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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

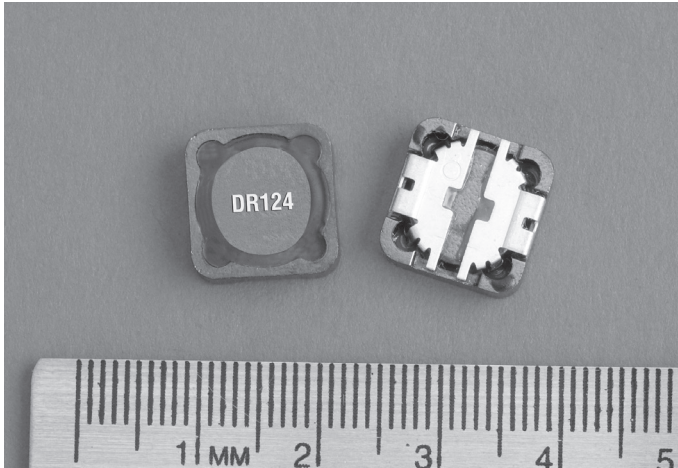
Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# Coiltronics DR124 Series

## Low profile power inductors



### Product description

- Lead free, RoHS compliant
- 125°C maximum total temperature operation
- Low profile surface mount inductor
- 12.5mm x 12.5mm x 4.5mm shielded drum core
- Inductance range from 0.47µH to 1000µH
- Current range from 24.4 to 0.44 Amps
- Frequency range up to 1MHz
- Ferrite core material

### Applications

- Notebook power, LCD panels
- Computer, DVD players, and portable power devices
- DC-DC Converters
- Buck, boost, forward, and resonant converters
- Noise filtering and filter chokes

### Environmental data

- Storage temperature range (Component): -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient + self-temperature rise)
- Solder reflow temperature: J-STD-020D compliant

### Packaging:

- Supplied in tape and reel packaging, 750 per reel



Powering Business Worldwide



The Coiltronics brand of magnetics (formerly of the Bussmann Division of Cooper Industries) is now part of Eaton's Electrical Group, Electronics Division.

**Coiltronics is now part of Eaton**  
**Same great products plus even more.**

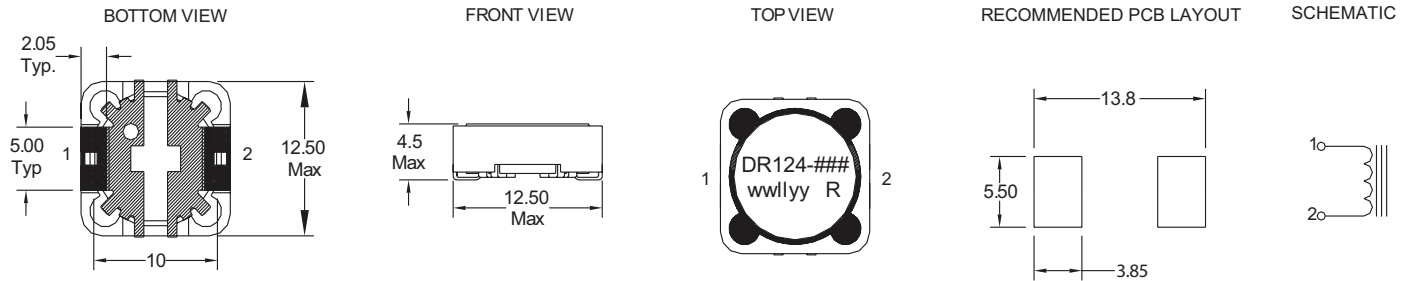
Product specifications

Part Number	Rated Inductance (μH)	OCL <sup>1</sup> μH±20%	I <sub>rms</sub> <sup>2</sup> Amps	I <sub>sat</sub> <sup>3</sup> Amps	DCR mΩ @20°C Typ	DCR mΩ @20°C Max	K-factor <sup>4</sup>
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: 100kHz, 0.25V, 0.0Adc.
2. I<sub>rms</sub>: 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<sub>sat</sub>: Amps peak for approximately 25% rolloff (@25°C).

4. K-factor: Used to determine B<sub>pp</sub> for core loss (see graph).  
B<sub>pp</sub> = K\*L\*ΔI, B<sub>pp</sub> (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 uH;  
- R = decimal point; If no R is present, third character = # of zeros.  
- "-R" suffix = RoHS compliant

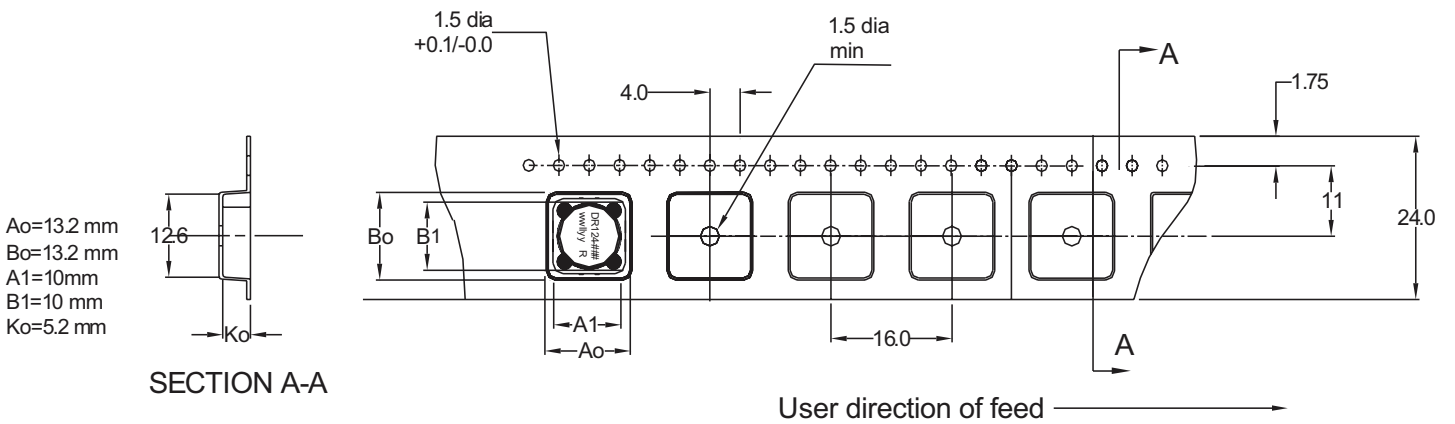
**Dimensions - mm**



Dimensions are in millimeters.

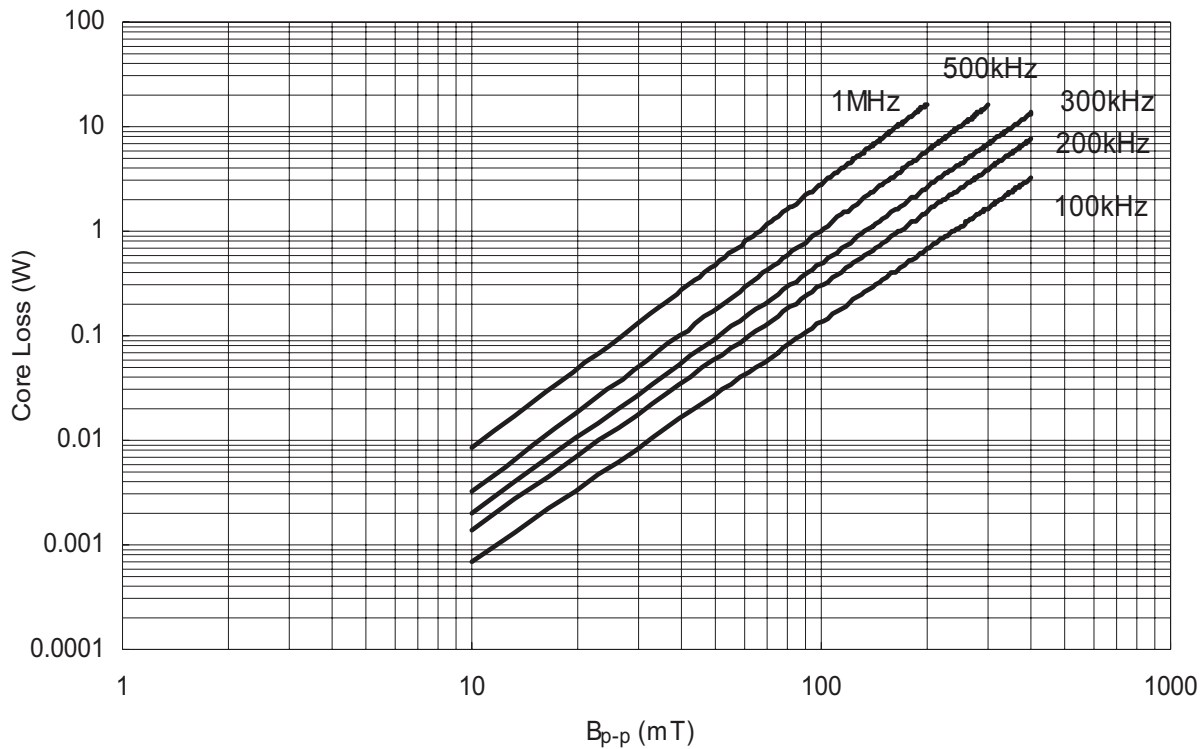
wwlyy = Date code, R = Revision level.

**Packaging information - mm**

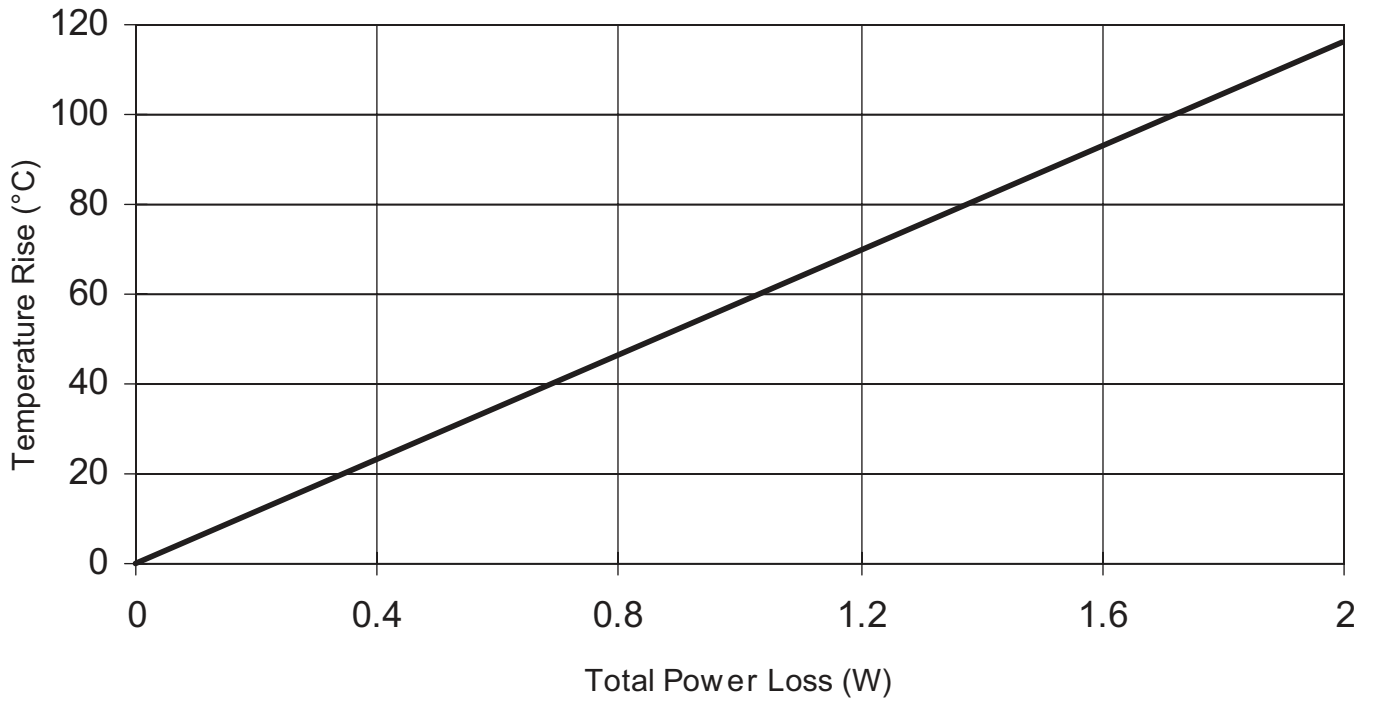


Parts packaged on 13" Diameter reel, 750 parts per reel.

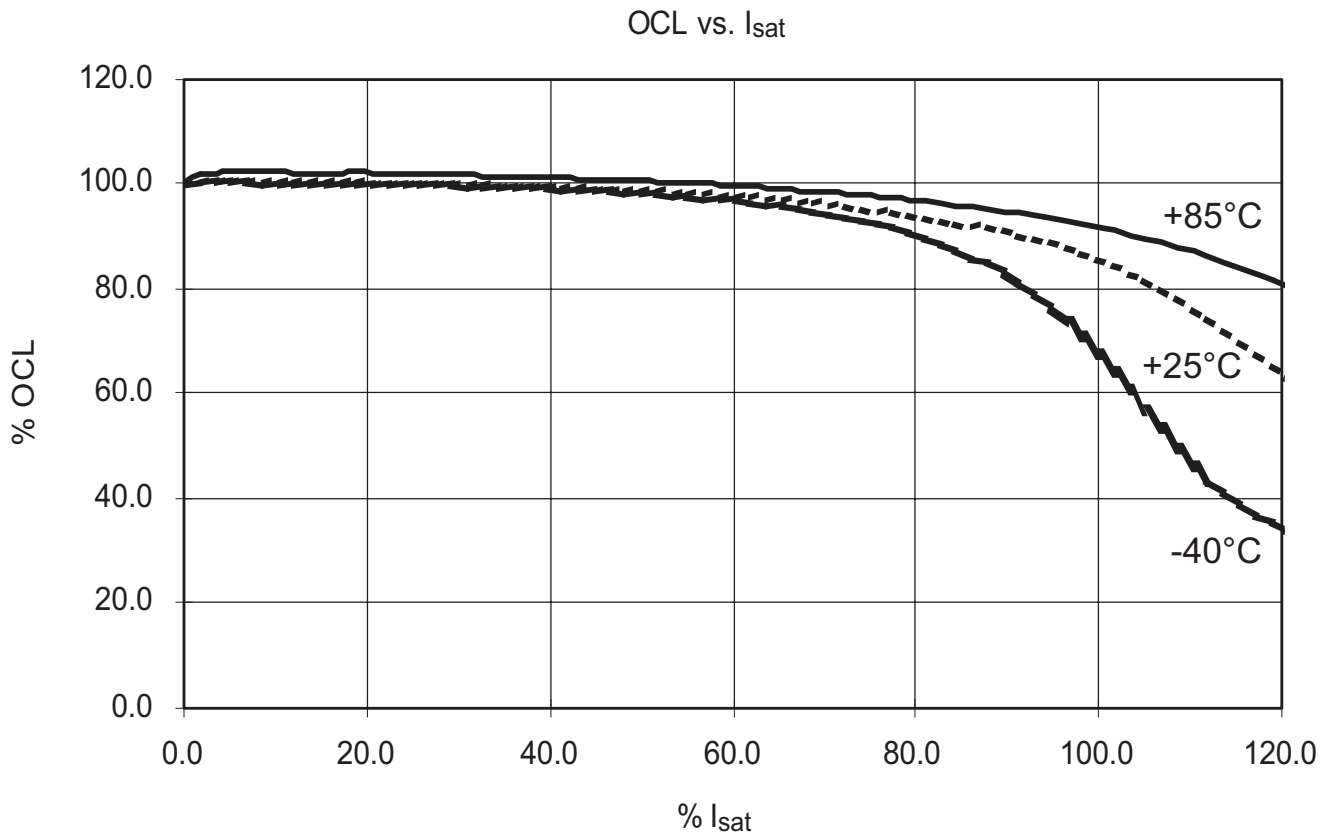
**Core loss**



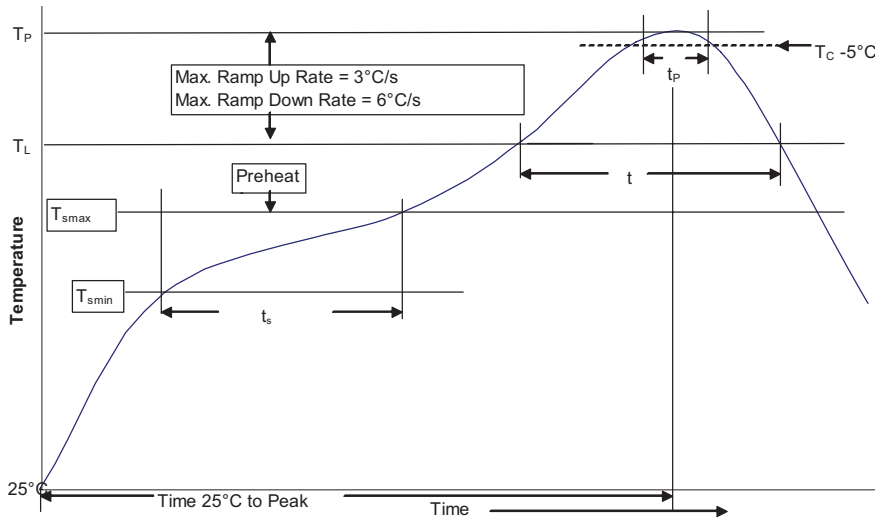
Temperature rise vs. loss



Inductance characteristics



**Solder reflow profile**



**Table 1 - Standard SnPb Solder ( $T_c$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	220°C	220°C

**Table 2 - Lead (Pb) Free Solder ( $T_c$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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-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 ( $T_L$ )	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.

**North America**

Eaton's Electrical Group  
Electronics Division  
1225 Broken Sound Parkway NW  
Suite F  
Boca Raton, FL 33487-3533  
Tel: 1-561-998-4100  
Fax: 1-561-241-6640  
Toll Free: 1-888-414-2645

Eaton's Electrical Group  
Electronics Division  
P.O. Box 14460  
St. Louis, MO 63178-4460  
Tel: 1-636-394-2877  
Fax: 1-636-527-1607

**Europe**

Eaton's Electrical Group  
Electronics Division  
Burton-on-the-Wolds  
Leicestershire, LE 12 5th UK  
Phone: +44 (0) 1509 882 600  
Fax: +44 (0) 1509 882 786

Eaton's Electrical Group  
Electronics Division  
Avda Santa Eulalia, 290  
Terrassa, Barcelona 08223 Spain  
Phone: +34-93-736-2813  
Fax: +34-93-783-5055

**Asia Pacific**

Eaton's Electrical Group  
Electronics Division  
No.2, #06-01  
Serangoon North Avenue 5  
Singapore 554911  
Tel: +65 6645 9888  
Fax: +65 6728 3155

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**Eaton's Electrical Group  
Electronics Division**  
114 Old State Road  
Ellisville, MO 63021  
United States  
www.eaton.com/elx

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