



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com







Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



SMT POWER INDUCTORS

Shielded Drum Core - PF0560NL Series



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

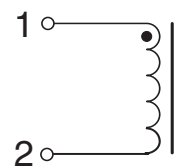
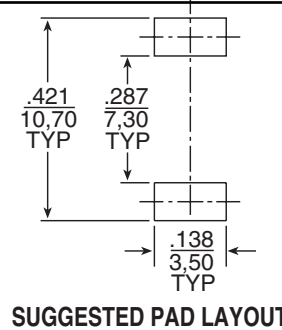
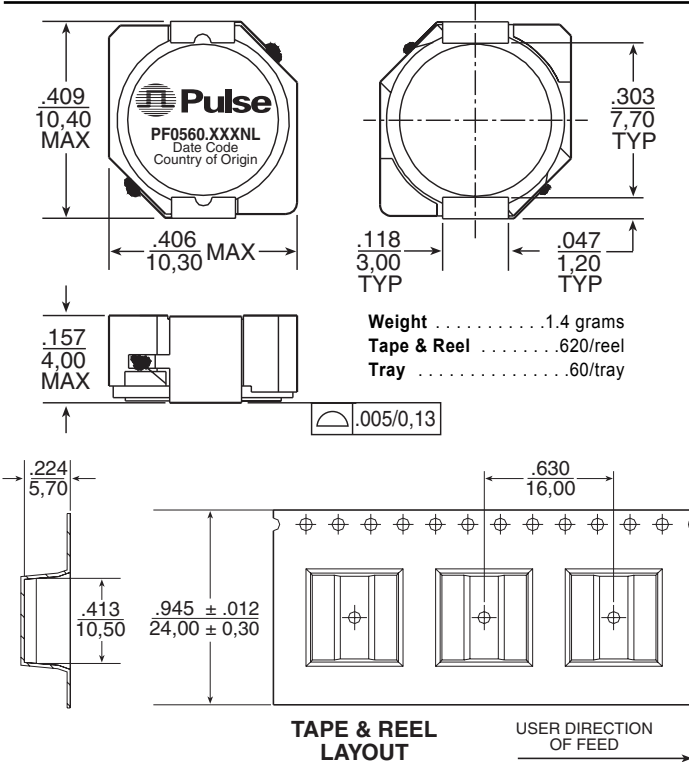
Electrical Specifications @ 25°C — Operating Temperature -40°C to +125°C⁶

Part ^{2,3} Number	Inductance @ 0A _{dc} (μ H)	Inductance @ I _{rated} (μ H TYP)	I _{rated} ⁵ (A)	DCR (m Ω MAX)	Saturation ⁶ Current I _{sat} -35% (A)	Heating ⁷ Current I _{hc} +30°C(A)	Core Loss ⁸ Factor (K2)	SRF (MHz)
PF0560.152NL	1.5 \pm 30%	1.5	6.5	8.1	10	6.5	260	>40
PF0560.252NL	2.5 \pm 30%	2.5	6.1	10.5	7.5	6.1	330	>40
PF0560.382NL	3.8 \pm 30%	3.8	5.5	13	6.0	5.5	420	39
PF0560.522NL	5.2 \pm 30%	5.2	5.4	22	5.5	5.4	480	34
PF0560.702NL	7.0 \pm 30%	7.0	4.5	27	4.8	4.5	500	29
PF0560.103NL	10 \pm 30%	10	3.8	35	4.4	3.8	630	25
PF0560.153NL	15 \pm 30%	15	3.1	50	3.6	3.1	790	19
PF0560.223NL	22 \pm 30%	22	2.5	73	2.9	2.5	910	17
PF0560.333NL	33 \pm 25%	33	2.2	93	2.3	2.2	1200	14
PF0560.473NL	47 \pm 25%	47	1.9	128	2.1	1.9	1300	10
PF0560.683NL	68 \pm 25%	68	1.42	213	1.5	1.42	1700	9.0
PF0560.104NL	100 \pm 25%	100	1.25	304	1.35	1.25	2000	6.6
PF0560.154NL	150 \pm 25%	150	0.85	506	1.15	0.85	2400	5.4
PF0560.224NL	220 \pm 25%	220	0.7	756	0.92	0.7	2900	5.2
PF0560.334NL	330 \pm 25%	330	0.52	1090	0.70	0.52	3580	3.2

NOTES FROM TABLE: (See page 43)

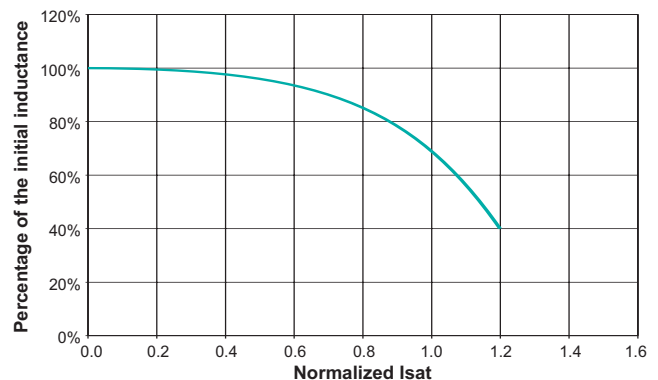
Mechanical

Schematic



Dimensions: $\frac{\text{Inches}}{\text{mm}}$
 Unless otherwise specified, all tolerances are $\pm \frac{.004}{0.10}$

Inductance vs Current Characteristics



SMT POWER INDUCTORS

Shielded Drum Core Series



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 P1166.102NLT). 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 (I_{rated}) as listed is either the saturation current or the heating current depending on which value is lower.
6. The saturation current, I_{sat}, 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, I_{dc}, 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:

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

$$\text{Total loss} = \text{Copper loss} + \text{Core loss (mW)}$$

$$\text{Copper loss} = I_{\text{RMS}}^2 \times \text{DCR (Typical)} \text{ (mW)}$$

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

$$\text{Core loss} = K1 \times f \text{ (kHz)}^{1.23} \times B_{\text{ac}}(\text{Ga})^{2.38} \text{ (mW)}$$

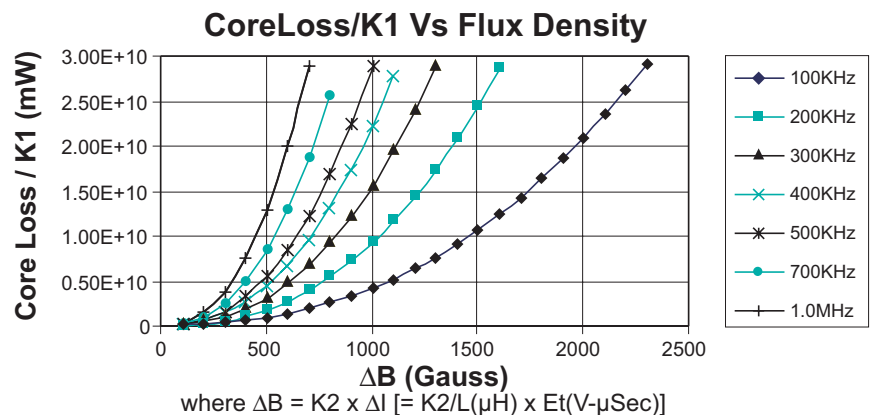
$$B_{\text{ac}} \text{ (peak to peak flux density)} = K2 \times \Delta I \text{ (Ga)}$$

$$[= K2/L(\mu\text{H}) \times Et(\text{V}\cdot\mu\text{Sec}) \text{ (Ga)}]$$

where f varies between 25kHz and 1MHz, and B_{ac} 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



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.