

SMT Power Inductors

Power Beads - PA5013.XXXHL Series



Designed for Google's Switched Tank Converter (STC) Topology

Current Rating: Over 75A_{pk}

Inductance Range: 48nH to 78nH

Package Sizes: 7.0 x 7.0 x 4.96mm Max

Electrical Specifications @ 25°C - Operating Temperature -40°C to +130°C⁷

Part Number	Inductance @ 0A _{DC} (± 5nH)	I _{rated} ¹ (A _{DC})	DCR ² (mΩ ± 10%)	Saturation Current ³ (TYP)		Heating ⁴ Current (A TYP)
				25°C	100°C	
PA5013.500HL	48	41	0.32	75+	75	41
PA5013.520HL	52			75+	71	
PA5013.600HL	58			75+	68	
PA5013.680HL	68			70	58	
PA5013.700HL	78			63	53	

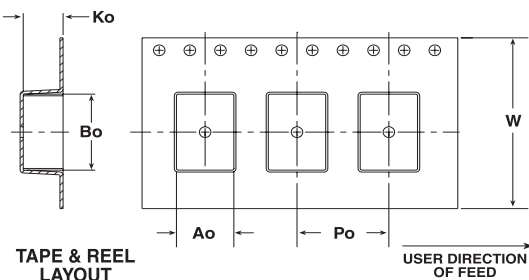
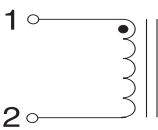
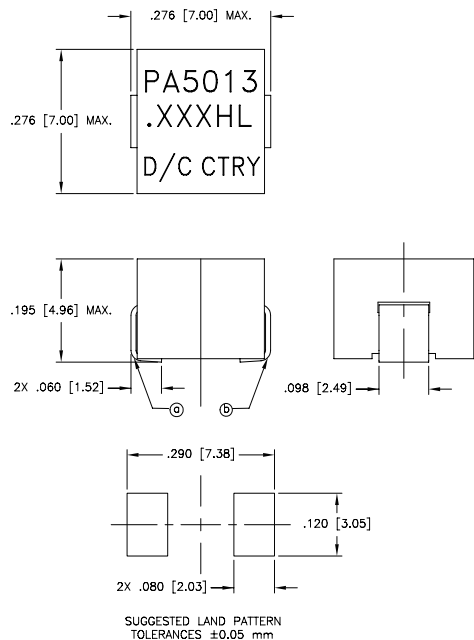
Notes:

- The rated current as listed is either the saturation current or the heating current depending on which value is lower.
- The nominal DCR tolerance is by design. The nominal DCR is measured from point Ⓐ to point Ⓑ, as shown below on the mechanical drawing.
- 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.
- 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.
- Pulse complies to industry standard tape and reel specification EIA481.
- The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

Mechanical

Schematic

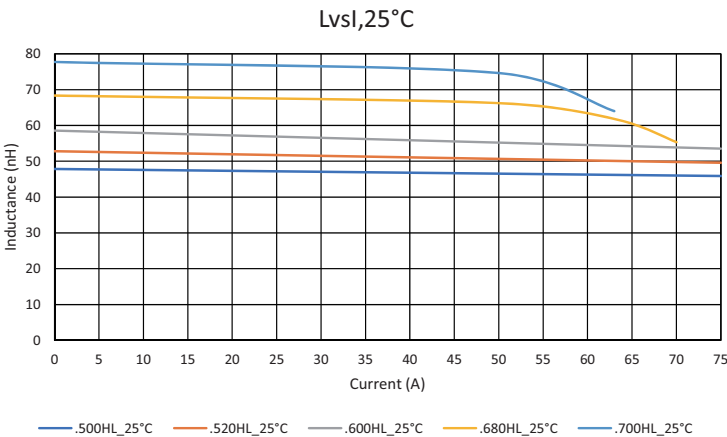
PA5013.XXXHL



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

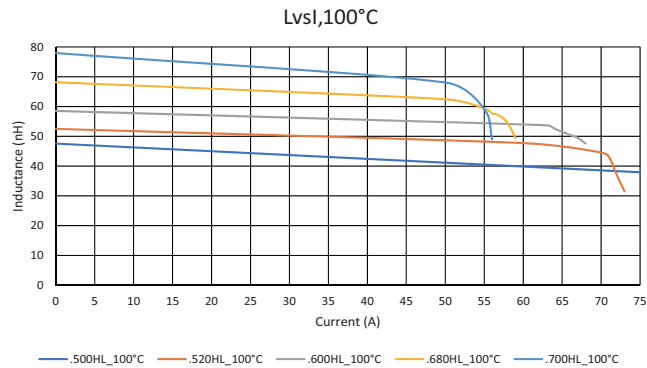
Unless otherwise specified,
all tolerances are $\pm \frac{.010}{0,25}$

T&R Dimensions							
Part Number	Ao	Bo	Ko	Po	W	Parts/Reel	Weight (grams)
PA5013.XXXHL	$\frac{.287}{7,29}$	$\frac{.290}{7,36}$	$\frac{.215}{5,46}$	$\frac{.472}{12,00}$	$\frac{.630}{16,00}$	1000	0.94

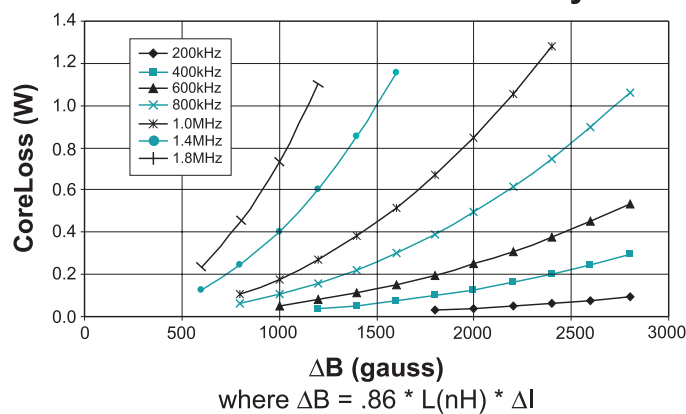


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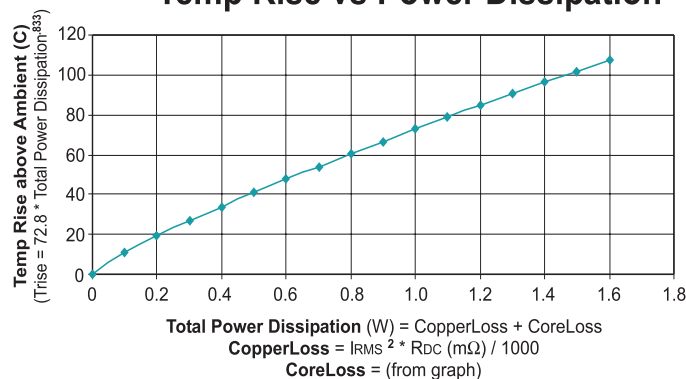
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CoreLoss vs Flux Density



Temp Rise vs Power Dissipation



For More Information:

Americas - prodinfo_power@pulseelectronics.com | Europe - power-apps-europe@pulseelectronics.com | Asia - power-apps-asia@pulseelectronics.com

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