DR1030

Shielded power inductors

Description

- Shielded drum core
- Inductance range from 1.1 µH to 155 µH
- Current range from 0.68 A to 9.5 A
- 10.5 mm x 10.3 mm footprint surface mount package in a 3.0 mm height
- Ferrite core material
- Halogen free, lead free, RoHS compliant

Applications

- LED/LCD backlighting
- High definition televisions (HDTV)
- Server and desktop power supplies
- Portable electronics
- Notebook and laptop regulators
- Graphics cards and battery powered systems
- Point-of-load (POL) modules
- Printers and peripherals

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-020D compliant

Pb HALOGEN HF FREE RoHS

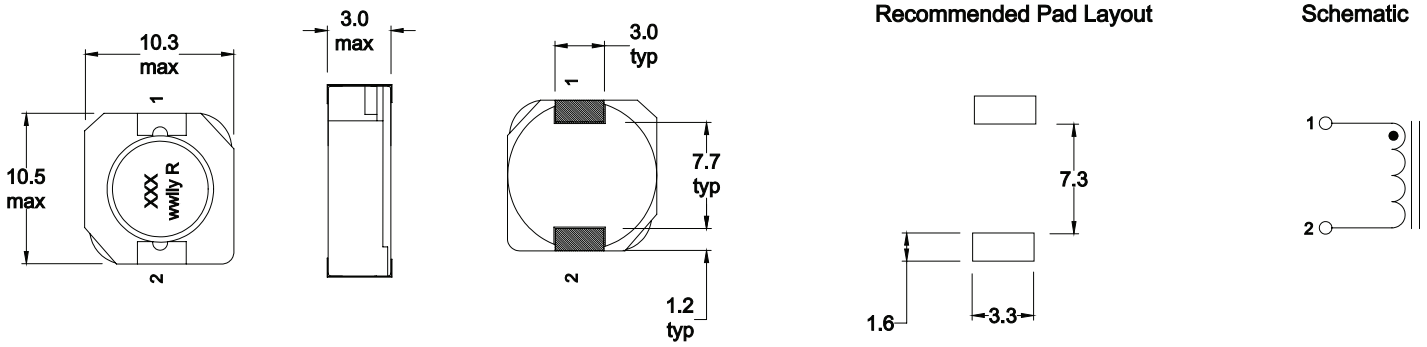
Powering Business Worldwide

Product Specifications

Part Number[5]	OCL[1] (µH) ±30%	I_{rms}[2] (A)	I_{sat}[3] (A)	DCR (mΩ) typical @ 20°C	DCR (mΩ) maximum @ 20°C	K-factor[4]
DR1030-1R1-R	1.1	7.0	9.5	6.5	7.9	22
DR1030-1R8-R	1.9	5.9	7.4	9.1	11.0	17
DR1030-2R8-R	2.8	5.1	6.08	12.1	14.5	14
DR1030-3R9-R	4.0	4.3	5.1	16.4	20.0	12
DR1030-5R2-R	5.2	3.7	4.75	22.9	27.5	10
DR1030-6R8-R	6.8	3.5	3.9	24.9	30.0	9
DR1030-8R2-R	8.4	3.3	3.54	28.4	34.1	8
DR1030-100-R	10.4	2.8	3.18	40.2	48.0	7
DR1030-150-R	14.8	2.3	2.66	57.3	68.8	6
DR1030-220-R	22.8	1.8	2.19	95.5	115	5
DR1030-330-R	32.4	1.6	1.81	114	136	4
DR1030-470-R	47.9	1.3	1.52	167	200	3.4
DR1030-680-R	67	1.1	1.24	253	304	2.9
DR1030-820-R	82	1.0	1.14	332	382	2.6
DR1030-101-R	100	0.86	1.05	375	450	2.4
DR1030-121-R	119	0.80	0.95	523	602	1.9
DR1030-151-R	155	0.68	0.86	590	700	1.4

1. Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.1 Vrms, 0.0 Adc, +25 °C
2. I_{rms}: DC current for an approximate temperature rise 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}: Peak current for approximately 35% rolloff @ +25 °C
4. K-factor: K-factor: Used to determine Bp-p for core loss (see graph). Bp-p = K * L * ΔI. Bp-p: (mT), K: (K-factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps)..
5. Part Number Definition: DR1030-xxx-R
   DR1030 = Product code and size
   -xxx= inductance value in µH, R= decimal point,
   If no R is present then last character equals number of zeros
   -R suffix = RoHS compliant

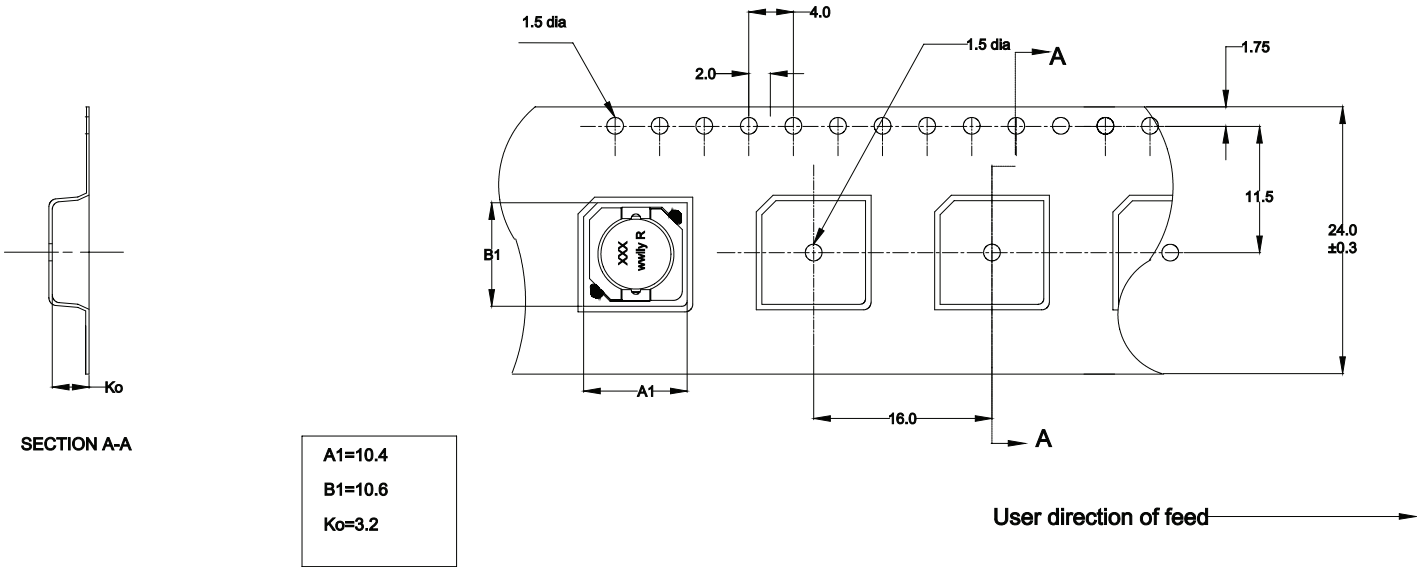
Dimensions (mm)



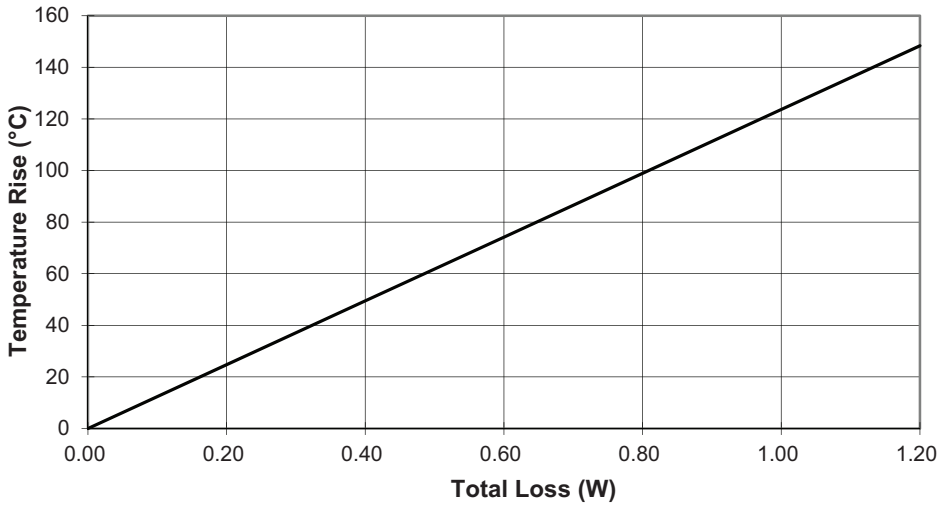
Part marking: inductance value in uH. R = decimal point. If no R is present then last character equals number of zeroes.
wwlly = date code, R = revision level
Do not route traces or vias underneath the inductor

Packaging information (mm)

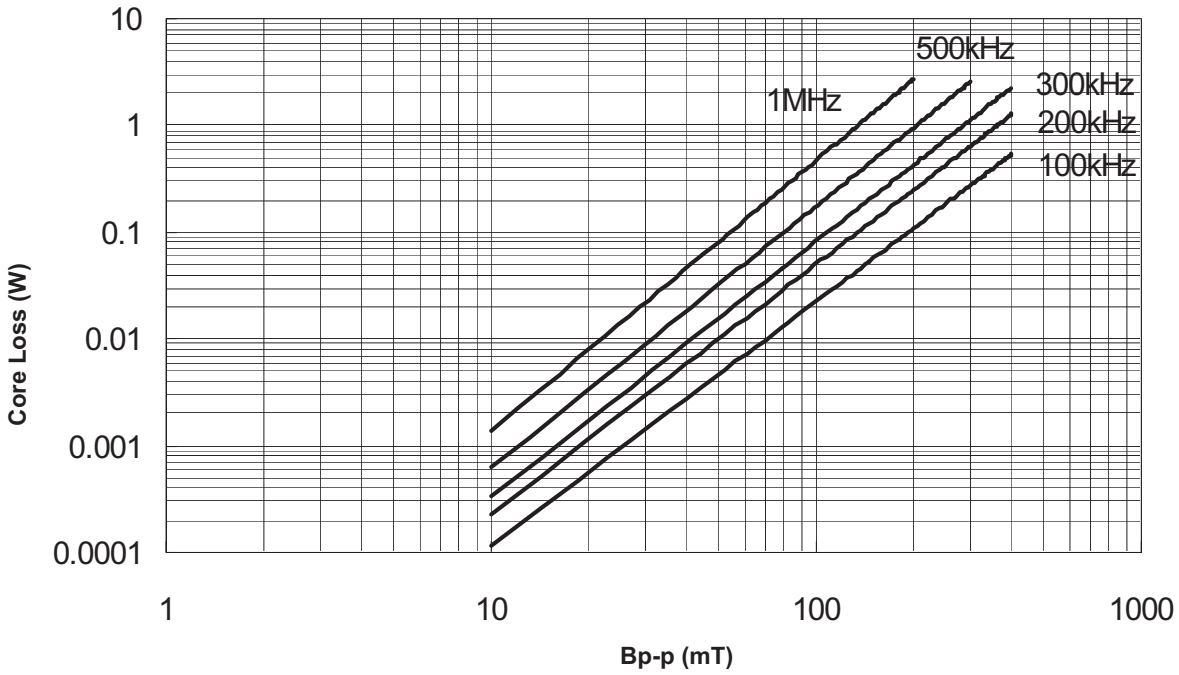
Supplied in tape and reel packaging , 1000 parts per 13" diameter reel



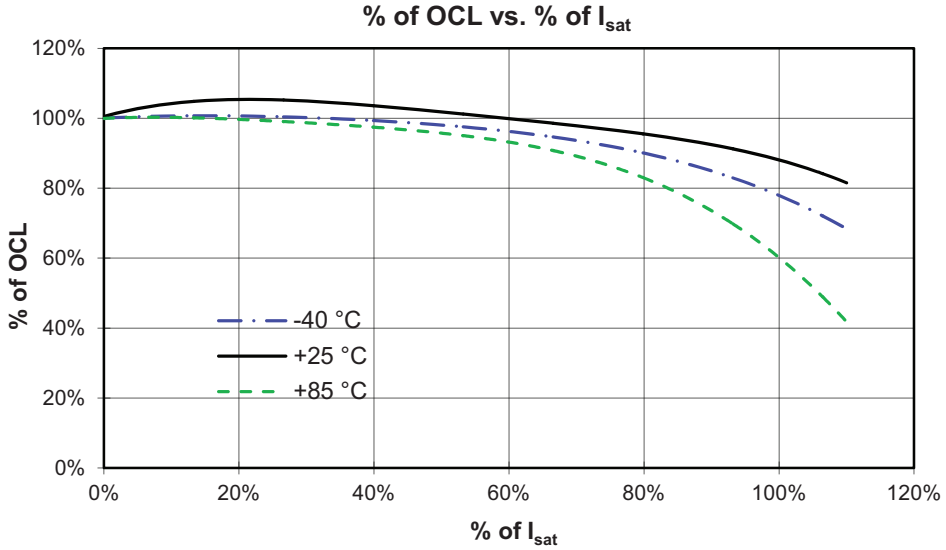
Temperature rise vs. total loss



Core loss vs. B_{p-p}



Inductance characteristics



Solder reflow profile

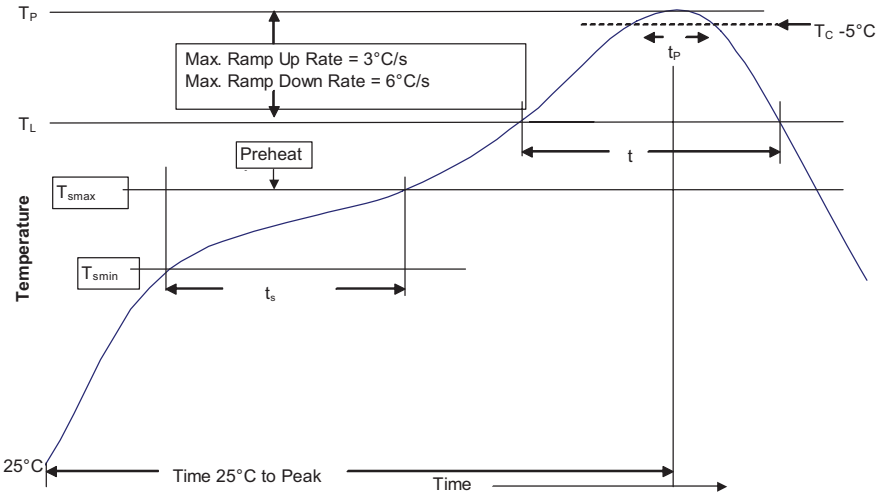


Table 1 - Standard SnPb Solder (T_C)

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-020D

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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