

Product specifications

Part Number	Rated Inductance (μH)	OCL ¹ μH±20%	I _{rms} ² (A)	I _{sat} ³ (A)	DCR mΩ @20°C Typ	DCR mΩ @ +20°C Max	K-factor ⁴
DR124-R47-R	0.47	0.42	16.0	24.40	2.2	2.7	17.51
DR124-1R0-R	1.0	0.83	13.9	18.00	3.00	3.6	12.50
DR124-1R5-R	1.5	1.37	11.1	14.00	4.75	5.7	9.73
DR124-2R2-R	2.2	2.04	9.1	11.45	5.92	7.1	7.96
DR124-3R9-R	3.9	3.80	7.0	8.40	12.50	15.0	5.84
DR124-4R7-R	4.7	4.88	6.5	7.65	13.50	16.2	5.15
DR124-6R8-R	6.8	6.10	5.6	6.47	18.06	21.7	4.61
DR124-8R2-R	8.2	7.45	5.2	6.22	21.67	26.0	4.17
DR124-100-R	10	8.94	4.5	5.80	23.33	28.0	3.81
DR124-120-R	12	11.5	4.1	4.96	31.67	38.0	3.50
DR124-150-R	15	14.2	3.6	4.62	37.30	44.8	3.02
DR124-180-R	18	16.2	3.4	4.32	46.97	56.4	2.82
DR124-220-R	22	20.7	3.2	3.83	53.99	64.8	2.50
DR124-270-R	27	25.7	2.8	3.44	66.67	80.0	2.24
DR124-330-R	33	31.2	2.6	3.12	80.83	97.0	2.04
DR124-390-R	39	37.3	2.3	2.85	110.00	132.0	1.86
DR124-470-R	47	44.0	2.2	2.63	124.66	149.6	1.72
DR124-560-R	56	54.9	2.0	2.35	144.32	173.2	1.54
DR124-680-R	68	67.1	1.8	2.13	183.33	220.0	1.39
DR124-820-R	82	80.5	1.7	1.94	212.72	255.3	1.27
DR124-101-R	100	95.1	1.5	1.79	256.67	308.0	1.17
DR124-121-R	120	111	1.3	1.65	311.18	373.4	1.08
DR124-151-R	150	146	1.3	1.44	371.02	445.2	0.94
DR124-181-R	180	179	1.1	1.30	501.66	602.0	0.87
DR124-221-R	220	216	1.0	1.15	558.00	669.6	0.77
DR124-271-R	270	256	0.88	1.09	725.00	870.0	0.71
DR124-331-R	330	327	0.83	0.92	825.00	990.0	0.63
DR124-471-R	470	460	0.68	0.74	1242.50	1491.0	0.53
DR124-681-R	680	669	0.56	0.65	1845.83	2215.0	0.45
DR124-821-R	820	825	0.53	0.62	2109.17	2351.0	0.40
DR124-102-R	1000	998	0.44	0.53	2898.00	3477.00	0.37

1. Open Circuit Inductance Test Parameters: 100 kHz, 0.25 V, 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 25% rolloff (@ +25 °C).

4. K-factor: Used to determine B_{pp} for core loss (see graph).
B_{pp} = K*L*ΔI, B_{pp} (mT), K: (K factor from table), L: (Inductance in μH), ΔI (Peak to peak ripple current in Amps).
5. Part Number Definition: DR124-xxx-R
- DR124 = Product code and size; -xxx = Inductance value in μH;
- R = decimal point; If no R is present, third character = # of zeros.
- "-R" suffix = RoHS compliant

High power density, high efficiency, low profile shielded drum core power inductors

Effective March 2019

Dimensions are in millimeters.
Do not route traces or vias underneath the inductor.

wwlly = Date code, R = Revision level.

Technical drawing of a 10-hole punch die. The drawing includes a side view (SECTION A-A) and a top view.

SECTION A-A Dimensions:

- $A_o = 13.2 \text{ mm}$
- $B_o = 13.2 \text{ mm}$
- $A_1 = 10 \text{ mm}$
- $B_1 = 10 \text{ mm}$
- $K_o = 5.2 \text{ mm}$

Top View Dimensions:

- Hole diameter: 1.5 dia min
- Hole pitch: 4.0 mm
- Edge distance: 1.75 mm
- Distance between first and last hole: 16.0 mm
- Total width: 24.0 mm

Other Labels:

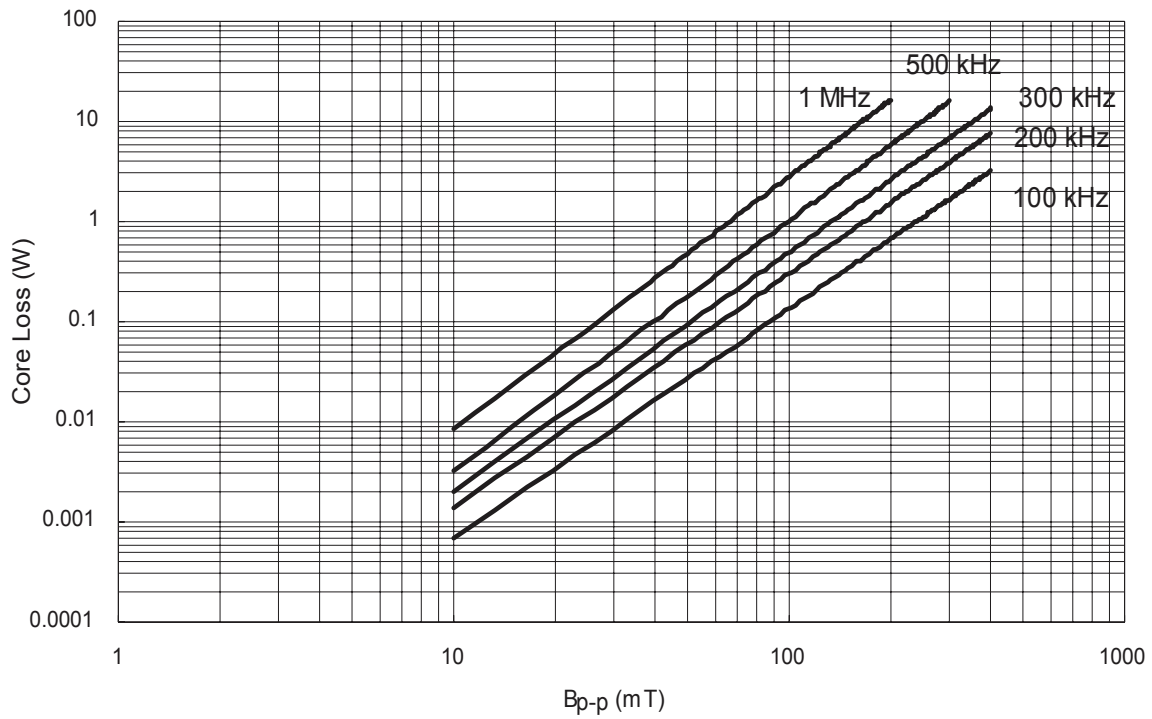
- Section A-A is indicated by arrows A-A.
- User direction of feed is indicated by an arrow pointing right.

Parts packaged on 13" Diameter reel, 750 parts per reel.

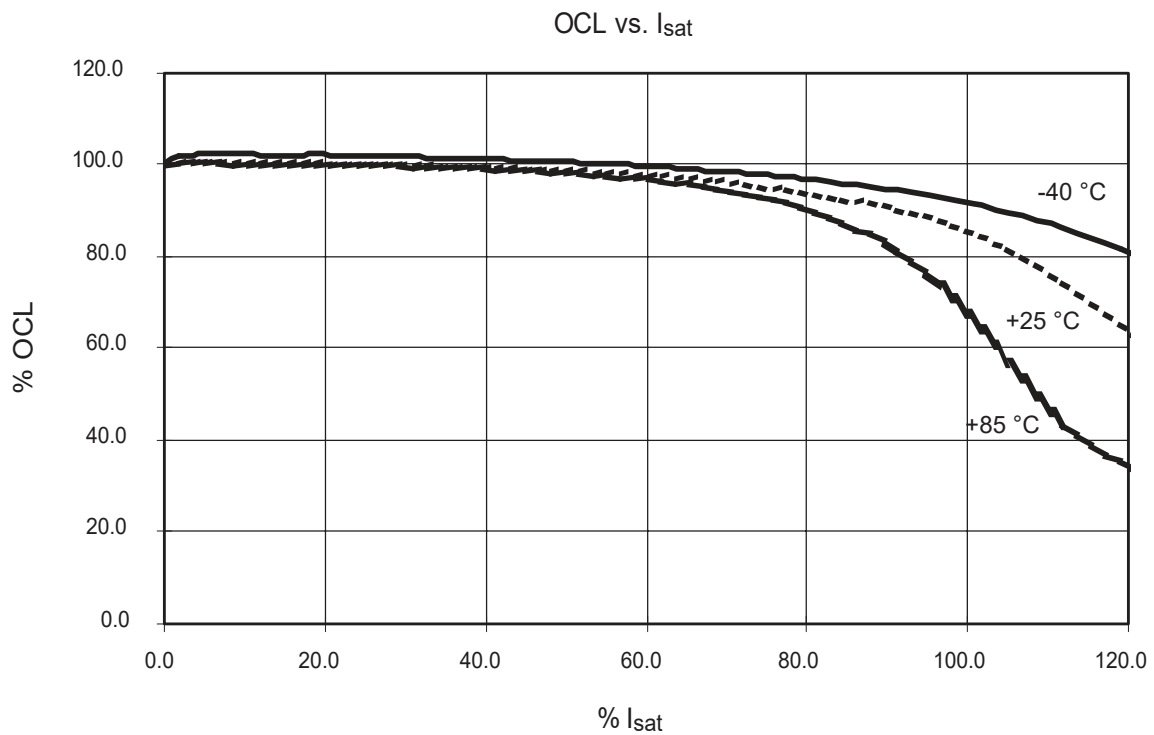
A line graph showing the relationship between Total Power Loss (W) on the x-axis and Temperature Rise (°C) on the y-axis. The x-axis ranges from 0 to 2.0 with major grid lines every 0.4 units. The y-axis ranges from 0 to 120 with major grid lines every 20 units. A single straight line starts at the origin (0, 0) and passes through points (0.4, 20), (0.8, 40), (1.2, 60), (1.6, 80), and ends at (2.0, 100).

Total Power Loss (W)	Temperature Rise (°C)
0.0	0
0.4	20
0.8	40
1.2	60
1.6	80
2.0	100

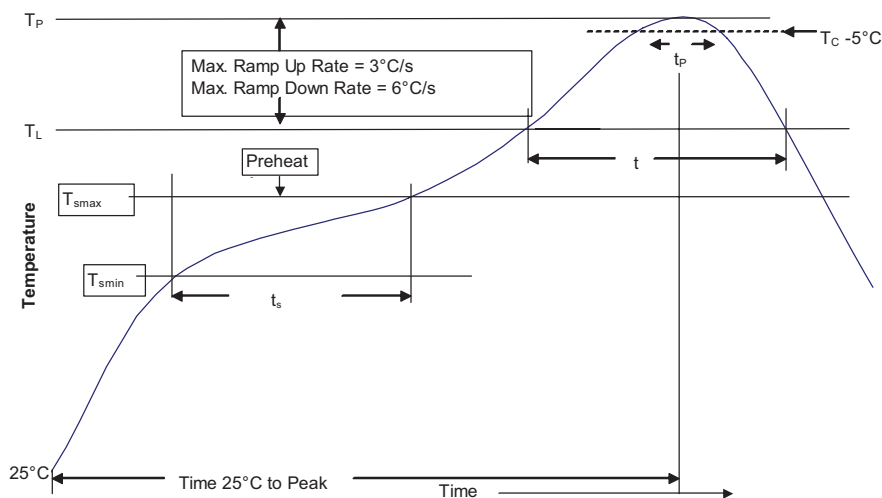
Core loss vs. Bp-p



Inductance characteristics



Solder reflow profile

Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm)	235°C	220°C
≥2.5mm	220°C	220°C

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

Package Thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume mm ³ >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 JEDEC 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)	183°C	217°C
Time at liquidous (t_L)	60-150 Seconds	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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