SMT POWER INDUCTORS FOR MULTI-PHASE APPLICATIONS

For Use with International Rectifier's IP2001

Pulse
A TECHNITROL COMPANY

- **Inductance/Current:** 100nH/30Apk
- **Frequency Range:** up to 2 MHz
- **Height:** .177" Max
- **Footprint:** .340" x .250" Max

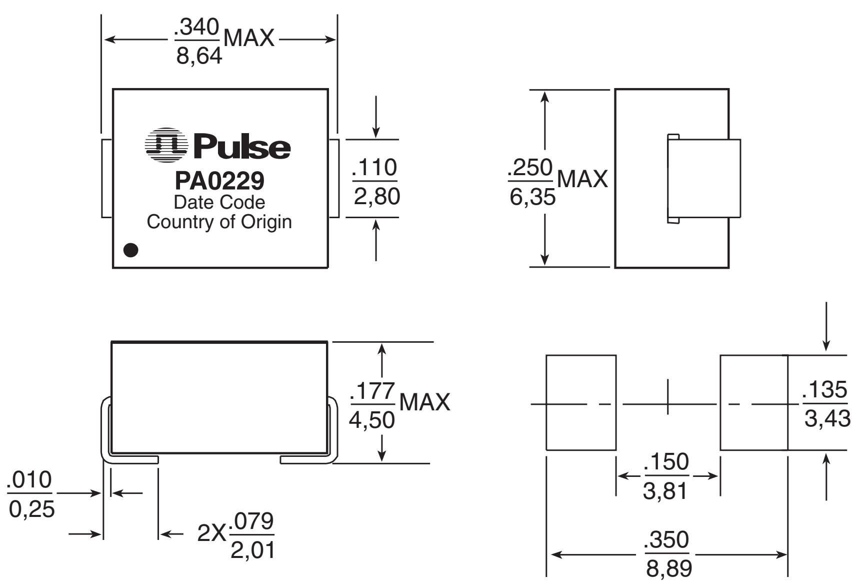
Electrical Specifications @ 25°C — Operating Temperature -40°C to 100°C

Part Number	Inductance @Irated (nH ± 20%)	Irated [1] (ADC)	DCR (mΩ)		Inductance @0ADC (nH ± 20%)	Saturation Current [2] (A)		Heating Current [3] (A)	Trise Factor K0 [4] (cm^2)	Core Loss [4]	
			Typical	Max		25°C	100°C			Factor K1	Factor K2
PA0229	92	16	.68	.80	100	36	30	16	2.2458	.00638	.03975

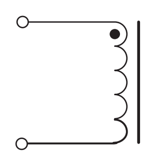
Mechanical

Schematic

PA0229



SUGGESTED PAD LAYOUT



Weight . . . . .0.945 grams
Tape & Reel 1000/reel
Dimensions: Inches / mm
Unless otherwise specified, all tolerances are ± .010 / 0,25

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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 30% at the stated ambient temperatures (-40°C, 25°C, 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 30°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.
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 both copper losses and core losses should be taken into account.

Estimated Temperature Rise:

$$\textbf{Trise} = \left[\frac{Coreloss\ (mW) + DCRloss\ (mW)}{K0}\right]^{.833} \quad (°C)$$

$$\textbf{Coreloss} = K1 * \left(Fsw(kHz)\right)^{1.6688} * (K2 * dI)^{2.17}\ (mW)$$

$$\textbf{DCRloss} = Irms^2 * DCR(m\Omega)\ \ (mW)$$

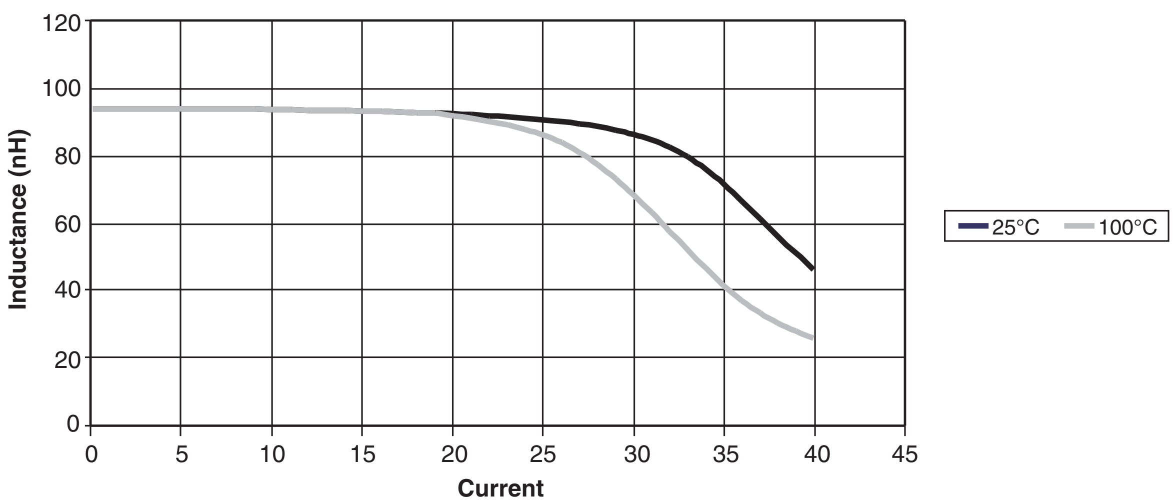
$$\textbf{Irms} = \left[IDC^2 + \left[\frac{dI}{2}\right]^2\right]^{1/2}\ (Arms)$$

$\textbf{Fsw(kHz)}$ = *switching frequency (kHz)*

$\textbf{dI}$ = *delta I across the component (A)*

The temperature of the component (ambient temperature + temperature rise) should be within the listed operating temperature range.

Inductance vs Current Characteristics



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