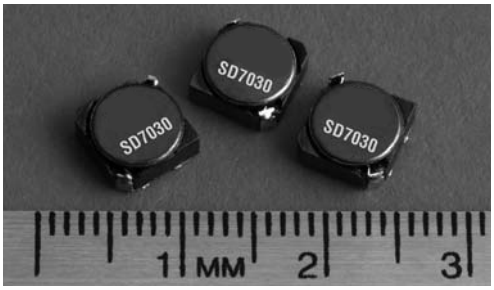
SD7030

Low profile shielded drum core power inductors



Product features

- Low profile 7.0 mm x 7.0 mm x 3.0 mm surface mount package
- Ferrite material shielded drum core
- Inductance range from 1.5 µH to 680 µH
- Current range from 0.21A to 5.5 A
- Frequency range up to 1 MHz

Applications

- Notebook, laptop computers
- Digital cameras
- LED Drivers
- TFT LCD Bias supplies
- Wireless handsets
- Handheld instruments
- Gaming consoles
- GPS devices
- Battery power, Li-Ion, 2-cell

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

Pb HALOGEN HF FREE RoHS

Powering Business Worldwide

Product specifications

Part Number[5]	OCL[1] µH ± 30%	I_{rms}[2] (A)	I_{sat}[3] (A)	Typ. DCR mΩ @ +25 °C	Max DCR mΩ @ +25 °C	K-factor [4]
SD7030-1R5-R	1.5	5.5	4.5	10	12	32
SD7030-3R3-R	3.3	3.7	3.00	20	24	22
SD7030-3R9-R	4.1	3.4	2.60	22	27	19
SD7030-5R0-R	4.9	3.2	2.40	26	31	17
SD7030-6R0-R	5.8	2.8	2.25	29	35	16
SD7030-7R3-R	7.0	2.3	2.10	45	54	13
SD7030-8R0-R	7.8	2.2	1.85	48	58	12
SD7030-100-R	10.0	2.1	1.70	54	65	11
SD7030-120-R	11.5	1.9	1.55	58	70	10
SD7030-150-R	14.6	1.7	1.40	70	84	9.3
SD7030-180-R	17.3	1.7	1.32	79	95	8.8
SD7030-220-R	21.0	1.4	1.20	107	128	7.6
SD7030-260-R	24.9	1.3	1.05	118	142	6.9
SD7030-300-R	30.0	1.2	0.97	138	165	6.4
SD7030-390-R	39.7	1.1	0.86	175	210	5.7
SD7030-440-R	43.4	1.1	0.80	198	238	5.3
SD7030-560-R	54.4	0.99	0.73	231	277	4.9
SD7030-680-R	66.6	0.85	0.65	253	304	4.3
SD7030-820-R	81.4	0.82	0.60	325	390	4.0
SD7030-101-R	95.5	0.70	0.54	446	535	3.6
SD7030-121-R	115.2	0.67	0.50	629	755	3.3
SD7030-151-R	145	0.57	0.44	715	858	2.9
SD7030-181-R	174	0.54	0.40	805	966	2.7
SD7030-221-R	211	0.51	0.36	1102	1322	2.4
SD7030-271-R	264	0.44	0.33	1259	1475	2.2
SD7030-331-R	317	0.38	0.30	1438	1725	2.0
SD7030-391-R	381	0.36	0.27	1857	2228	1.8
SD7030-471-R	460	0.34	0.25	2150	2581	1.7
SD7030-561-R	561.0	0.29	0.23	2857	3428	1.5
SD7030-681-R	677.2	0.28	0.21	3206	3847	1.4

1 Open Circuit Inductance Test Parameters: 100 kHz, 0.1 Vrms, 0.0 Adc.

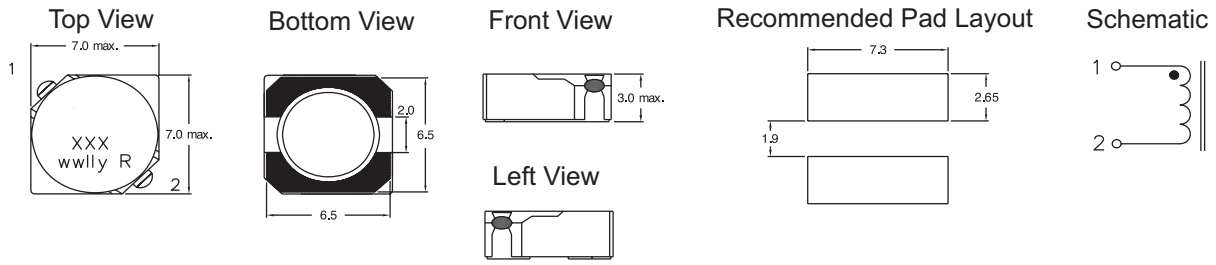
2 I_{rms}: DC current for an approximate ΔT of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components will affect the temperature rise. It is recommended that the temperature of the part not exceed +125 °C under worst case operating conditions verified in the end application.

3 I_{sat} Amps peak for approximately 35% rolloff (@ +25 °C)

4 K-factor: Used to determine B_{p-p} for core loss (see graph). B_{p-p} = K*L*ΔI, B_{p-p}(mT), K: (K factor from table), L: (Inductance in µH), ΔI (Peak-to-peak ripple current in Amps).

5 Part Number Definition: SD7030-xxx-R
SD7030 = Product code and size; -xxx = Inductance value in µH; R = decimal point; If no R is present, third character equals number of zeros.
-R suffix = RoHS compliant

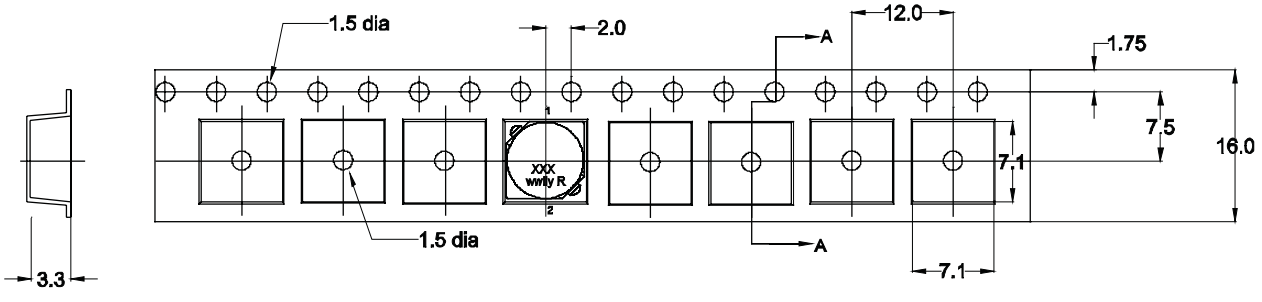
Dimensions-mm



Part Marking: xxx = inductance value in µH. R = decimal point. If no "R" is present, third character = # of zeros. wwlly or wwllyy = date code. R = revision level

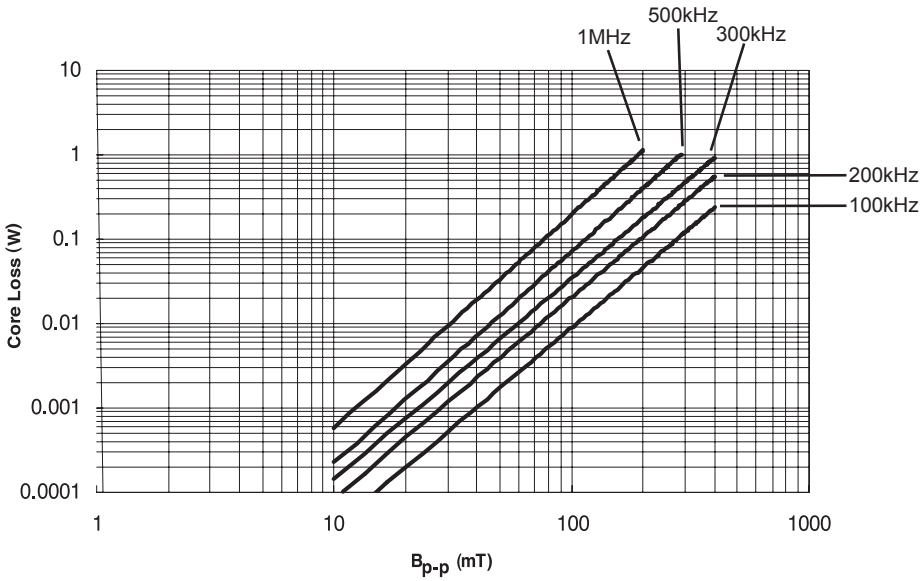
Do not route traces or vias underneath the inductor

Packaging information-mm

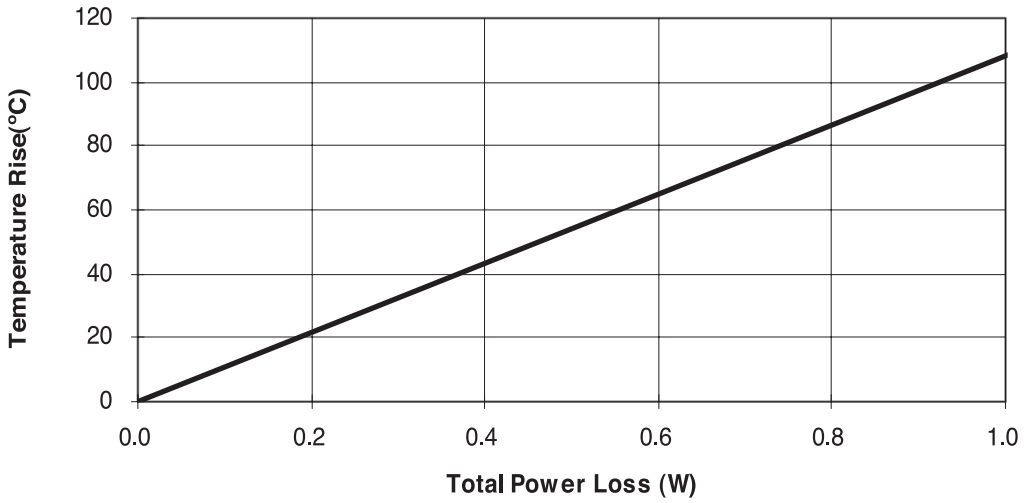


Supplied in tape-and-reel packaging, 1500 parts per reel, 13" diameter reel.

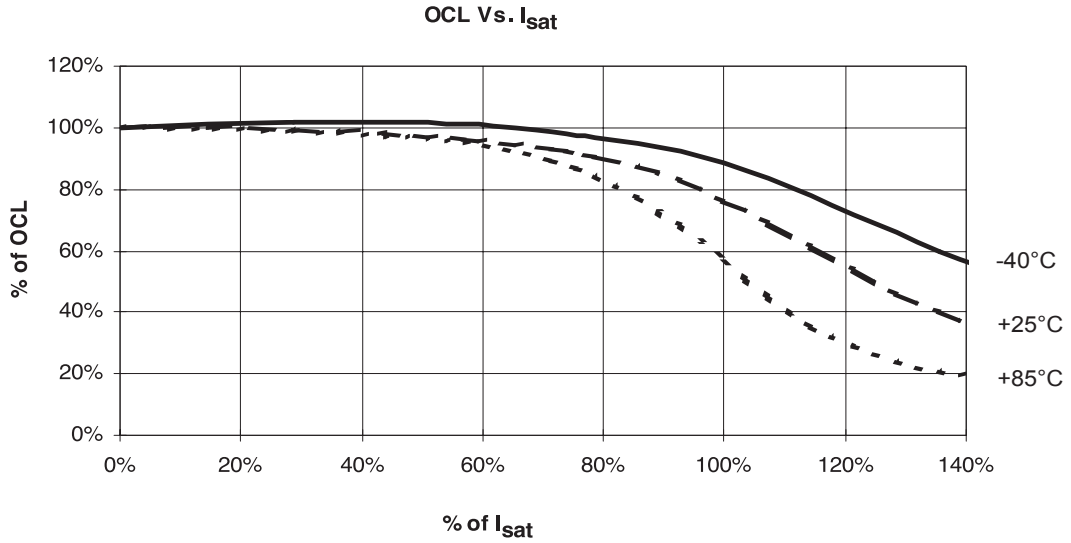
Core loss vs Bp-p



Temperature rise vs total loss



Inductance characteristics



Solder Reflow Profile

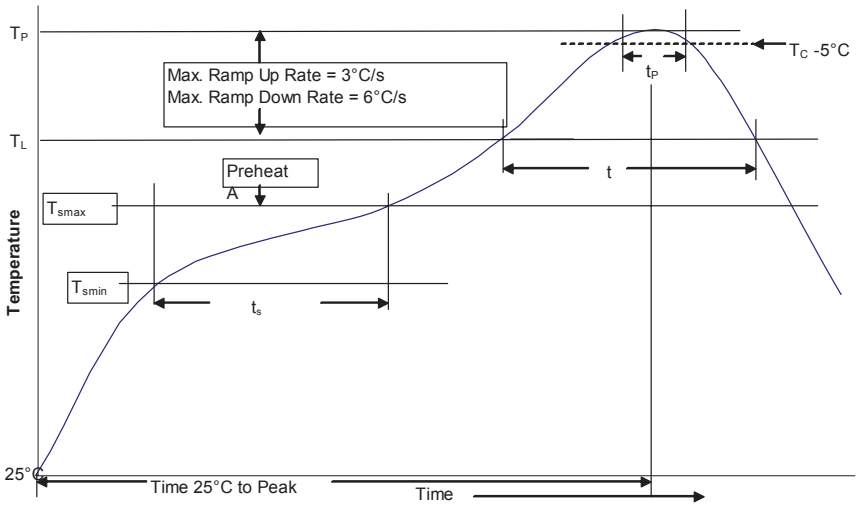


Table 1 - Standard SnPb Solder (T_C)

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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Printed in USA
Publication No. 4330 BU-SB111167
August 2017

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