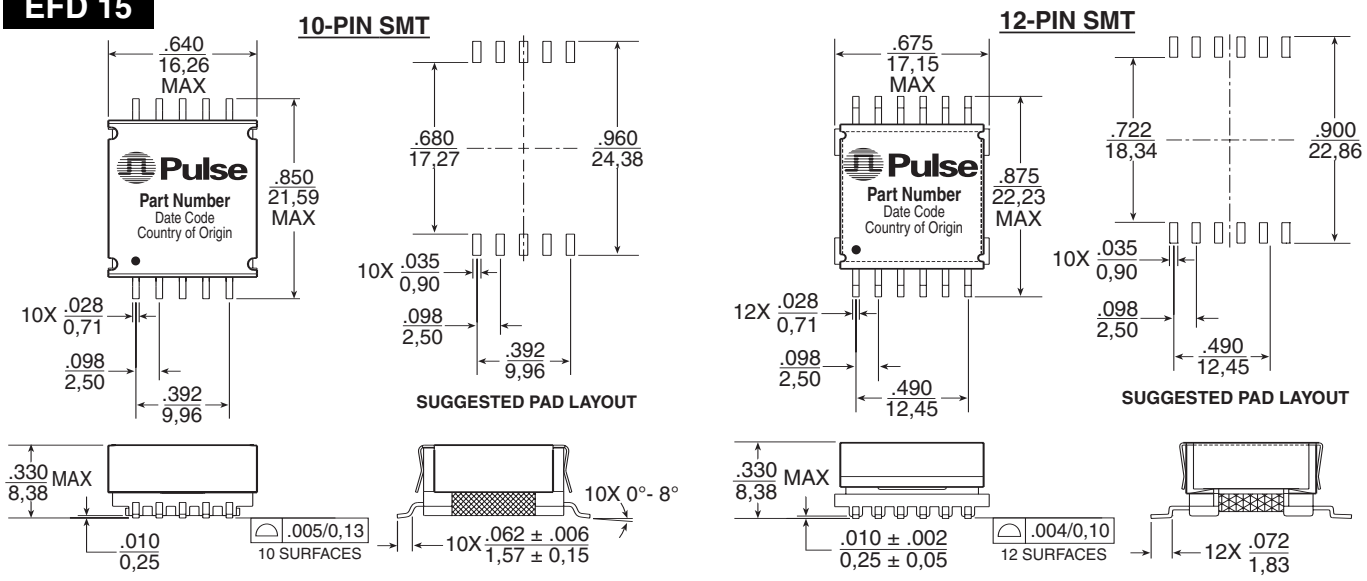
Part [6,7] Number	Application [2]	Induct. @ Irated (µH MIN)	Irated (Adc)	Turns Ratio	DCR (mΩ MAX)			Induct. 0 Adc [3] (µH ±7%)	Saturation Current [4] @25°	Heating Current [5] (A)	±12v Winding to Aux. Isolation
					Winding 1	Winding 2	Winding 3				
EFD 20 Platforms											
EFD 20 - 12 Pin SMT - (29.2mm x 21.8mm x 11.4mm)											
PB2042NL	Output Inductor for **PB2041** Transformer	13	4	3:3:4 (+12v:-12v:Aux)	29.2 (+12v)	87.6 (+12v)	253 (15v Aux.)	14.4	5	4	1500 Vrms Basic

Notes:

1. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.
2. The above transformers and inductors have been tested and approved by Pulse's power IC partners and are sited in the appropriate datasheet or evaluation board documentation at these companies. To determine which IC and IC partners are matched with the above Pulse part numbers please consult the IC Cross Reference on the Pulse website.
3. The rated current as listed is either 85% of the saturation current or the heating current whichever is lower.
4. The saturation current is the current which causes the inductance to drop by 20% at 25°C. This current is determined by placing the component in the specified ambient environment and applying a short duration pulse current (to eliminate self-heating effects) to the component.
5. The heating current is the dc current which causes the temperature of the part to increase by approximately 40°C.
6. Add '**T**' suffix to the part number for Tape & Reel version (ie: PB2041NL**T**).
7. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanicals

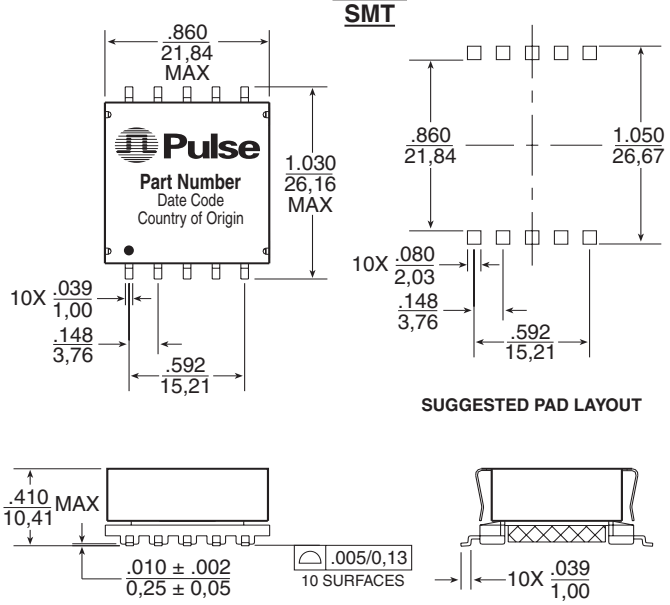
EFD 15



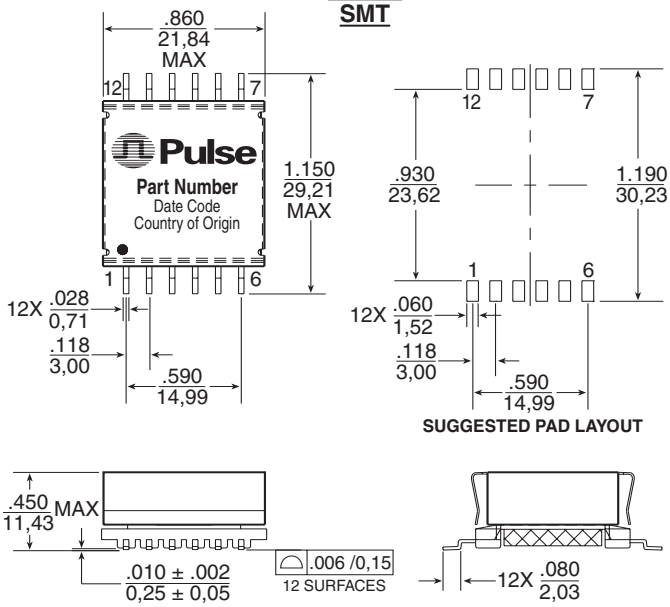
Mechanicals

EFD 20

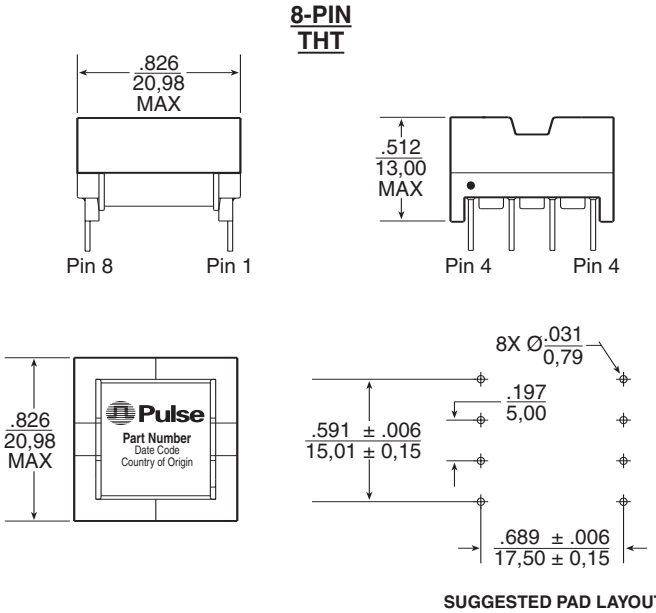
10-PIN SMT



12-PIN SMT

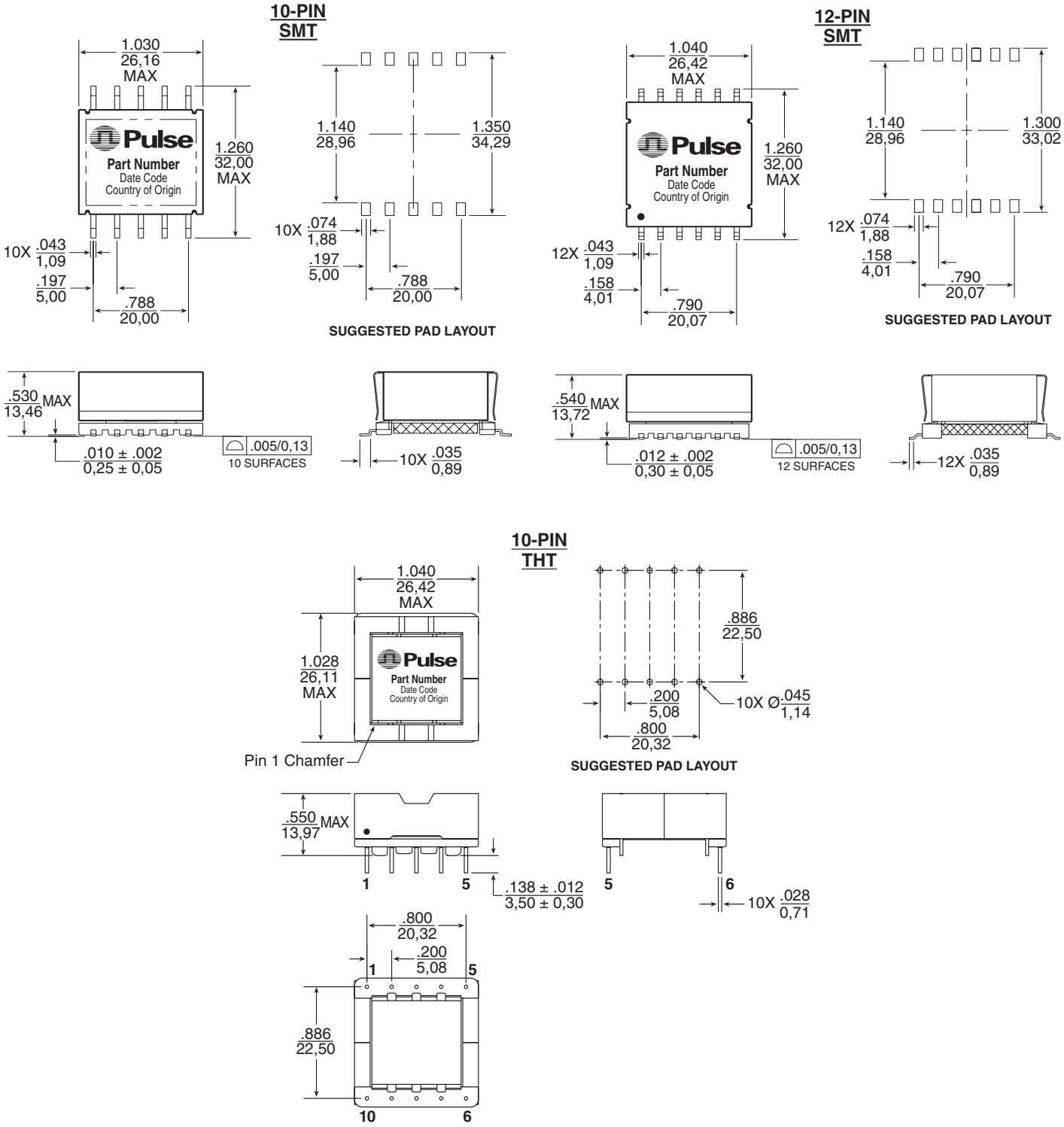


8-PIN THT



Mechanicals

EFD 25



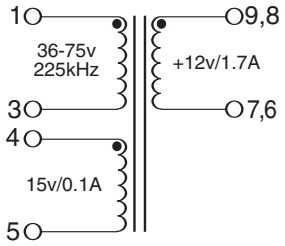
HIGH FREQUENCY WIRE WOUND TRANSFORMERS

EFD Platforms - EFD15, EFD20 and EFD25

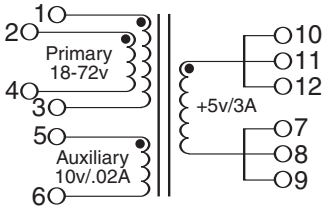
Schematics

EFD 15

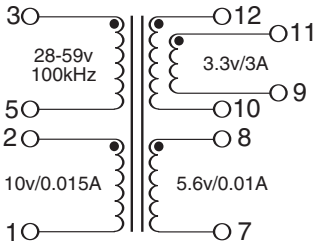
PB2187



PA0476

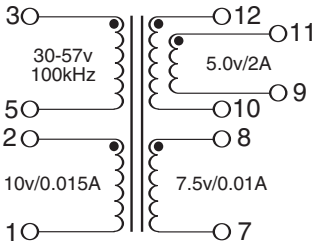


PA0691



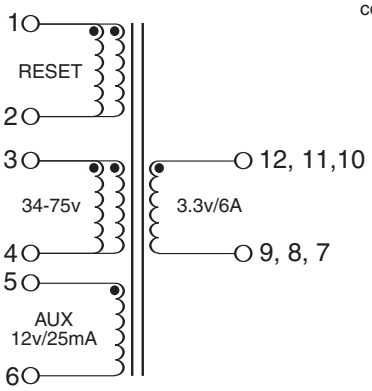
NOTE: Pins 8, 9 and 10 to be connected on customer PCB

PA1039



NOTE: Pins 8, 9 and 10 to be connected on customer PCB

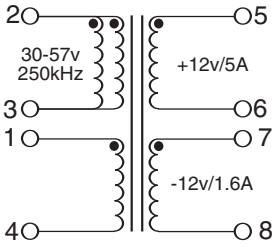
PA1067



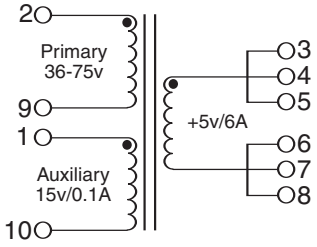
NOTE: Pins 9 to 8 and Pins 7 to 6 to be connected on customer PCB

EFD 20

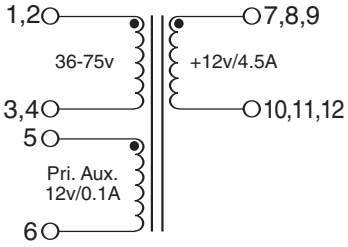
PA1040



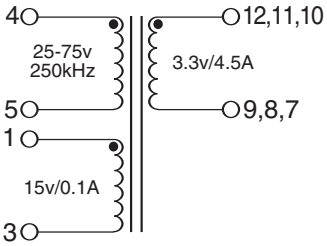
PB2003



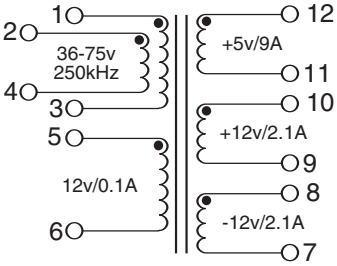
PA0273



PA0751

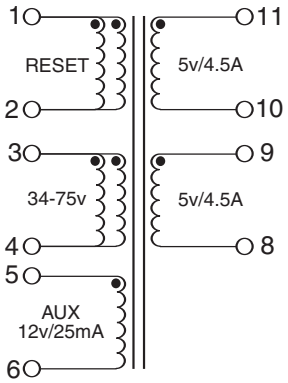


PA0769



NOTE: Pins 1 & 2 and Pins 3 & 4 to be connected on customer PCB

PA1066

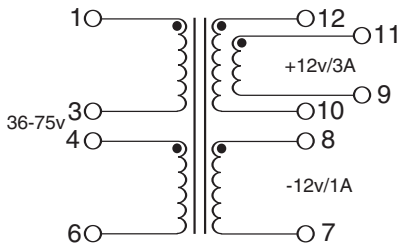


(EFD 20 Schematics continued on next page)

Schematics

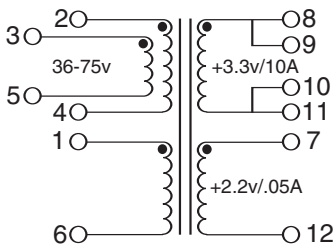
EFD 20 *(continued)*

PB2041



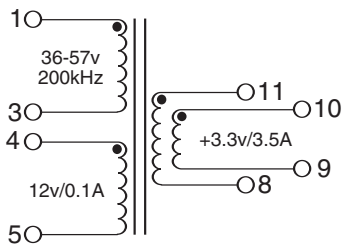
NOTE: Pins 12 & 11, Pins 9 & 10, and Pins 3 & 4 to be connected on customer PCB

PB2089



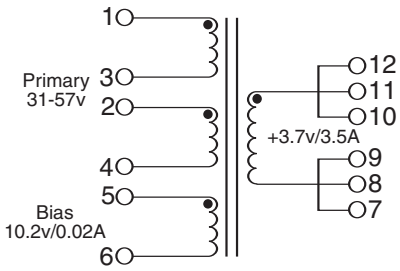
NOTE: Pins 2 & 3 and Pins 4 & 5 to be connected on customer PCB

PB2134

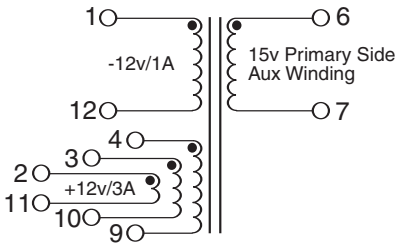


NOTE: Pins 10 & 11, Pins 8 & 9 to be connected on customer PCB

PB2157



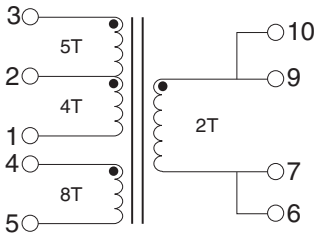
PB2042



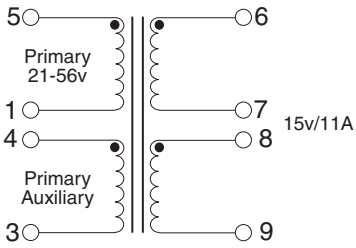
NOTE: Pins 2, 3 & 4 and Pins 9, 10 & 11 to be connected on customer PCB

EFD 25

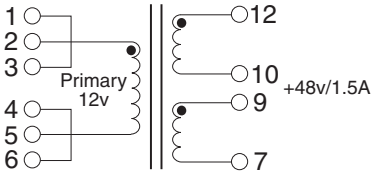
PA0397



PA0302

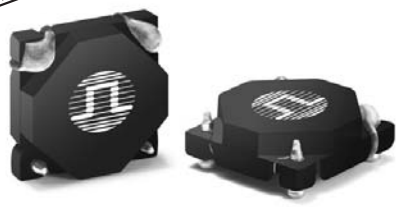


PA0700



NOTE: Pins 9 and 10 to be connected on customer PCB

SMT CURRENT SENSE TRANSFORMERS
PA0368NL Series



- **Height:** 3.3mm Max
- **Footprint:** 8.4mm x 8.4mm Max
- **Current Rating:** up to 4A
- **Frequency Range:** 50kHz to 1MHz

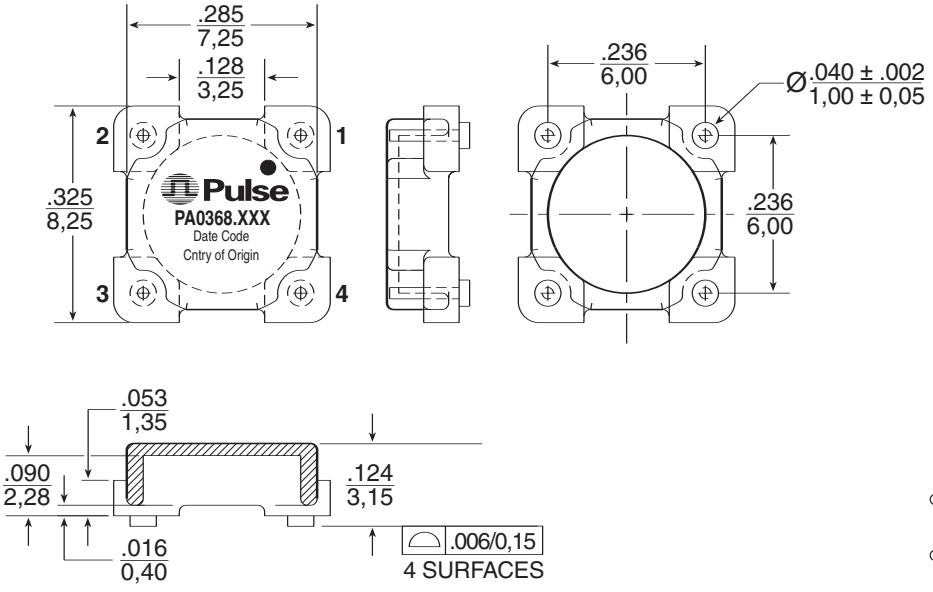
Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C [6]

Part Number [4,5]	Turns ratio	Current Rating [1]	Secondary Inductance (mH MIN)	DCR (mΩ MAX)		Hipot (VRMS)
				Primary	Secondary	
PA0368.050NL	1:50	4	1.7	4	900	500
PA0368.070NL	1:70	4	3.3	4	1200	500
PA0368.080NL	1:80	4	4.3	4	1400	500
PA0368.100NL	1:100	4	6.7	4	1600	500
PA0368.125NL	1:125	4	10.4	4	1900	500

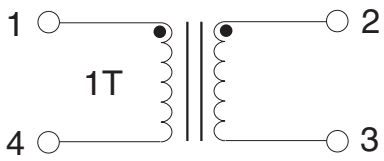
NOTES:

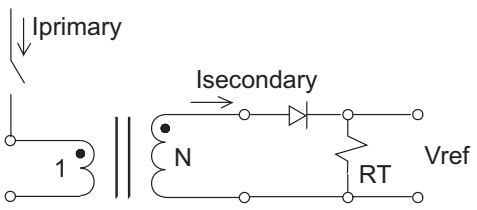
1. The maximum current rating is based on temperature rise of the component and represents the DC current which will cause a typical temperature rise of 40°C with no airflow.
2. To calculate the value of the terminating resistor (Rt) use the following formula: Rt (Ω) = VREF * N / (Ipeak primary)
3. The peak flux density of device must remain below 2000 Gauss. To calculate the peak flux density for a uni-polar current, use the following formula: Bpk = 64.9 * VREF * (Duty Cycle Max) * 10^5 / (N * Freq kHz) *for bi-polar current applications divide Bpk (as calculated above) by 2.
4. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PA0368.050NL becomes PA0368.050NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
5. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
6. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical



Schematic





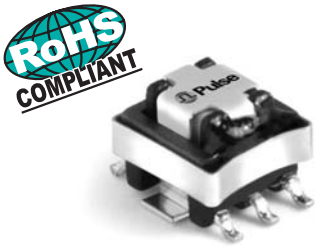
APPLICATION CIRCUIT

Weight . . . . . .0.3 grams
Tape & Reel 1100/reel

Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT CURRENT SENSE TRANSFORMERS

PA1005.XXXNL Series



- **Height:** 5.1mm Max*
- **Footprint:** 8.4mm x 7.2mm Max
- **Current Rating:** up to 20A
- **Frequency Range:** 50kHz to 1MHz
- **Low Primary DCR version of P820X**

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [5,6] Number	Turns Ratio	Current [2] Rating (A)	Secondary Inductance (mH MIN)	DCR (mΩ MAX)		Hipot (V_{RMS})
				Primary (8-7)	Secondary (1-3)	
PA1005.020NL	1:20	20	0.08	0.75	550	500
PA1005.030NL	1:30	20	0.18	0.75	870	500
PA1005.040NL	1:40	20	0.32	0.75	1140	500
PA1005.050NL	1:50	20	0.50	0.75	1500	500
PA1005.060NL	1:60	20	0.72	0.75	2250	500
PA1005.070NL	1:70	20	0.98	0.75	4750	500
PA1005.100NL	1:100	20	2.00	0.75	5500	500
PA1005.125	1:125	20	3.00	0.75	6500	500

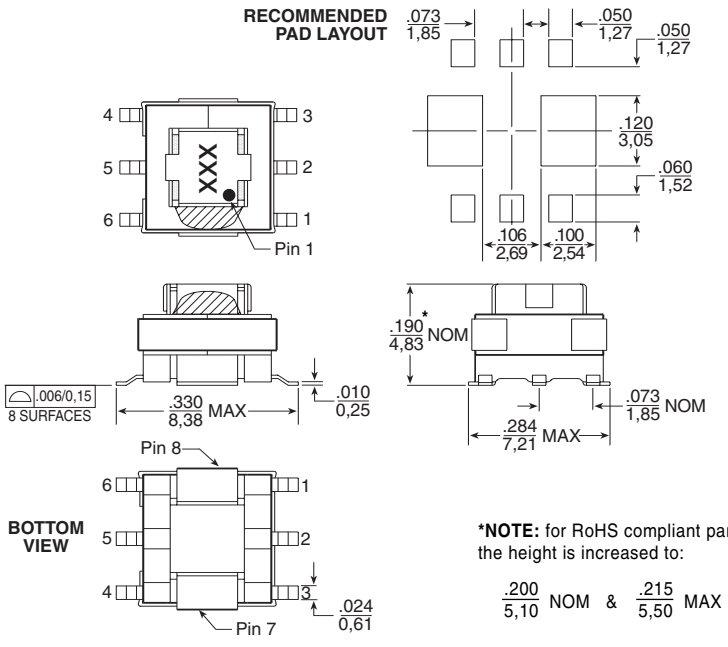
NOTES:

1. The temperature of component (ambient temperature plus temper-ature rise) must be within the specified operating temperature range.
2. The maximum current rating is based upon temperature rise of the component and represents the DC current which will cause a typical temperature rise of 40°C with no airflow when both one turn windings connected in parallel.
3. To calculate value of terminating resistor (Rt) use the following formula: Rt (Ω) = V_{REF} * N / (Ipeak_primary)
4. The peak flux density of the device must remain below 2000 Gauss. To calculate the peak flux density for uni-polar current use following formula:

   Bpk = 37.59 * V_{REF} * (Duty_Cycle_Max) * 10^5 / (N * Freq_kHz)

   * for bi-polar current applications divide Bpk (as calculated above) by 2.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PA1005.020 becomes PA1005.020**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

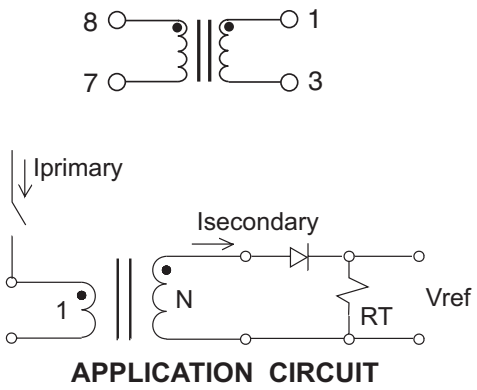
Mechanical



***NOTE:** for RoHS compliant part, the height is increased to:

$\frac{.200}{5,10}$ NOM & $\frac{.215}{5,50}$ MAX

Schematic



APPLICATION CIRCUIT

Weight . . . . . .0.34 grams
Tray 120/tray
Tape & Reel 900/reel
Coplanarity . . . . . .0.004 inches

Dimensions: $\frac{\text{Inches}}{\text{mm}}$

Unless otherwise specified, all tolerances are ± $\frac{.010}{0,25}$

SMT CURRENT SENSE TRANSFORMERS

PE-68XXXNL Series

- **Height:** 7.1mm Max
- **Footprint:** 14.6mm x 12.6mm Max
- **Current Rating:** up to 15A
- **Frequency Range:** 50kHz to 500kHz

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [5,6] Number	Turns Ratio	Current [2] Rating (A)	Secondary Inductance (mH MIN)	DCR (mΩ MAX)		Hipot (V_{RMS})
				Primary (1,3-2,4)	Secondary (5-6)	
PE-68210NL	1:1:50	15	3.8	1.15	380	500
PE-68280NL	1:1:100	15	14.8	1.15	930	500
PE-68383NL	1:1:200	15	59.2	1.15	3900	500

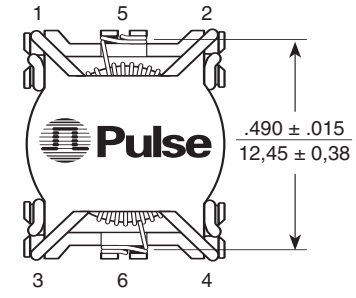
NOTES:

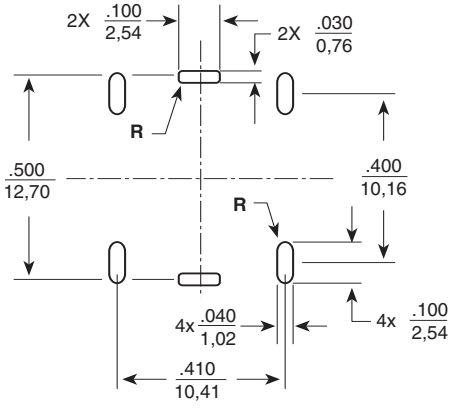
1. The temperature of the component (ambient temperature plus temperature rise) must be within the specified operating temperature range.
2. The maximum current rating is based upon temperature rise of the component and represents the dc current which will cause a typical temperature rise of 40°C with no air flow when both one turn windings connected in parallel.
3. To calculate the value of the terminating resistor (Rt) use the following formula: $Rt\ (\Omega) = V_{REF} * N / (Ipeak\_primary)$
4. The peak flux density of the device must remain below 2000 Gauss. To calculate the peak flux density for a uni-polar current use the following formula:

   $B_{PK} = 14.29 * V_{REF} * (Duty\_Cycle\_Max) * 10^5 / (N * Freq\_kHz)$

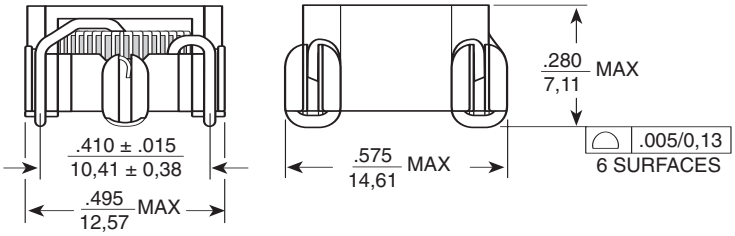
   * for bi-polar current applications divide B_{PK} as calculated above by 2.
5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PE-68210NL becomes PE-68210NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

Mechanical

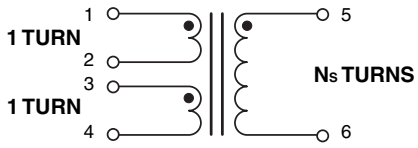


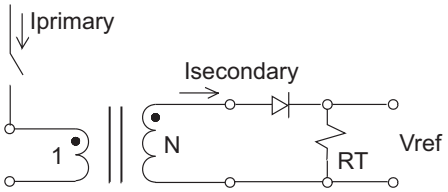


SUGGESTED PAD LAYOUT



Schematic





APPLICATION CIRCUIT

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT CURRENT SENSE TRANSFORMERS

PB002XNL Series

- **Height:** 10mm Max
- **Footprint:** 19.9mm x 14.5mm Max
- **Frequency Range:** 50kHz to 500kHz

Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C

Part [5,6] Number	Turns Ratio	Secondary Inductance (mH MIN)	DCR (mΩ MAX)		Hipot (V_{RMS})
			Primary (11-12)	Secondary (2-4)	
PB0025NL	50:1	1.4	2.8	700	500
PB0026NL	100:1	5.6	2.8	1400	500
PB0027NL	200:1	22.4	2.8	2900	500

NOTES:

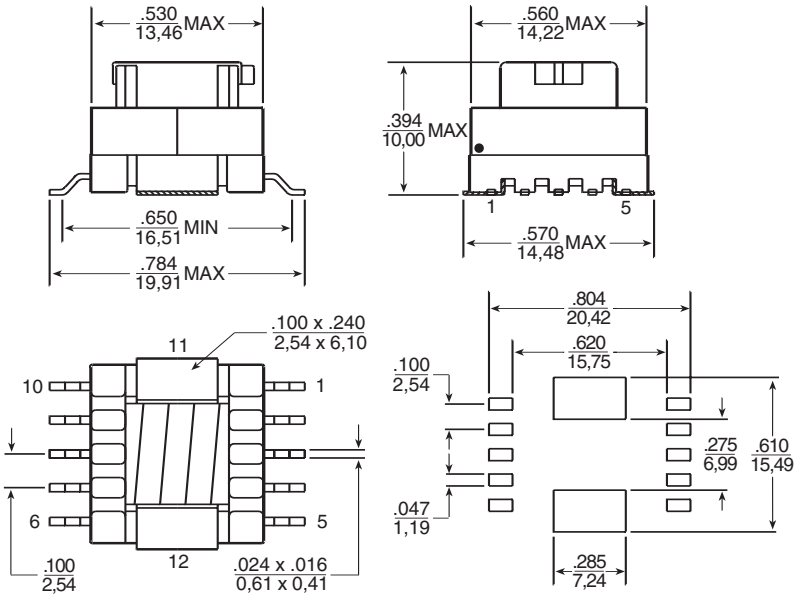
1. The temperature of the component (ambient temperature plus temperature rise) must be within the specified operating temperature range.
2. The maximum current rating is based upon temperature rise of the component and represents the DC current which will cause a typical temperature rise of 40°C with no airflow.
3. To calculate the value of the terminating resistor (Rt) use the following formula: $Rt\ (\Omega) = V_{REF} * N / (Ipeak\_primary)$
4. The peak flux density of the device must remain below 2000 Gauss. To calculate the peak flux density for a uni-polar current use the following formula:

$$B_{PK} = 8.0 * V_{REF} * (Duty\_Cycle\_Max) * 10^5 / (N * Freq\_kHz)$$

* for bi-polar current applications divide B_{PK} as calculated above by 2.

5. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PB0025NL becomes PB0025NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
6. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.

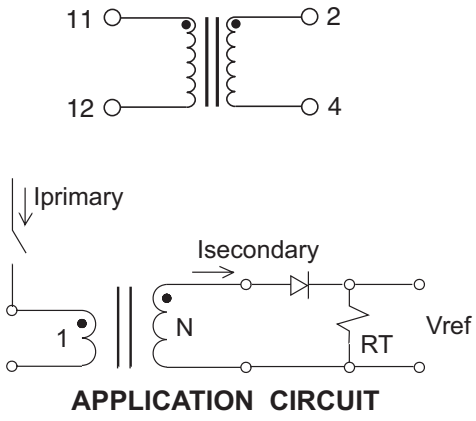
Mechanical



Bottom View

RECOMMENDED PAD LAYOUT

Schematic



APPLICATION CIRCUIT

Weight . . . . . .4.7 grams
Tray 100/tray
Tape & Reel 300/reel
Coplanarity . . . . . .0.006 inches

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

SMT GATE DRIVE TRANSFORMERS
1500VDC Basic and Operational Insulation

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- 1500VDC isolation between Gate and Drive
- Basic insulation (1.4mm creepage/clearance) and operational available
- Operating frequency: 50kHz and up

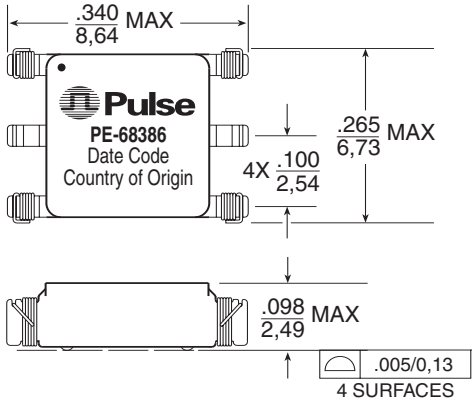
Electrical Specifications @ 25°C — Operating Temperature -40°C to 130°C [5]

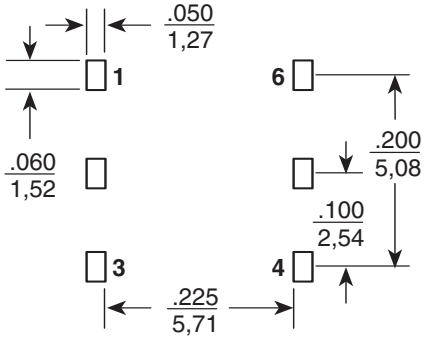
Part [3,4] Number	Turns Ratio	Pri-Sec Insulation (VDC)	MAX [1] V*µsec	Primary Inductance (µH MIN)	Leakage [2] Inductance (µH MAX)	DCR Primary (Ω MAX)	DCR Secondary (Ω MAX)	Package Size (L x W x H) (mm MAX)
OPERATIONAL INSULATION								
PE-68386NL	1:1	1500	9.7	785	0.46	0.60	0.60	8.6 x 6.7 x 2.5
P0926NL	1:1:1	1500	23.8	300	0.50	2.00	2.00	8.0 x 6.6 x 5.3
P0544NL	1:1:1	1500	45.1	3300	0.70	1.60	1.60	9.0 x 8.6 x 7.6
P2033	1:1	1500	9.3	600	17.00	0.80	0.80	7.2 x 6.1 x 3.8
PA0264NL	1:1:1	1500	12.7	1140	0.65	0.75	0.75	8.6 x 6.7 x 3.6
BASIC INSULATION (1.4 MM CREEPAGE AND CLEARANCE BETWEEN PRIMARY AND SECONDARY)								
PA0173NL	1:1:1	1500 Vrms	17.2	980	0.75	0.62	0.88	11.8 x 8.8 x 4.0
PA0185NL	1:1	1500 Vrms	17.2	980	0.75	0.88	0.62	11.8 x 8.8 x 4.0
PA0184NL	1:1	1500 Vrms	27.2	1200	0.50	0.91	0.91	9.0 x 8.6 x 7.6
PA0297NL	2:1:1	1500 Vrms	27.2	1200	0.60	0.91	0.46	9.0 x 8.6 x 7.6
PA0510NL	2.5:1:1	1500 Vrms	27.2	1200	0.68	0.91	0.380	9.0 x 8.6 x 7.6

NOTES:

1. The maximum volt-µsec rating limits the peak flux density to 2200 Gauss when used in a unipolar drive application. For bi-polar drive applications a maximum volt-µsec of two times this rating is acceptable (ie: 2* (volt*µsec rating) Volt*µsec = (voltage applied to the primary) * dutycycle / Frequecy = V * alpha / Freq_Hz = V * µsec
2. Leakage inductance is measured at primary terminals with all secondaries shorted.
3. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0544NL becomes P0544NL**T**). Pulse complies to industry standard tape and reel specification EIA481.
4. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
5. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

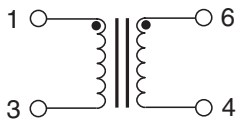
Mechanical





SUGGESTED PAD LAYOUT

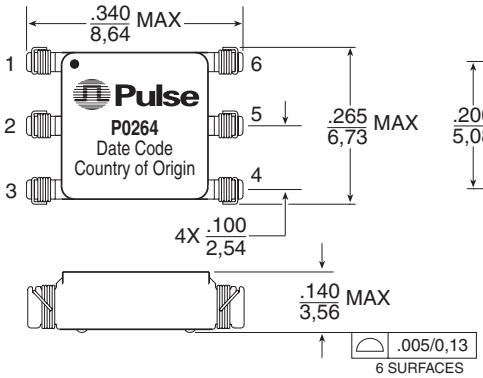
Schematic

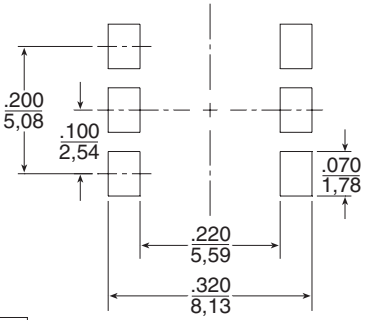


Weight . . . . . .0.28 grams
Tape & Reel 1500/reel
Tube 60/tube

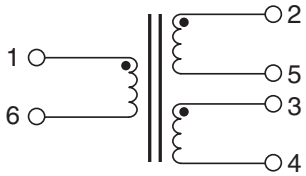
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25





SUGGESTED PAD LAYOUT



Weight . . . . . .0.23 grams
Tape & Reel 800/reel
Tube 75/tube

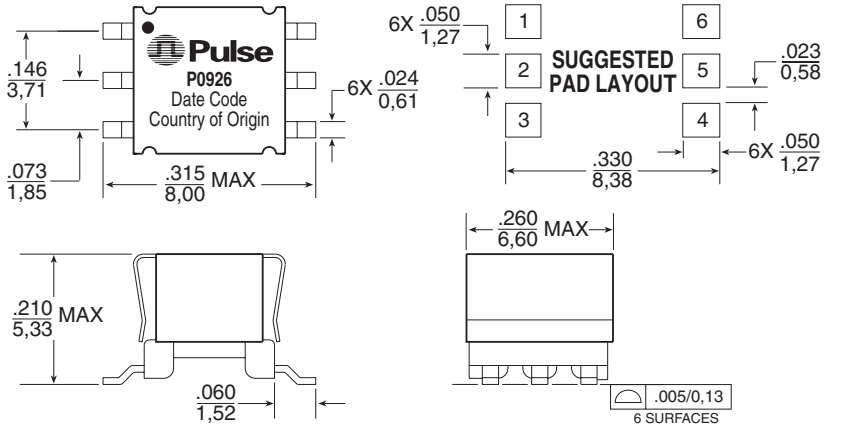
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

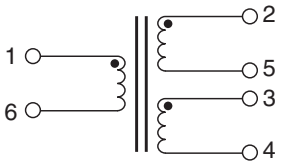
SMT GATE DRIVE TRANSFORMERS
1500VDC Basic and Operational Insulation

Pulse
A TECHNITROL COMPANY

Mechanicals



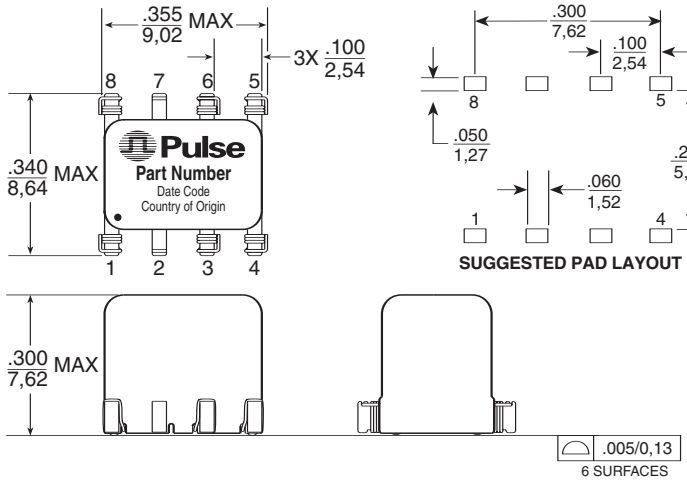
Schematics



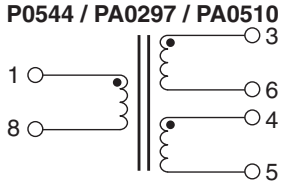
Weight . . . . . .0.48 grams
Tape & Reel 1000/reel
Tube 80/tube

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25



P0544 / PA0297 / PA0510

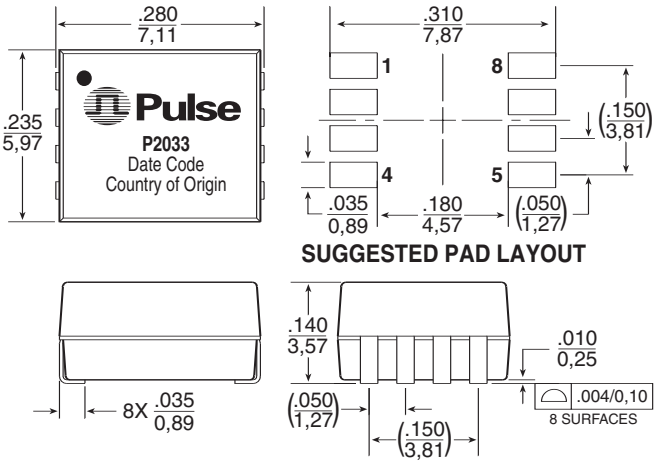


PA0184

Weight . . . . . .0.60 grams
Tape & Reel 400/reel
Tube 50/tube

Dimensions: Inches / mm

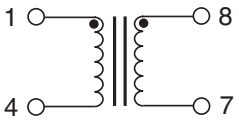
Unless otherwise specified, all tolerances are ± .010 / 0,25

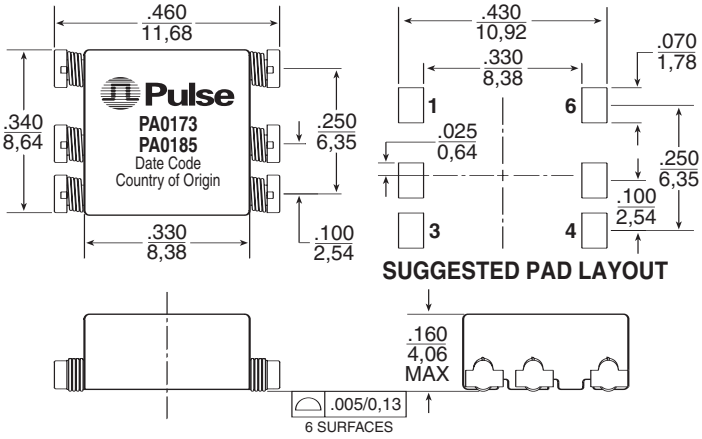


Weight . . . . . .0.29 grams
Tape & Reel 1200/reel
Tube 80/tube

Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

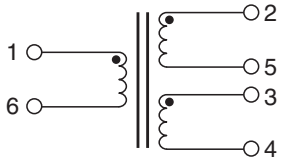




Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

PA0173



Weight . . . . . .0.48 grams
Tape & Reel 900/reel
Tube 60/tube

PA0185

SMT COMMON MODE INDUCTORS
0.5A to 3.6A

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- Pick and place compatible
- Rated voltage 250VAC
- Low RFI toroid
- Tape & Reel packaging available

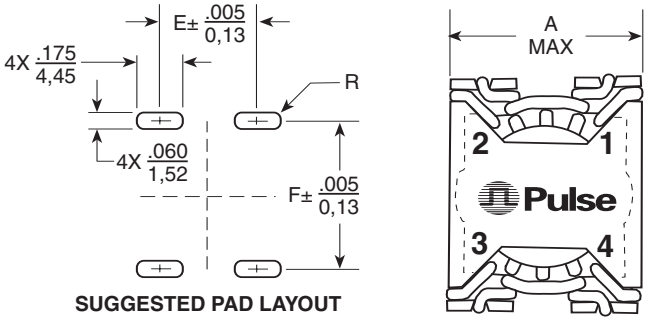
Electrical Specifications @ 25°C — Operating Temperature -40°C to +130°C [3]

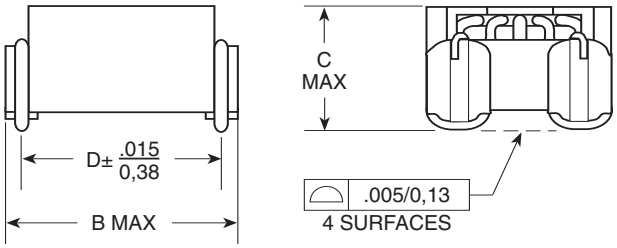
Part [1,2] Number	Inductance (mH MIN)	Irated (A)	DCR (MAX) (mΩ)	Typical SRF (MHz)	Impedance Curve	Size Code	Weight (Grams)	Quantity In Tube
PE-53914NL	13.2	0.50	850	0.3	5	LCCI-37	2.4	30
PE-53913NL	6.0	1.00	450	0.5	4	LCCI-37	2.4	30
PE-53912NL	1.8	2.50	80	2.2	3	LCCI-50	5.2	30
PE-53911NL	0.9	1.50	60	2	2	LCCI-37	2.5	30
PE-53910NL	0.6	3.60	50	4	1	LCCI-50	5.3	30

NOTE:

1. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PE-53914L becomes PE-53914L**T**). Pulse complies to industry standard tape and reel specification EIA481.
2. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
3. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

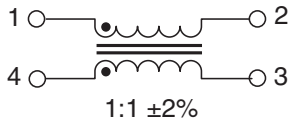




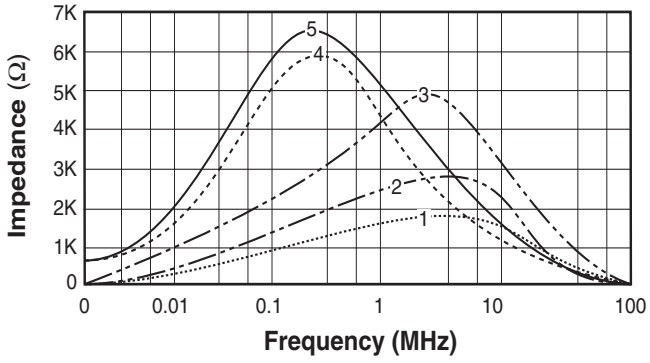
Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .010 / 0,25

Schematic



Typical Impedance Curves



Size	A	B	C	D	E	F
LCCI-37	.560/14,22	.645/16,38	.350/8,89	.520/13,21	.340/8,64	.530/13,46
LCCI-50	.670/17,02	.770/19,56	.390/9,90	.650/16,51	.445/11,30	.660/16,76

SMT COMMON MODE CHOKES
1.22A to 14.0A

Pulse
A TECHNITROL COMPANY

RoHS COMPLIANT

- Solutions based on impedance, size and current
- Designed for DC/DC converters
- Wide variety of inductor sizes and current ratings available
- Dielectric strength: 1000VRMS

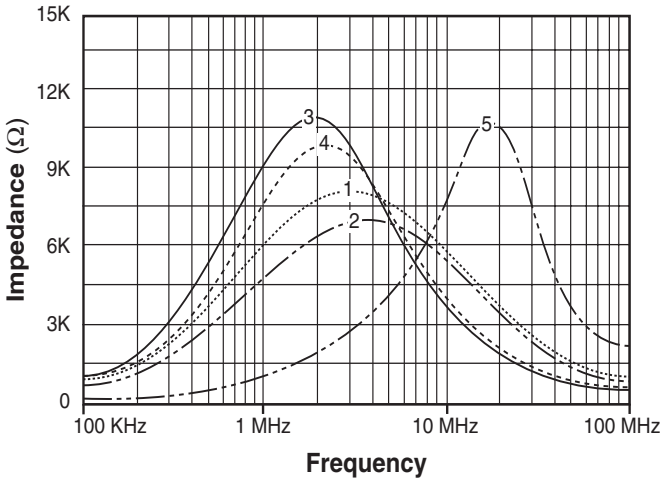
Electrical Specifications @ 25°C — Operating Temperature -40°C to +120°C [3]

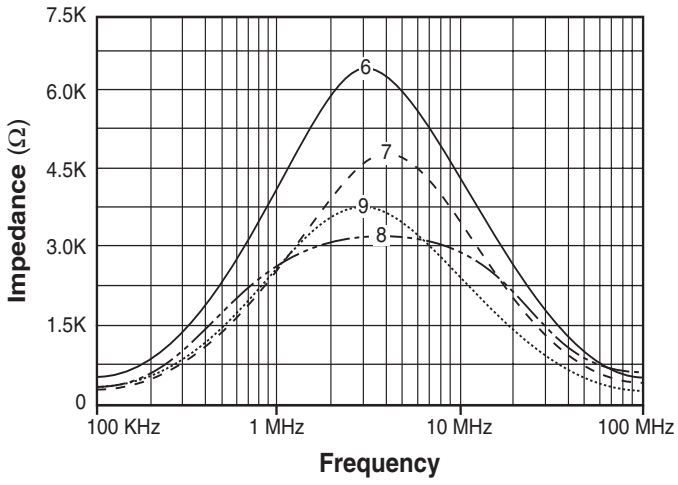
Part [1,2] Number	Inductance (mH ±35%)	Irated (A)	DCR (MAX) (mΩ)	Curve (see # below)	Package	Weight (Grams)	Quantity In Tube	Quantity In Reel
P0502NL	0.47	14.0	8	9	Big Foot	14.8	15	75
P0469NL	0.63	11.6	10	7	Big Foot	14.3	20	75
P0429NL	0.81	9.70	14	6	Big Foot	13.5	20	75
P0527NL	0.53	7.20	15	8	HCCI-68	7.7	15	100
P0353NL	0.59	5.60	21	7	LCCI-50	5.2	30	200
P0422NL	0.77	4.70	40	6	LCCI-50	4.9	30	200
P0421NL	0.22	3.30	60	5	LCCI-50	4.7	30	200
P0420NL	1.32	3.30	60	4	LCCI-50	4.6	30	200
P0351NL	1.47	2.80	80	3	LCCI-50	4.3	30	200
P0473NL	0.88	1.63	110	2	Polecat	1.5	40	500
P0354NL	1.17	1.22	200	1	Polecat	1.4	40	500

NOTE:

1. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. P0502 becomes P0502**T**). Pulse complies to industry standard tape and reel specification EIA481.
2. The "**NL**" suffix indicates an RoHS-compliant part number. Non-NL suffixed parts are not necessarily RoHS compliant, but are electrically and mechanically equivalent to NL versions. If a part number does not have the "**NL**" suffix, but an RoHS compliant version is required, please contact Pulse for availability.
3. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

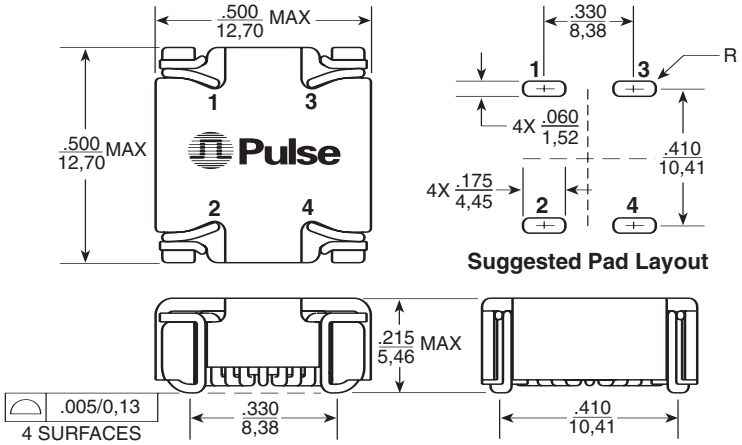
Impedance Curves



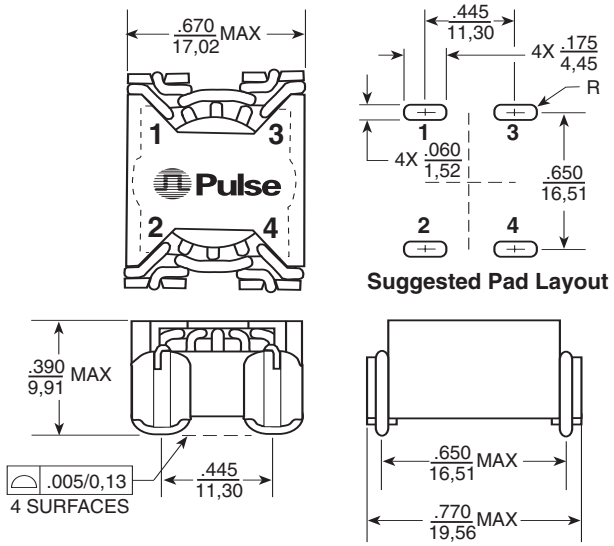


Mechanicals

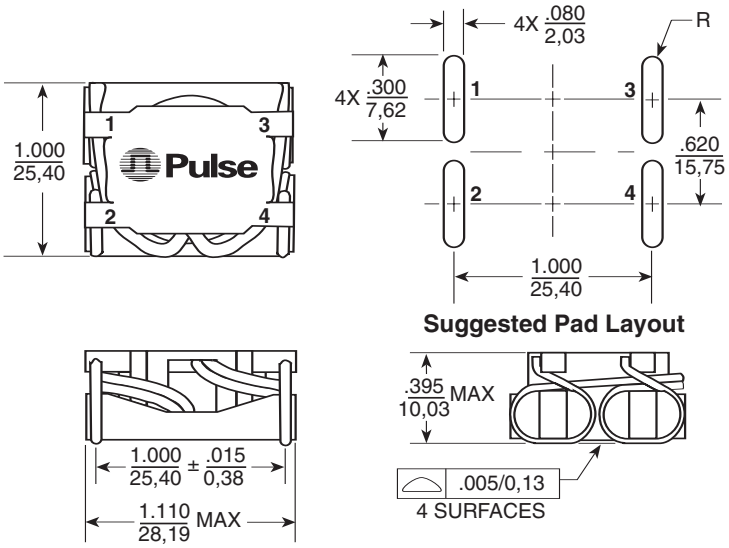
Polecat



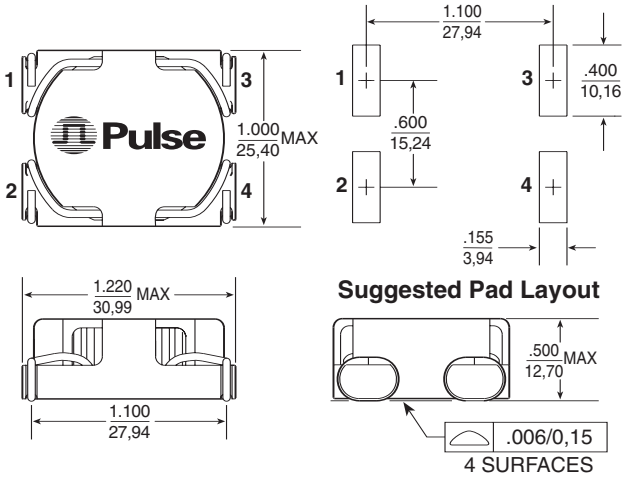
LCCI-50



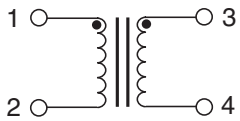
HCCI-68



Big Foot



Schematic



Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ± .005 / 0,13

PARTS INDEX

For More Information:

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Tao Yuan Hsien
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Tel: 886 3 4641811
Fax: 886 3 4641911