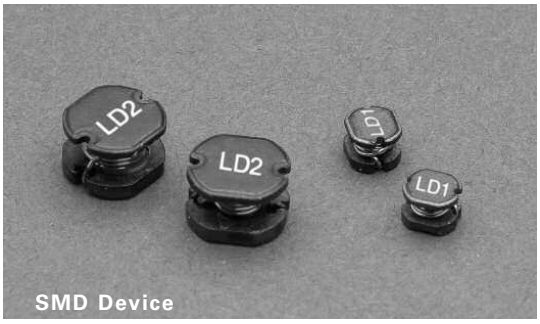
LD

Metalized drum core power inductors



SMD Device

Product features

- Metalized drum core design utilizes board space
- Current Range from 0.52 A to 4.46 A
- Inductance range from 1.0 µH to 470 µH
- Ferrite core material

Applications

- Buck or boost inductor
- Noise filtering and output filter chokes
- Computers
- Power supplies
- Test equipment instrumentation

Environmental data

- Storage temperature range (component): -40 °C to +125 °C
- Operating temperature range: -40 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

RoHS

Powering Business Worldwide

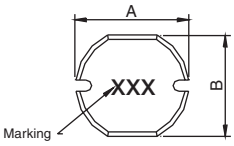
Product specifications

Part Number	Rated Inductance (µH)	OCL[1] Nominal	I_{rms}[2] (A)	I_{sat}[3] (A)	DCR[4] (Ω) (Max.)
LD1-1R0-R	1.0	1.00	2.66	4.46	0.0330
LD1-1R4-R	1.4	1.40	2.47	3.41	0.0380
LD1-1R8-R	1.8	1.80	2.35	3.05	0.0420
LD1-2R2-R	2.2	2.20	2.22	2.76	0.0470
LD1-2R7-R	2.7	2.70	2.11	2.52	0.0520
LD1-3R3-R	3.3	3.30	2.00	2.32	0.0580
LD1-3R9-R	3.9	3.90	1.75	2.14	0.0760
LD1-4R7-R	4.7	4.70	1.57	2.00	0.0940
LD1-5R6-R	5.6	5.60	1.51	1.75	0.1010
LD1-6R8-R	6.8	6.80	1.41	1.56	0.1170
LD1-8R2-R	8.2	8.20	1.32	1.41	0.1320
LD1-100-R	10	10.0	1.13	1.28	0.1820
LD1-120-R	12	12.0	1.05	1.18	0.2100
LD1-150-R	15	15.0	0.99	1.05	0.2350
LD1-180-R	18	18.0	0.83	0.98	0.3380
LD1-220-R	22	22.0	0.78	0.89	0.3780
LD1-270-R	27	27.0	0.67	0.87	0.5220
LD1-330-R	33	33.0	0.66	0.75	0.5400
LD1-390-R	39	39.0	0.63	0.68	0.5870
LD1-470-R	47	47.0	0.52	0.61	0.8440
LD1-560-R	56	56.0	0.50	0.57	0.9370
LD1-680-R	68	68.0	0.46	0.52	1.12
LD1-820-R	82	82	0.43	0.50	1.28
LD1-101-R	100	100	0.36	0.45	1.72
LD1-151-R	150	150	0.29	0.40	2.68
LD1-221-R	220	220	0.26	0.33	3.42
LD1-331-R	330	330	0.22	0.30	4.70
LD2-100-R	10	10.0	3.83	3.45	0.0700
LD2-120-R	12	12.0	3.57	3.20	0.0800
LD2-150-R	15	15.0	3.38	2.85	0.0900
LD2-180-R	18	18.0	3.19	2.60	0.1000
LD2-220-R	22	22.0	3.13	2.45	0.1100
LD2-270-R	27	27.0	2.81	2.10	0.1200
LD2-330-R	33	33.0	2.70	2.01	0.1300
LD2-390-R	39	39.0	2.42	1.85	0.1600
LD2-470-R	47	47.0	2.25	1.64	0.1800
LD2-560-R	56	56.0	1.96	1.50	0.2400
LD2-680-R	68	68.0	1.88	1.35	0.2800
LD2-820-R	82	82	1.63	1.28	0.3700
LD2-101-R	100	100	1.53	1.15	0.4300
LD2-121-R	120	120	1.43	1.09	0.4700
LD2-151-R	150	150	1.23	0.95	0.6400
LD2-181-R	180	180	1.15	0.87	0.7100
LD2-221-R	220	220	1.00	0.79	0.9600
LD2-271-R	270	270	0.94	0.73	1.11
LD2-331-R	330	330	0.83	0.64	1.26
LD2-391-R	390	390	0.78	0.58	1.77
LD2-471-R	470	470	0.74	0.55	1.96

Notes:
1) Open Circuit Inductance Test Parameters: 100 kHz, 0.25 V_{rms}, 0.0 Adc
+/-20% except for LD1-330-R to LD1-331-R and LD2-470-R to LD2-471-R which is +/-10%
2) RMS current for an approximate ΔT of 40°C. It is recommended that the temperature of the part not exceed +125 °C
3) Peak current for an approximate 10% rolloff at +20 °C
4) DCR limits @ +20 °C
5) Part number definition: LDx-yyy-R
LDx = product code and size, -yyy = inductance value in µH,
R = decimal point. If no R is present, third character = # of zeros
-R suffix = RoHS compliant

Dimensions- mm

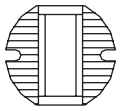
Top View



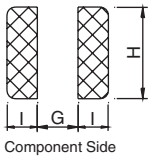
Front View



Bottom View

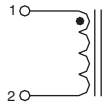


Recommended Pad Layout



Component Side

Schematic



Marking:
xxx=inductance value per family chart
Do not route traces or vias underneath the inductor

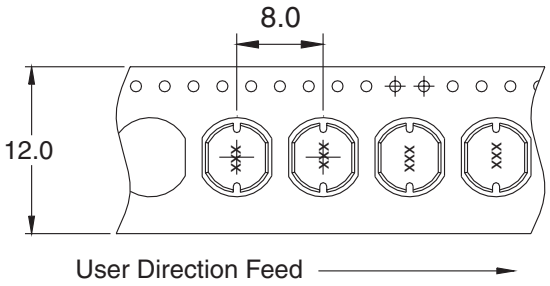
Dimensions	A +/-0.3	B +/-0.3	C +/-0.3	G ref	H ref	I ref
LD1	4.5	4.0	3.2	1.5	4.5	1.75
LD2	7.8	7.0	5.0	2.0	7.5	3.0

Packaging information- mm

Packaging Information

LD1 Series

Supplied in tape and reel packaging,
2000 parts per reel, 13" diameter reel.

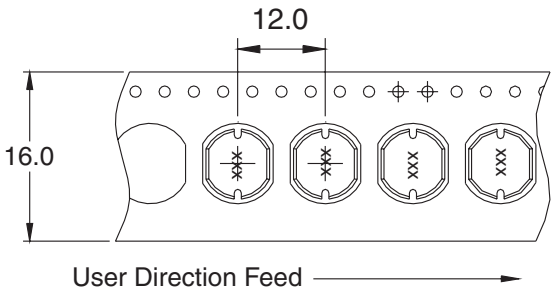




ACTUAL SIZE
LD1

LD2 Series

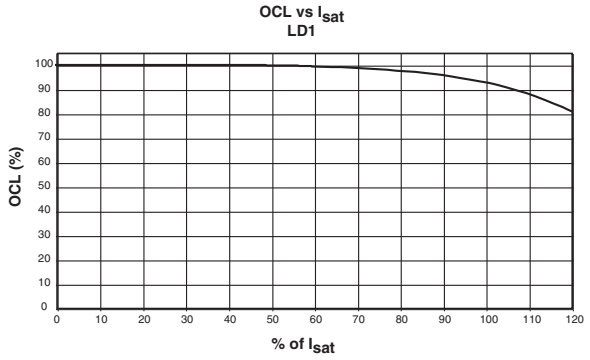
Supplied in tape and reel packaging,
1000 parts per reel, 13" diameter reel.

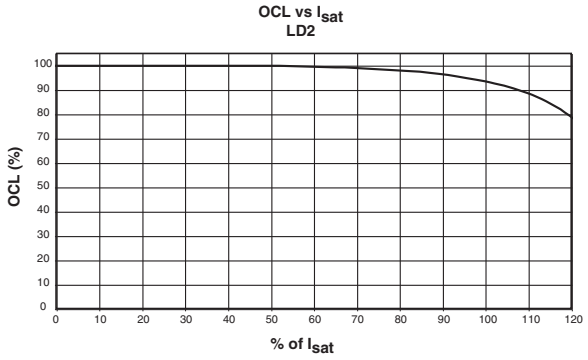




ACTUAL SIZE
LD2

Inductance characteristics





Solder Reflow Profile

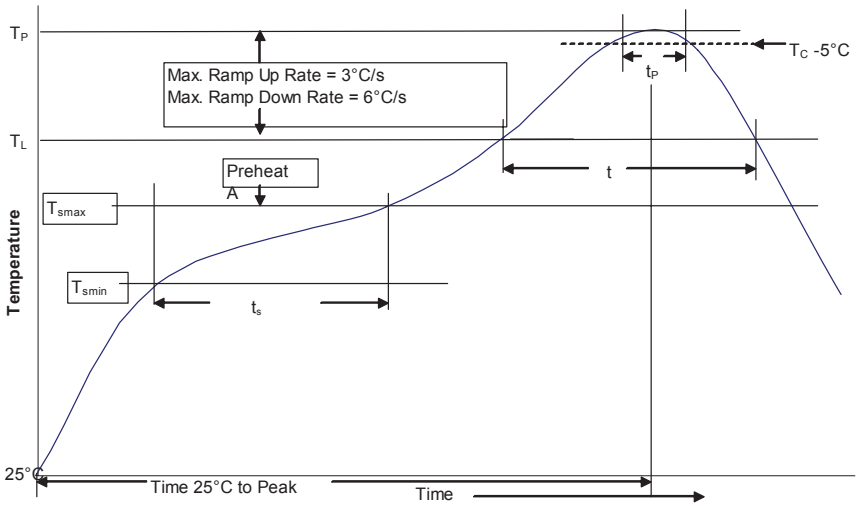


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm³ <350	Volume mm³ 350 - 2000	Volume mm³ >2000
<1.6mm	260°C	260°C	260°C
1.6 – 2.5mm	260°C	250°C	245°C
>2.5mm	250°C	245°C	245°C

Reference JDEC J-STD-020

Profile Feature		Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	• Temperature min. (T_{smin})	100°C	150°C
	• Temperature max. (T_{smax})	150°C	200°C
	• Time (T_{smin} to T_{smax}) (t_s)	60-120 Seconds	60-120 Seconds
Average ramp up rate T_{smax} to T_p		3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T_L) Time at liquidous (t_L)		183°C 60-150 Seconds	217°C 60-150 Seconds
Peak package body temperature (T_P)*		Table 1	Table 2
Time (t_p)** within 5 °C of the specified classification temperature (T_C)		20 Seconds**	30 Seconds**
Average ramp-down rate (T_p to T_{smax})		6°C/ Second Max.	6°C/ Second Max.
Time 25°C to Peak Temperature		6 Minutes Max.	8 Minutes Max.

* Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

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