

SMT POWER INDUCTORS

Toroid – POGO Series

Ruggedized



- ⊗ Ruggedized header with POGO pins for secure board mounting
- ⊗ Current Rating: up to 23.8ADC
- ⊗ Frequency Range: up to 1MHz
- ⊗ Moisture Sensitivity Level: 3

Electrical Specifications @ 25 °C – Operating Temperature – 55 °C to +130 °C

Part 4,5 Number	Inductance @ Irated (µH)	Irated (A)	DCR (m ¹)		Inductance @ OADC (µH)	Reference ET (Volt-µsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)	Connection
			TYP	MAX						
POGO 40										
PL8400	43.6	1.1	247.2	309	77	7.83	0.295	1.87E-10	114.23	Single
POGO 50										
PL8401	21.9	2.7	72.4	90.5	39.5	6.9	0.297	3.35E-10	85.71	Single
PL8402	4.025	6.4	18.4	23	6.575	3.135	0.638	4.52E-10	67.89	Single
PL8403	0.53	23.8	1.0	3	0.88	1	2.020	3.35E-10	85.71	Parallel
PL8404	1.1	21	1.7	2.5	2.1	1.75	1.116	4.52E-10	67.89	Parallel
POGO 60										
PL8405	2.1	22.4	2.5	3.4	4	3.25	0.559	9.58E-10	44.56	Parallel

NOTES:

- Reference values are for an inductor with a 55°C temperature rise. The core loss is 10% of the copper loss at the ET listed and 500kHz.
- Core does not saturate abruptly. The ET and DC current are limited by the desired inductance and temperature rise.
- 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. In order to determine the approximate total losses (or temperature rise) for a given application, both copper and core losses should be taken into account.

Estimated Temperature Rise:

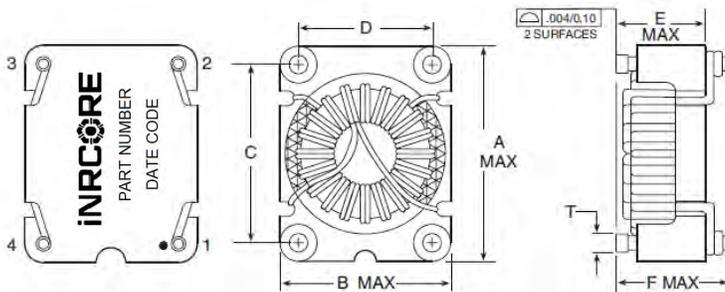
$$Trise = K3 * (CoreLoss(W) + CopperLoss(W))^{.833} (C)$$

$$CopperLoss = Irms^2 * DCR_{Typical} (m^1) / 1000 \text{ CoreLoss} = K2 * (Freq_kHz)^{1.26} * (\bar{A}B)^{2.71}$$

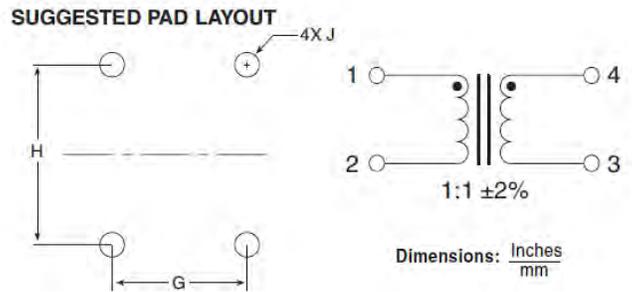
$$\bar{A}B = K1 * Volt\text{-}\mu\text{sec} * 100$$

- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PL8400 becomes **PL8400T**).

Mechanicals



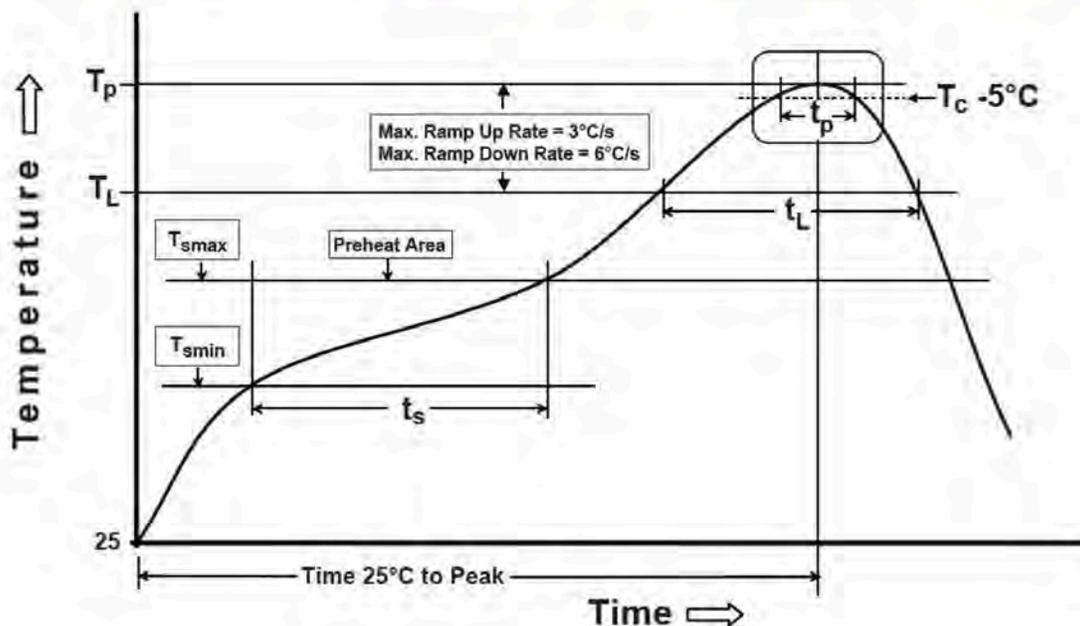
Electrical Schematics



PKG	A	B	C	D	E	F	G	H	J	T	Weight (MAX)	Tube	Reel
POGO 40	.725	.575	.600	.450	.310	.380	.450	.600	.082	.062	3.5 grams	30	300
	18,42	14,61	15,24	11,43	7,87	9,65	11,43	15,24	2,08	1,57			
POGO 50	.910	.700	.730	.520	.400	.510	.520	.730	.145	.125	8.2 grams	35	200
	23,11	17,78	18,54	13,21	10,16	12,95	13,21	18,54	3,68	3,18			
POGO 60	1.280	1.070	1.100	.890	.400	.510	.890	1.100	.145	.125	14.2 grams	15	100
	32,51	27,18	27,94	22,61	10,16	12,95	22,61	27,94	3,68	3,18			



Tin/Lead Recommended Reflow Profile (Based on J-STD-020D)



T_{SMIN} (°C)	T_{SMAX} (°C)	T_L (°C)	T_P (°C MAX)	t_s (s)	t_L (s)	t_p (s MAX)	Ramp-up rate (T_L to T_P)	Ramp-down rate (T_P to T_L)	Time 25°C to peak temperature (s MAX)
100	150	183	235	60-120	60-150	20	3°C/s MAX	6°C/s MAX	360

Notes:

1. All temperatures measured on the package leads.
2. Maximum times of reflow cycle: 2.

For More Information

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