

# SMT POWER INDUCTORS

## Power Beads - PA051X Series



- High frequency VRM10.0 applications
- Current Rating:** Over 50Apk
- Inductance Range:** 72nH to 220nH
- Footprint:** 7.0 x 7.0mm Max and 10.2 x 7.0mm Max
- Height:** 4.96mm Max
- Frequency Range:** up to 2MHz

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

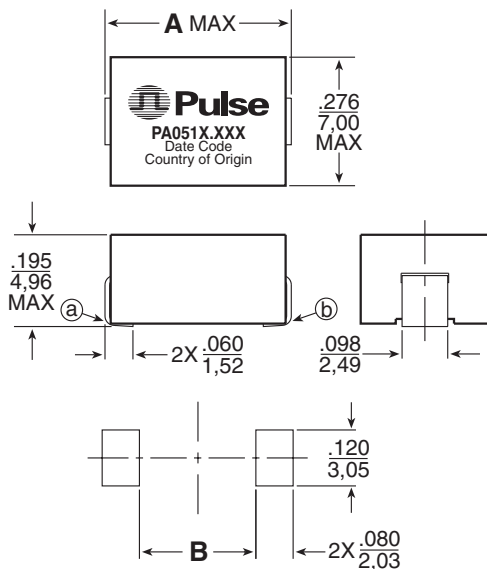
Part Number	Inductance @ Irated (nH ± 20%)	Irated <sup>4</sup> (A <sub>DC</sub> )	DCR (mΩ)		Inductance <sup>3</sup> @ 0A <sub>DC</sub> (nH ± 20%)	Saturation Current <sup>5</sup> (A <sub>DC</sub> )		Heating <sup>6</sup> Current (A)
			NOM <sup>1</sup>	MAX <sup>2</sup>		25°C	100°C	
<b>PA0512 SERIES - 7.0MM x 7.0MM x 5.0MM</b>								
PA0512.700	72	31	0.28	0.5	72	50+	50+	31
PA0512.101	102	31	0.28	0.5	105	48	42	31
PA0512.151	134	28	0.28	0.5	150	32	28	31
<b>PA0511 SERIES - 10.2MM x 7.0MM x 5.0MM</b>								
PA0511.101	120	31	0.36	0.55	120	50+	50	31
PA0511.151	150	31	0.36	0.55	155	40	39	31
PA0511.221	190	31	0.36	0.55	220	33	32.5	31

#### NOTES:

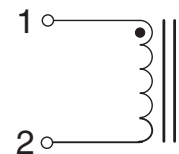
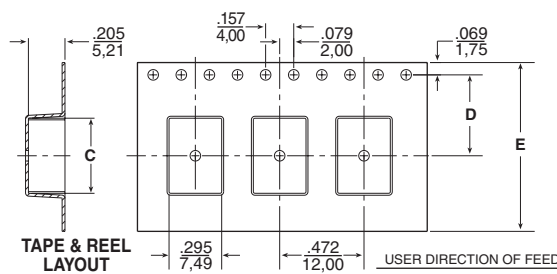
- The nominal DCR has a tolerance of ±8%. This tolerance is guaranteed by design, but is not a manufacturing production test. The nominal DCR is measured from point (a) to point (b), as shown below on the mechanical drawing.
- The maximum DCR is the limit used for manufacturing production test.
- The inductance has a tolerance of ±9%. This tolerance is guaranteed by design, but is not a manufacturing production test. For manufacturing production test, a tolerance of ±20% is used.
- The rated current as listed is either the saturation current or the heating current depending on which value is lower.
- The saturation current is the 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.
- 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.
- 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. To determine the approximate total losses (or temperature rise) for a given application, the coreloss and temperature rise curves can be used.
- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number, (i.e. PA0512.700T). Pulse complies with industry standard tape and reel specification EIA481.

### Mechanical

### Schematic



SUGGESTED PAD LAYOUT



Dim.	PA0512	PA0511
A	.276/7,00	.400/10,20
B	.130/3,30	.250/6,35
C	.300/7,62	.420/10,67
D	.295/7,49	.453/11,50
E	.630*/16,00**	.945*/24,00**

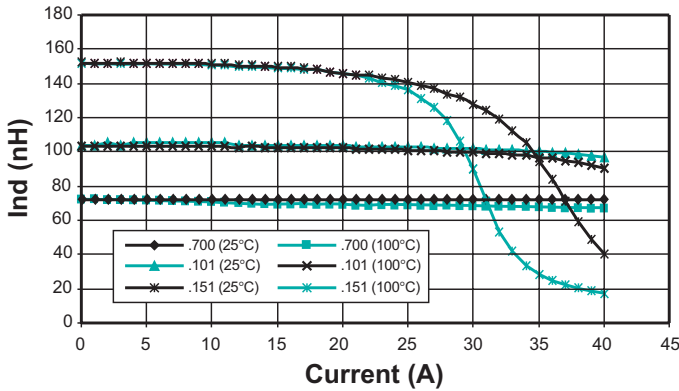
\*±.012 inches / \*\*±0,30 mm

PA0512 PA0511  
 Weight.....0.94 grams.....1.35 grams  
 Tape & Reel .....1000/reel.....1000/reel

Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
 Unless otherwise specified,  
 all tolerances are ±  $\frac{.010}{0,25}$

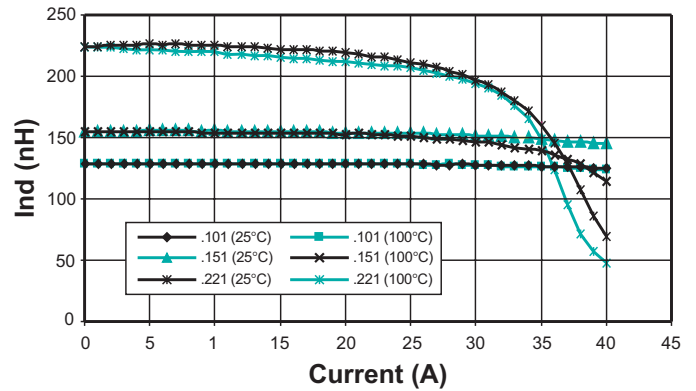
### PA0512.XXX

#### Inductance vs Current

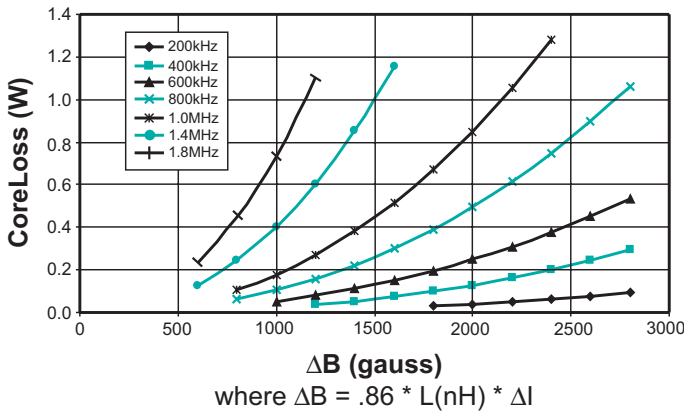


### PA0511.XXX

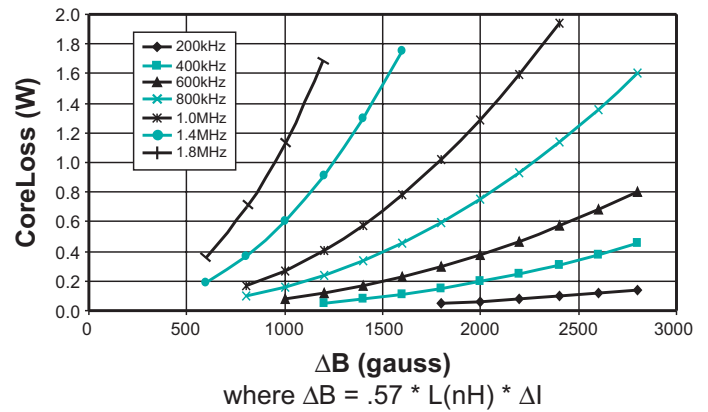
#### Inductance vs Current



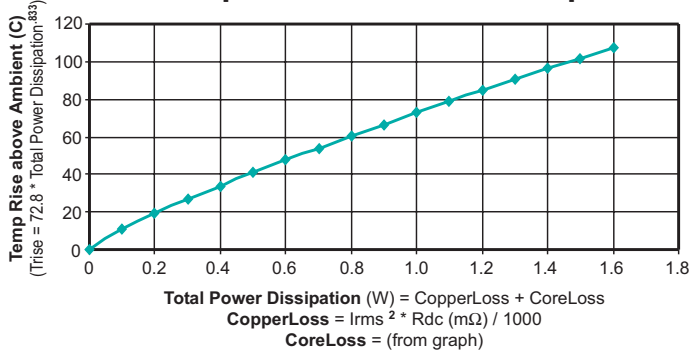
#### CoreLoss vs Flux Density



#### CoreLoss vs Flux Density



#### Temp Rise vs Power Dissipation



#### Temp Rise vs Power Dissipation

