# SMT POWER INDUCTORS

Toroid - Military/Aerospace POGO Series
Ruggedized

- Ruggedized header with POGO pins for secure board mounting
- Current Rating: up to 8.3ADC
- Inductance Range: 2.0µH to 336µH
- Moisture Sensitivity Level: 1

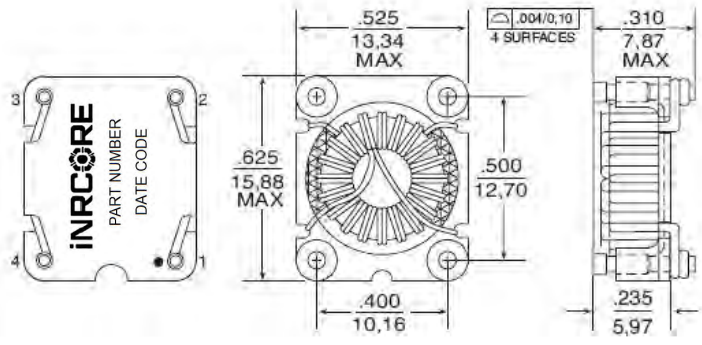
**Electrical Specifications @ 25 °C – Operating Temperature – 40 °C to +130 °C**

| [9] Part Number | Inductance @ Irated (µH MIN) | Irated (A) | DCR (MAX) (mΩ) | ET (V-µsec) | Inductance @0ADC (µH ±10%) | 100 Gauss ET100 (V-µsec) | 1 Amp DC H1 (Orsted) | Connection |
|---|---|---|---|---|---|---|---|---|
| **POGO 25** | | | | | | | | |
| PL8600 | 2.0 | 8.30 | 8.0 | 7.31 | 2.2 | 1.20 | 5.43 | Parallel |
| PL8601 | 2.4 | 7.20 | 10.9 | 7.81 | 2.6 | 1.33 | 5.97 | Parallel |
| PL8602 | 5.0 | 5.20 | 19.0 | 11.72 | 5.5 | 1.93 | 8.69 | Parallel |
| PL8600 | 7.0 | 4.16 | 16.0 | 14.61 | 8.75 | 2.41 | 10.86 | Series |
| PL8603 | 9.3 | 3.80 | 30 | 16.12 | 10.4 | 2.65 | 11.95 | Parallel |
| PL8601 | 8.4 | 3.78 | 21.8 | 15.62 | 10.4 | 2.65 | 11.95 | Series |
| PL8604 | 14.1 | 3.10 | 45.5 | 19.73 | 15.7 | 3.25 | 14.66 | Parallel |
| PL8605 | 19.8 | 2.60 | 66.5 | 23.45 | 22.1 | 3.86 | 17.38 | Parallel |
| PL8602 | 17.9 | 2.60 | 38.0 | 23.43 | 22.45 | 3.86 | 17.38 | Series |
| PL8606 | 29.3 | 2.20 | 101 | 28.50 | 32.8 | 4.70 | 21.18 | Parallel |
| PL8603 | 33.8 | 1.89 | 60 | 32.25 | 41.7 | 5.30 | 23.89 | Series |
| PL8607 | 42.6 | 1.80 | 151 | 34.49 | 47.6 | 5.66 | 25.52 | Parallel |
| PL8604 | 50.9 | 1.54 | 91 | 39.46 | 62.8 | 6.51 | 29.32 | Series |
| PL8608 | 61.3 | 1.50 | 222 | 40.85 | 67.5 | 6.75 | 30.41 | Parallel |
| PL8605 | 71.5 | 1.30 | 133 | 46.90 | 88.2 | 7.71 | 34.75 | Series |
| PL8609 | 84.2 | 1.20 | 318 | 46.22 | 91.0 | 7.83 | 35.30 | Parallel |
| PL8606 | 106.1 | 1.07 | 202 | 57.00 | 131.0 | 9.40 | 42.36 | Series |
| PL8607 | 154.2 | 0.89 | 302 | 68.99 | 190.3 | 11.33 | 51.05 | Series |
| PL8608 | 218.9 | 0.74 | 444 | 81.70 | 270.2 | 13.50 | 60.82 | Series |
| PL8609 | 295.0 | 0.64 | 636 | 92.43 | 364.0 | 15.66 | 70.59 | Series |

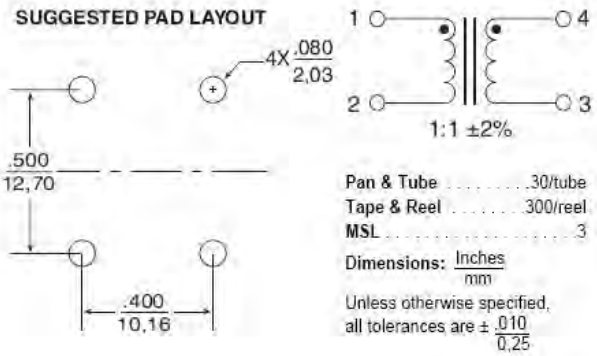
NOTES:

1. Temperature rise is 50°C in typical buck or boost circuits at 250kHz and with the reference ET applied to the inductor.
2. Total loss in the inductor is 380mWatts for a 50°C temperature rise above ambient.
3. To estimate temperature rise in a given application, determine copper and core losses, divide by 380 and multiply by 50.
4. For the copper loss, calculate $IDC^2$ X RN.
5. For core loss, using frequency (f) and operating flux density (B), calculate $6.11 \times 10^{-18} \times B^{2.7} \times f^{2.04}$.
6. For flux density (B), calculate ET (V-µsec) for the application, divide by ET100 from the table, and multiply by 100.
7. Limit the DC bias (H) to 46 orsteds. Calculate H by multiplying H1 from the table by IDC of the application.
8. The maximum DCR listed is approximately 17% over the nominal DCR.
9. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PL8600 becomes **PL8600T**).

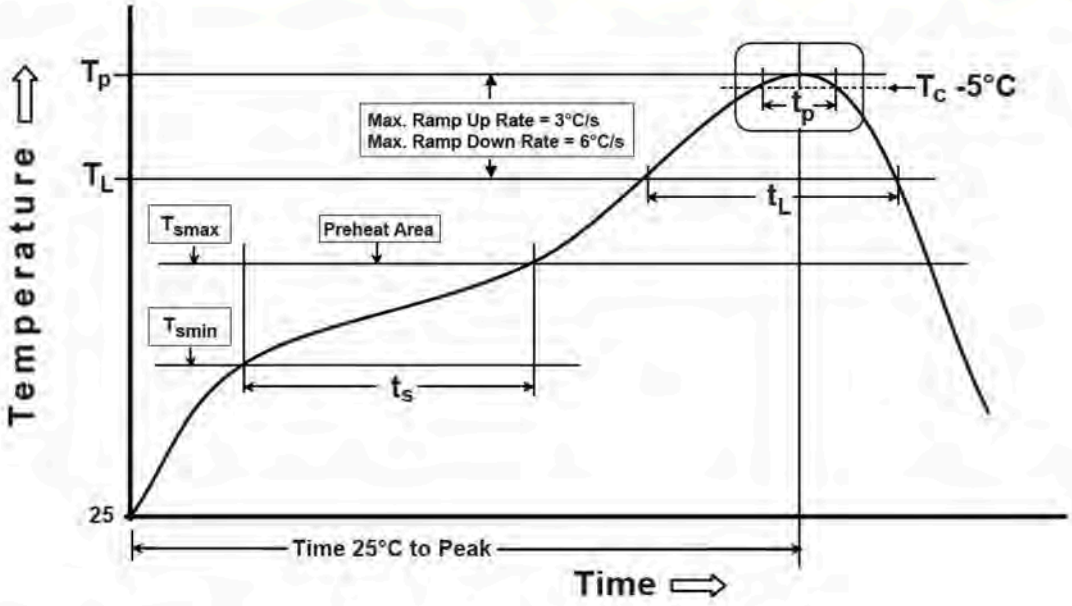
## Mechanical




## Electrical Schematic



## 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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