







# SMT POWER INDUCTORS

## Power Beads - PA0513 Series



-  High frequency VRM10 applications
-  **Current Rating:** Over 70Apk
-  **Inductance Range:** 210nH to 440nH
-  **Footprint:** 13.5 x 13.0mm Max
-  **Height:** 8.0mm Max
-  **Frequency Range:** up to 1MHz

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

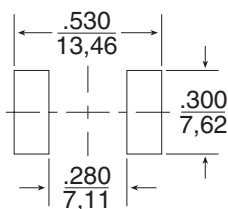
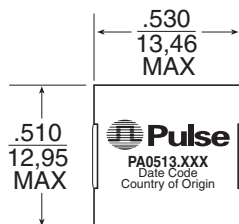
Part Number	Inductance @ Irated (nH ± 20%)	Irated <sup>4</sup> (A <sub>DC</sub> )	DCR <sup>1,2</sup> (mΩ)		Inductance <sup>3</sup> @ 0A <sub>DC</sub> (nH ± 8%)	Saturation Current <sup>5</sup> (A <sub>DC</sub> )		Heating <sup>6</sup> Current (A)
			NOMINAL	MAX		25°C	100°C	
PA0513.211	210	45	0.39	0.50	210	71	64	45
PA0513.261	260	45	0.39	0.50	260	60	55	45
PA0513.321	285	41	0.39	0.50	320	45	41	45
PA0513.441	363	30	0.39	0.50	440	32	30	45

#### NOTES:

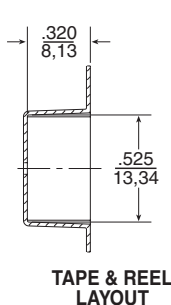
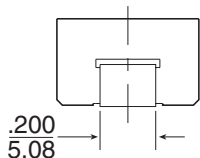
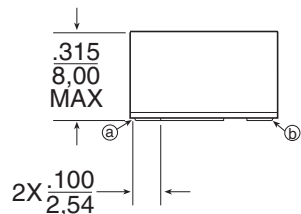
- The nominal DCR has a tolerance of ±8%. This tolerance is guaranteed by design, but is not a manufacturing production test. The nominal DCR is measured from point ① to point ②, as shown below on the mechanical drawing.
- The maximum DCR is the limit used for manufacturing production test.
- The nominal inductance has a tolerance of ±8%. 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 core loss 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. PA0513.211T).

## Mechanical

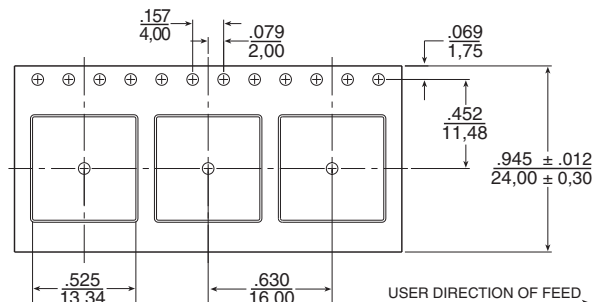
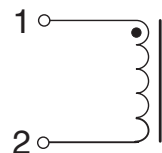
## Schematic



### SUGGESTED PAD LAYOUT



Weight . . . . . 5.7 grams  
Tape & Reel . . . . . 400/reel  
Dimensions:  $\frac{\text{Inches}}{\text{mm}}$   
Unless otherwise specified,  
all tolerances are  $\pm \frac{.010}{0.25}$

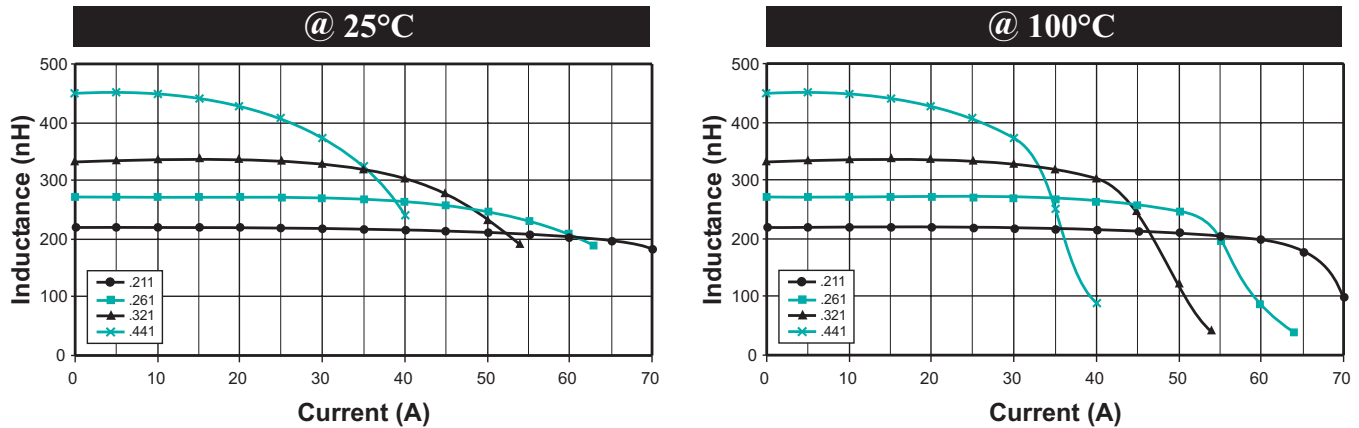


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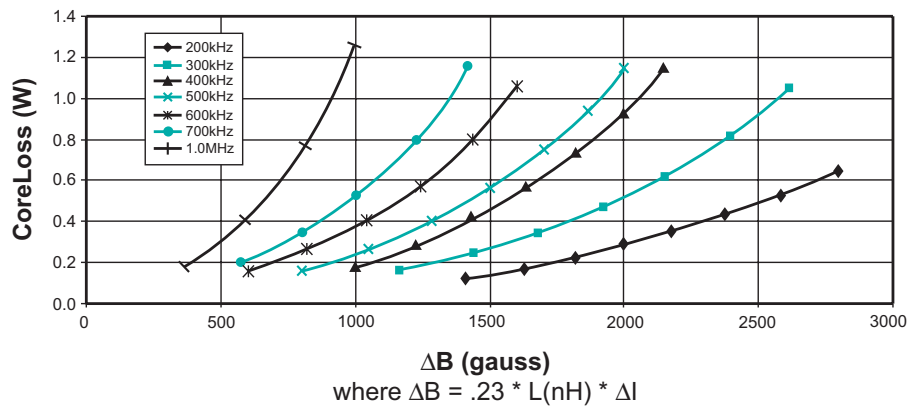
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### Typical Inductance vs Current



### CoreLoss vs Flux Density



### Temp Rise vs Power Dissipation

