SMT POWER INDUCTORS

Toroid SLED Series

Ruggedized

- Ruggedized header with SLED rails for secure board mounting
- Four package sizes
- Current Rating: up to 14.3ADC
- Frequency Range: up to 1MHz
- Moisture Sensitivity Level: 1

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

Part[4] Number	Inductance @ Irated (µH)	Irated (A)	DCR (mΩ) TYP	DCR (mΩ) MAX	Inductance @ 0ADC (µH)	Reference ET (Volt-µsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)
SLED 20									
PL8100	1.01	3.40	9.35	11	1.1	0.53	5.43	3.29E-11	323.9
PL8101	6.2	1.40	59.5	70	7	1.33	2.17	3.29E-11	323.9
PL8102	17.6	1.00	106.25	125	22.7	2.4	1.21	3.29E-11	323.9
SLED 30									
PL8110	3.8	4.80	14.705	17.3	5.2	1.76	1.28	1.39E-10	148.0
PL8111	9.4	2.80	36.89	43.4	12.3	2.7	0.83	1.39E-10	148.0
PL8112	29.7	1.40	141.1	166	35.3	4.6	0.49	1.39E-10	148.0
PL8113	114	0.94	323	380	167	10	0.23	1.39E-10	148.0
SLED 40									
PL8120	2.5	8.00	7.055	8.3	3.8	1.77	1.30	1.87E-10	114.2
PL8121	5.1	5.40	15.045	17.7	7.5	2.51	0.92	1.87E-10	114.2
PL8122	16.2	2.70	63	72	21.9	4.29	0.54	1.87E-10	114.2
PL8123	58.1	1.30	246.5	290	73	7.83	0.29	1.87E-10	114.2
PL8124	192	0.90	476	560	292	15.7	0.15	1.87E-10	114.2
PL8125	383	0.72	732.7	862	672	23.5	0.10	1.87E-10	114.2
PL8130	4.9	7.80	10.54	12.4	7.9	3.04	0.67	3.35E-10	85.7
PL8131	9	5.50	25	28	14	4.06	0.51	3.35E-10	85.7
PL8132	29.1	2.70	85	100	40.5	6.9	0.30	3.35E-10	85.7
PL8133	645	0.74	1062.5	1250	1134	36.5	0.06	3.35E-10	85.7
PL8150	0.81	14.30	2.125	2.5	1.25	1.035	2.23	1.87E-10	114.2
PL8151	1.32	11.50	3.4	4.0	2.1	1.33	1.74	1.87E-10	114.2
SLED 50									
PL8140	9.3	7.20	15.895	18.7	16	4.92	0.41	4.52E-10	67.9
PL8141	16.1	5.10	27.2	32.0	25.9	6.27	0.32	4.52E-10	67.9
PL8142	50	2.60	113.05	133	72.9	10.5	0.19	4.52E-10	67.9
PL8143	1070	0.71	1445	1700	1950	54.4	0.04	4.52E-10	67.9
PL8160	1.68	13.90	3.06	3.6	2.8	1.83	1.12	3.35E-10	85.7
PL8161	2.5	11.40	4.59	5.4	4.2	2.23	0.92	3.35E-10	85.7
PL8170	3.5	12.40	5.61	6.6	6.5	3.1	0.64	4.52E-10	67.9
PL8171	4.7	10.40	7.055	8.3	8.4	3.58	0.56	4.52E-10	67.9
SLED 60									
PL8180	5.2	15.40	5.27	6.2	10.5	5.21	0.35	9.58E-10	44.6
PL8181	9.4	10.90	10.5	12.3	17.6	6.84	0.27	9.58E-10	44.6

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 derat-ing 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:

$$Trise = K3 * (Coreloss(W) + Copperloss(W)^{.833} (C)$$

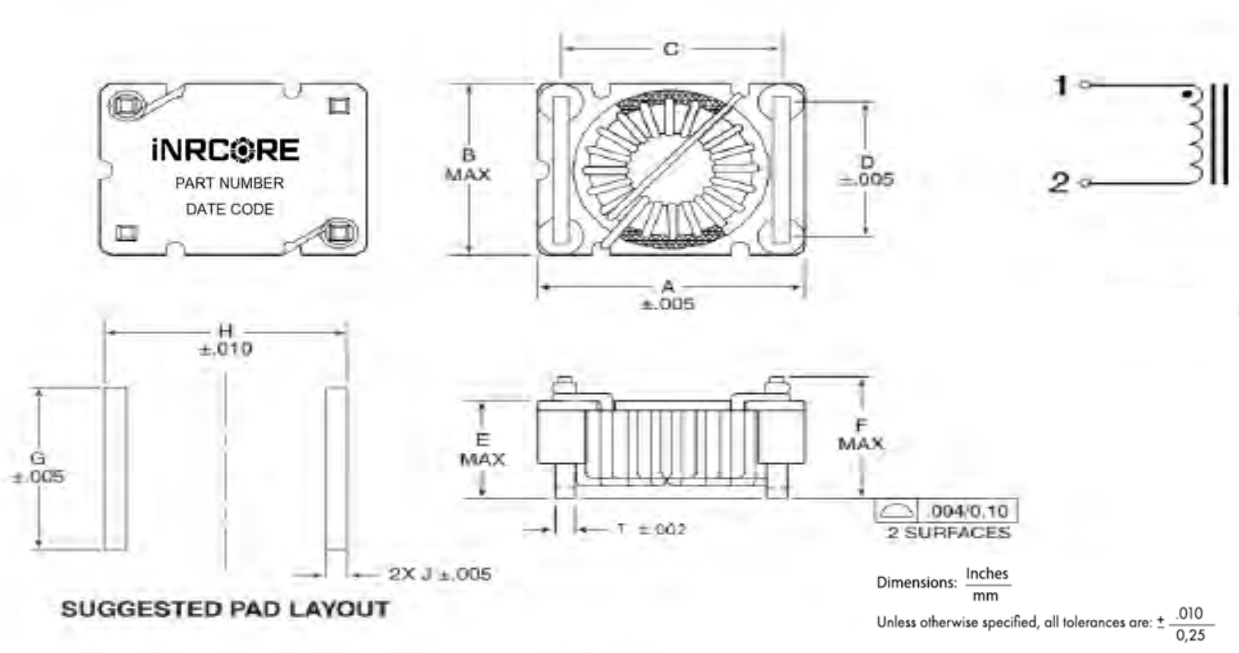
$$CopperLoss = Irms^2 * DCR_Typical\ (mW) / 1000$$

$$CoreLoss = K2 * (Freq_kHz)^{1.26} * (DB)^{2.11}$$

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

4. Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PL8100 becomes **PL8100T)**.

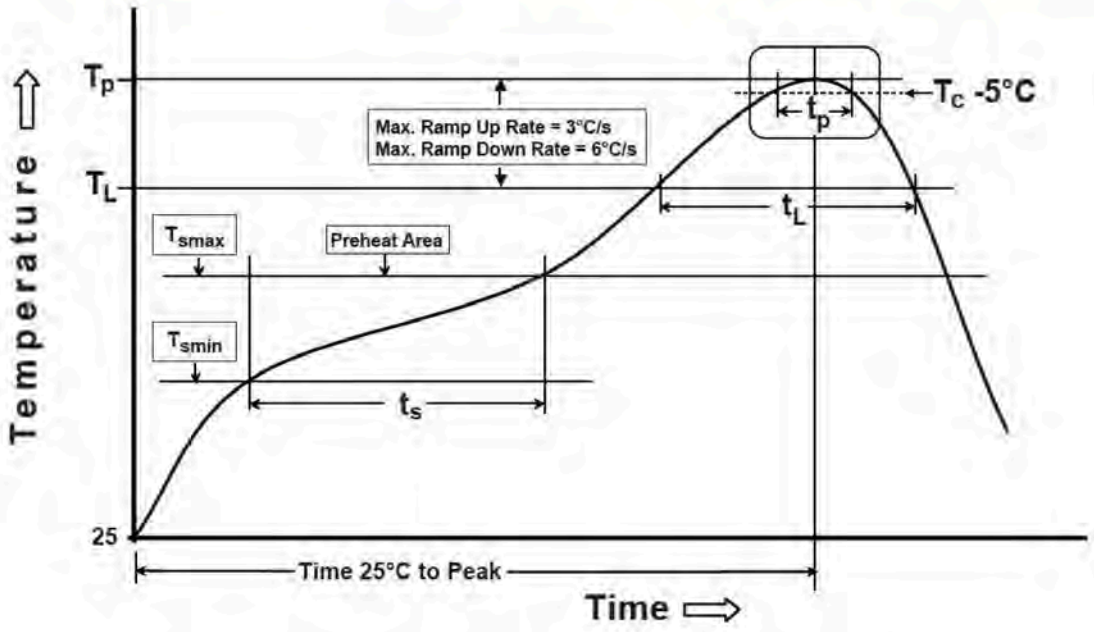
Mechanicals



Electrical Schematics

PKG	A	B	C	D	E	F	G	H	J	T	Weight (grams MAX)	Tube Pan (QTY)	Tape Pan (QTY)
SLED 20	.400 10,16	.345 8,76	.300 7,62	.245 6,22	.200 5,08	.250 6,35	.310 7,87	.345 8,76	.045 1,14	.025 0,64	0.66	30	800
SLED 30	.625 15,88	.525 13,34	.500 9,91	.400 10,16	.325 8.26	.400 10,16	.460 11,68	.560 14,22	.045 1,14	.040 1,02	2.53	35	200
SLED 40	.725 18,42	.575 14,61	.600 15,24	.450 11,43	.335 8,51	.410 10,41	.540 13,72	.660 16,76	.060 1,52	.040 1,02	4.62	30	200
SLED 50	.900 22,86	.690 17,53	.730 18,54	.520 13,21	.415 10,54	.520 13,21	.640 16,26	.810 20,57	.080 2,03	.060 1,52	9.02	30	150
SLED 60	1.275 32,39	1.065 27,05	1.100 27,94	.890 22,61	.405 10,29	.510 12,95	.985 25,02	1.180 29,97	.080 2,03	.060 1,52	15.00	15	100

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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