SMT Power Inductors - SLIC Series

Ruggedized

PL1434, PL1435, PL3059

- Current Rating up to 2.6 - 7.2 A_{DC}
- Frequency Range: up to 1MH_Z
- Lead Finish: Sn63/Pb37, Sn100 optional (see 'Notes')
- Operating Temperature -40°C to +130°C

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

Part [4,6] Number	Inductance @ Irated (µH)	Irated (A)	DCR(mΩ) (TYP)	DCR(mΩ) (MAX)	Reference ET (V-µsec)	Inductance @ 0ADC (µH)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp Rise Factor (K3)
SLIC Series: LCI-50 Package									
PL1434	9.3	7.20	15.895	18.7	4.92	16	0.41	4.52E-10	67.9
PL1435	16.1	5.10	27.2	32.0	6.27	25.9	0.32	4.52E-10	67.9
PL3059	50	2.60	113.05	133	10.5	72.9	0.19	4.52E-10	67.9

Notes: 1. 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.

2. Core does not saturate abruptly. The ET and DC current are limited by the desired inductance and temperature rise.

3. 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 cozmponent. 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)

$CopperLoss = Irms^2 * DCR\_Typical\ (m\Omega) / 1000$

$CoreLoss = K2 * (Freq\_kHz)^{1.26} * (\Delta B)^{2.11}$

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

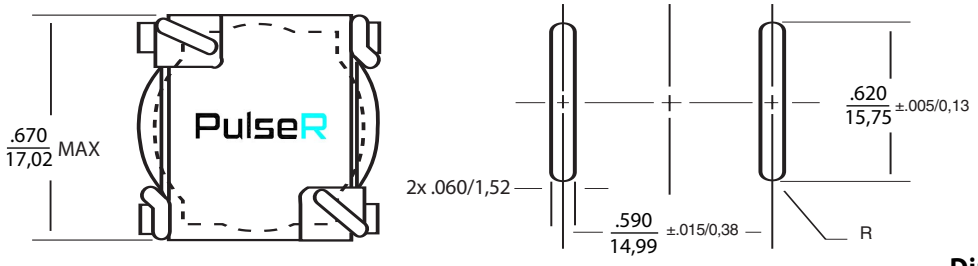
4. Optional Tape & Reel packaging can be ordered by adding a "**T**" suffix to the part number (i.e. PL1434 becomes **PL1434T**).

5. The temperature of the component (ambient plus temperature rise) must be within the stated operating temperature range.

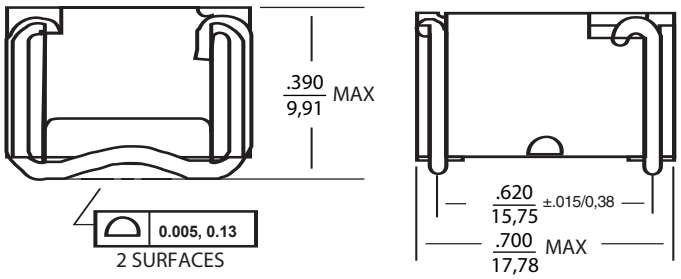
6. To order RoHS-compliant parts (Sn100 Lead Finish), add suffix 'NL' to the part number (i.e. PL3059 becomes **PL3059NL**).

Mechanical

SLIC Series (LCI-50 Package)



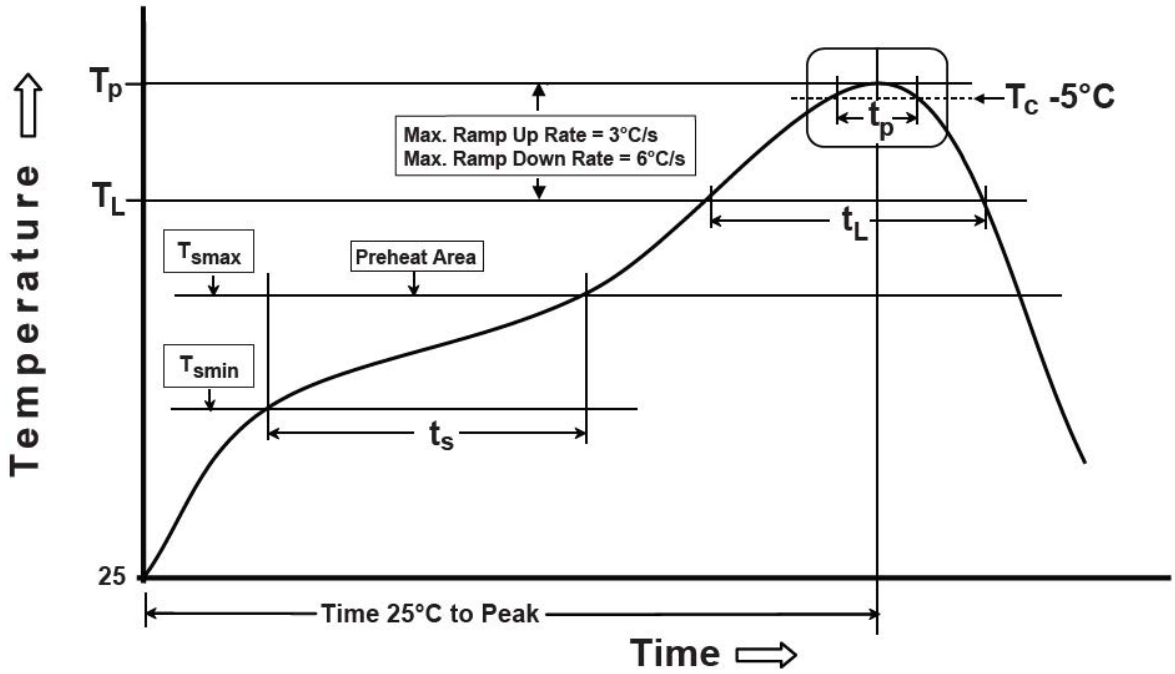
Suggested PCB Layout



Dimensions: Inches / mm

Unless otherwise specified, all tolerances are ±.005/0,13

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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