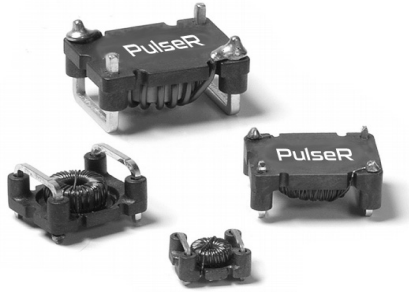


SMT POWER INDUCTORS

Toroid- Ruggedized SLED Series

Ruggedized



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

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

Pulse ⁴ Part Number	Inductance @ I _{rated} (μH)	I _{rated} (A)	DCR (mΩ)		Inductance @ 0A _{DC} (μH)	Reference ET (Volt-μsec)	Flux Density Factor (K1)	Core Loss Factor (K2)	Temp. Rise Factor (K3)
			TYP	MAX					
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:

- 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:

$$\begin{aligned} \text{Trise} &= K3 * (\text{Coreloss}(W) + \text{Copperloss}(W))^{0.33} \text{ (C)} \\ \text{CopperLoss} &= \text{Irms}^2 * \text{DCR_Typical (m}\Omega) / 1000 \\ \text{CoreLoss} &= K2 * (\text{Freq_kHz})^{1.26} * (\Delta B)^{2.11} \\ \Delta B &= K1 * \text{Volt-}\mu\text{sec} * 100 \end{aligned}$$

- Optional Tape & Reel packaging can be ordered by adding a "T" suffix to the part number (i.e. PL8100 becomes PL8100T). Pulse complies to industry standard tape and reel specification EIA481.

SMT POWER INDUCTORS

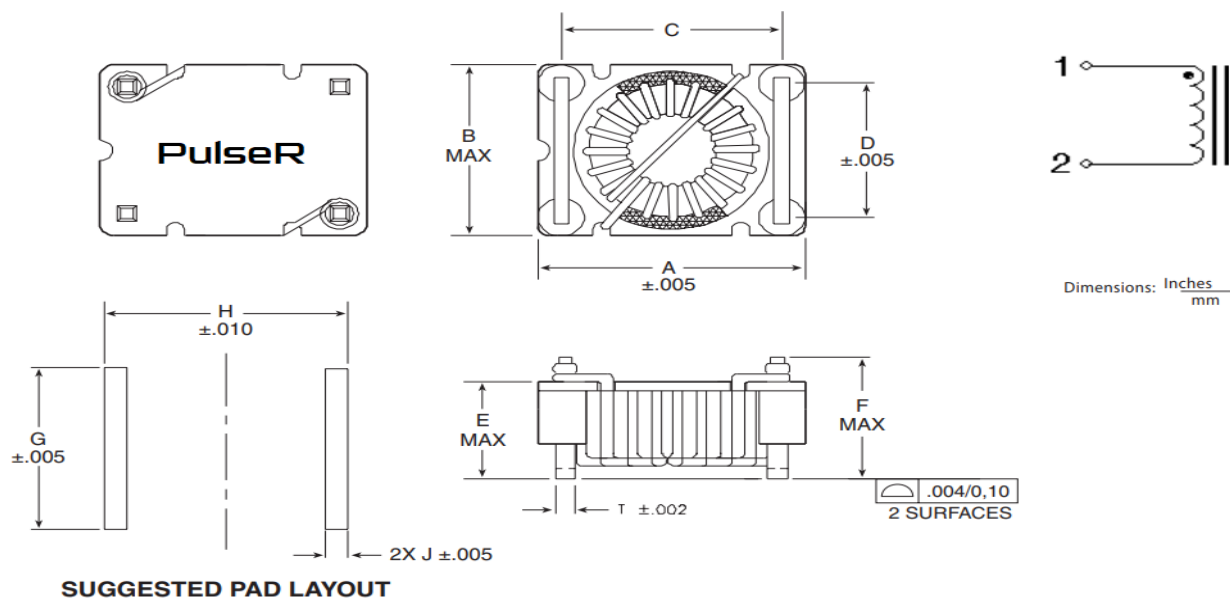
Toroid- Ruggedized SLED Series

Ruggedized



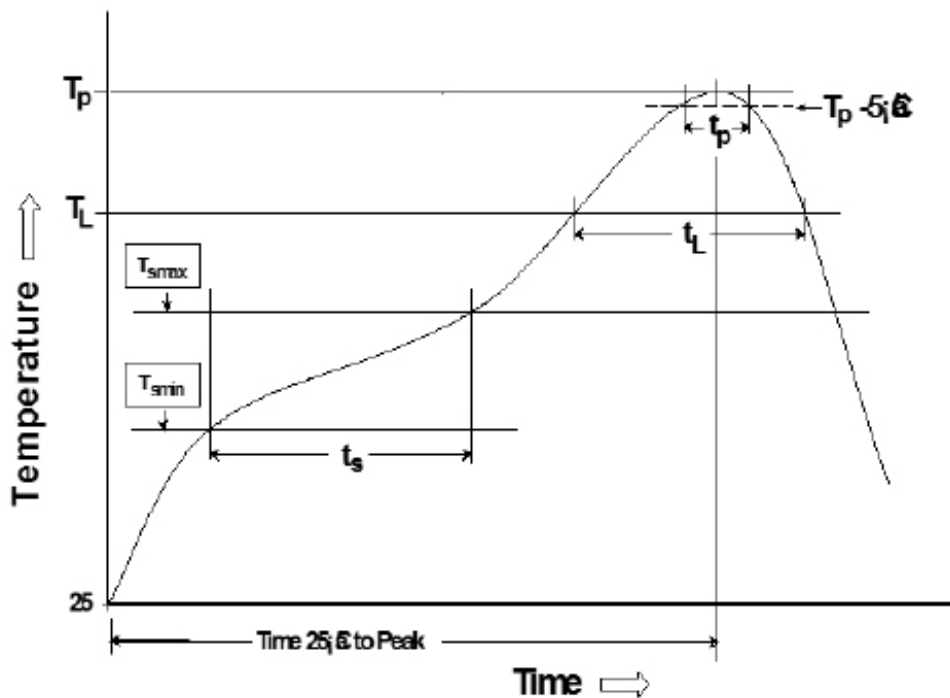
Mechanical

Schematic



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

Transceiver 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	225	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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