Coiltronics FP1008 Family

High frequency, high current power inductors

Product description

- High current carrying capacity
- Low core loss
- Controlled DCR for sensing circuits
- Inductance range from 120nH to 180nH
- Current range from 63 to 100 Amps
- 10.8 x 8.0mm footprint surfaace mount package in a 8.0mm height
- Ferrite core material
- Halogen free, lead free, RoHS compliant

Applications

- Multi-phase and Vcore regulators
- Voltage Regulator Modules (VRMs)
- Desktop and server VRMs and EVRDs
- Laptop and notebook regulators
- Data networking and storage systems
- Graphics cards and battery power systems
- Point-of-Load modules
- DCR Sensing circuits

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

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.

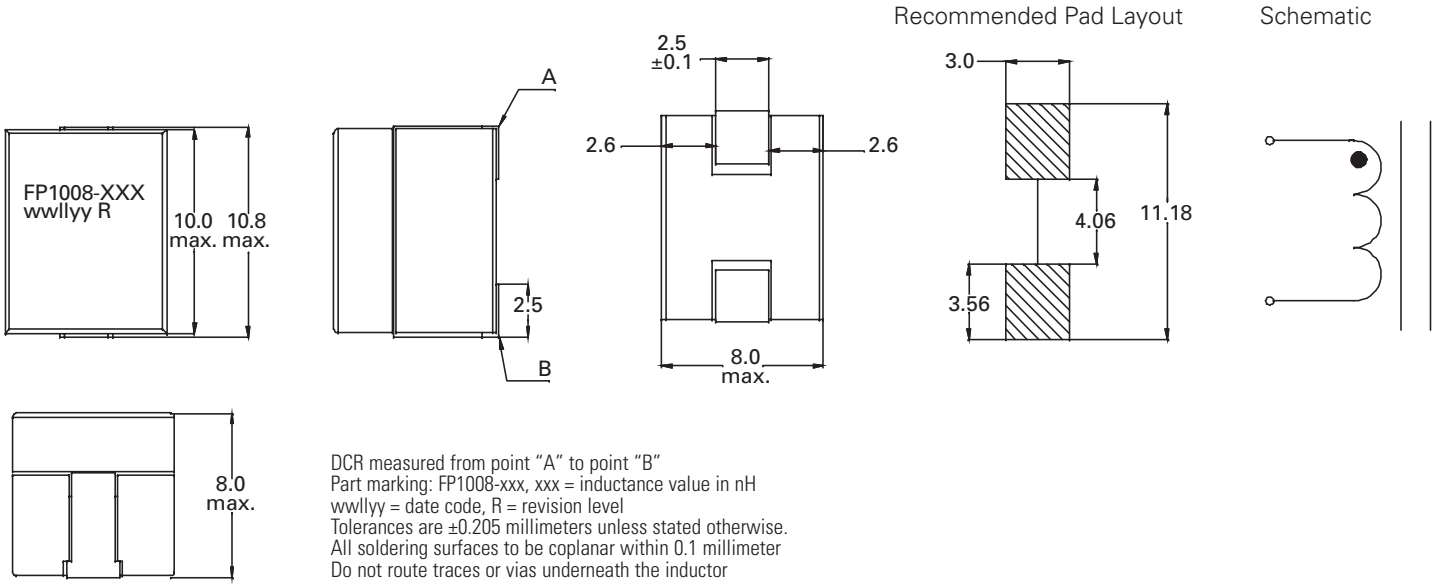
Coiltronics is now part of Eaton
Same great products plus even more.

Product specifications

Part Number[9]	OCL[1] (nH)±10%	FLL[2] (nH) minimum	I_{rms}[3] (amps)	$I_{sat}1$[4] (amps)	$I_{sat}2$[5] (amps)	$I_{sat}3$[6] (amps)	$I_{sat}4$[7] (amps)	DCR (mΩ) @ 20°C ±5%	K-factor[8]
FP1008-120-R	120	82	63	100	95.0	91.0	82	0.17	366
FP1008-150-R	150	104	63	82	78.0	75.0	68	0.17	366
FP1008-180-R	180	130	63	64	60.8	58.6	53	0.17	366

1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.1V_{rms}, 0.0Adc @ 25°C
2. Full Load Inductance (FLL) Test Parameters: 100kHz, 0.1V_{rms}, $I_{sat}1$
3. 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.
4. $I_{sat}1$: Peak current for approximately 20% rolloff @ 25°C
5. $I_{sat}2$: Peak current for approximately 20% rolloff @ 85°C
6. $I_{sat}3$: Peak current for approximately 20% rolloff @ 100°C
7. $I_{sat}4$: Peak current for approximately 20% rolloff @ 125°C
8. K-factor: Used to determine B_{p-p} for core loss (see graph).
   $B_{p-p} = K * L * \Delta I * 10^{-3}$. B_{p-p}:(Gauss), K: (K-factor from table), L: (Inductance in nH), ΔI (Peak-to-peak ripple current in Amps).
9. Part Number Definition: FP1008-xxx-R
   - FP1008= Product code and size
   - xxx= Inductance value in nH
   - "-R" suffix = RoHS compliant

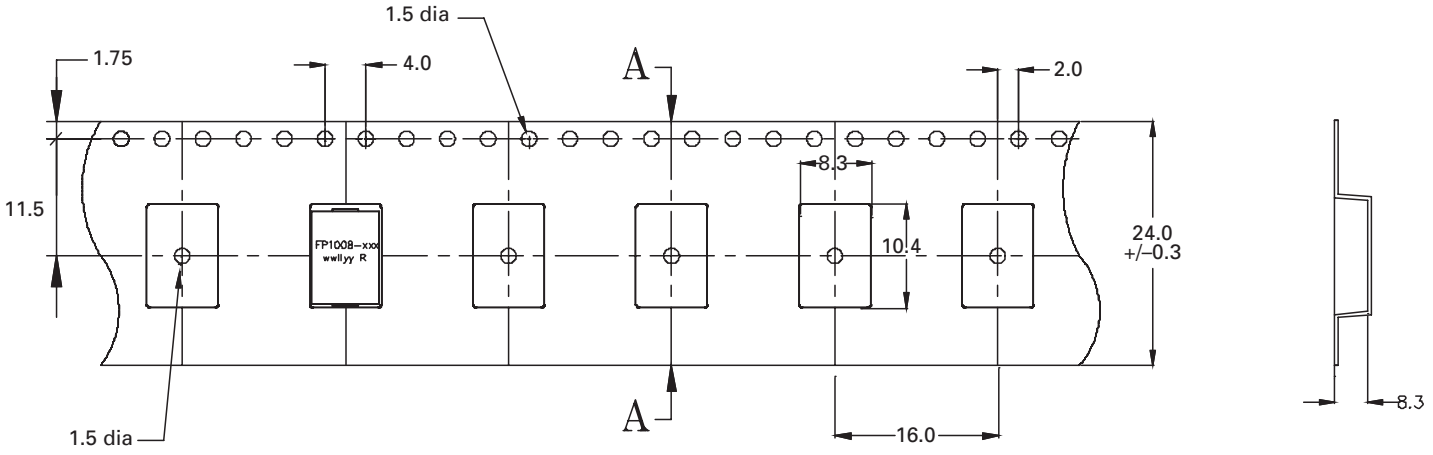
Dimensions (mm)



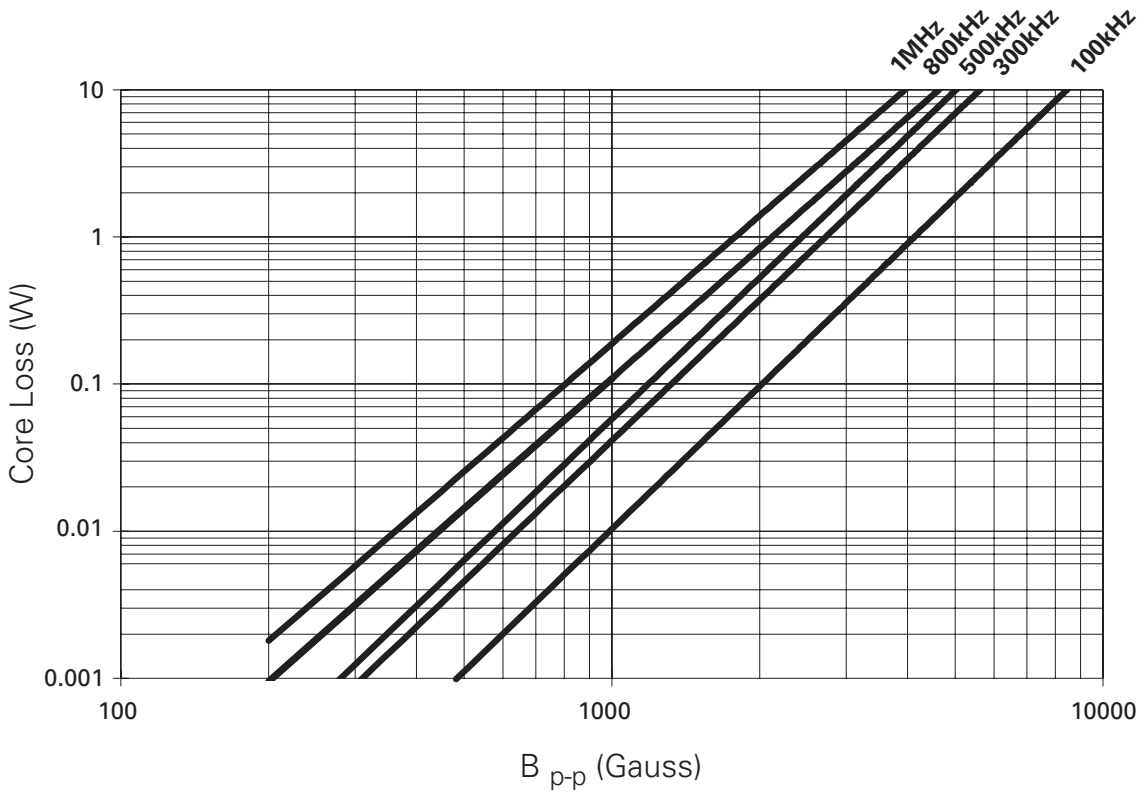
DCR measured from point "A" to point "B"
Part marking: FP1008-xxx, xxx = inductance value in nH
wwllyy = date code, R = revision level
Tolerances are ±0.205 millimeters unless stated otherwise.
All soldering surfaces to be coplanar within 0.1 millimeter
Do not route traces or vias underneath the inductor

Packaging information (mm)

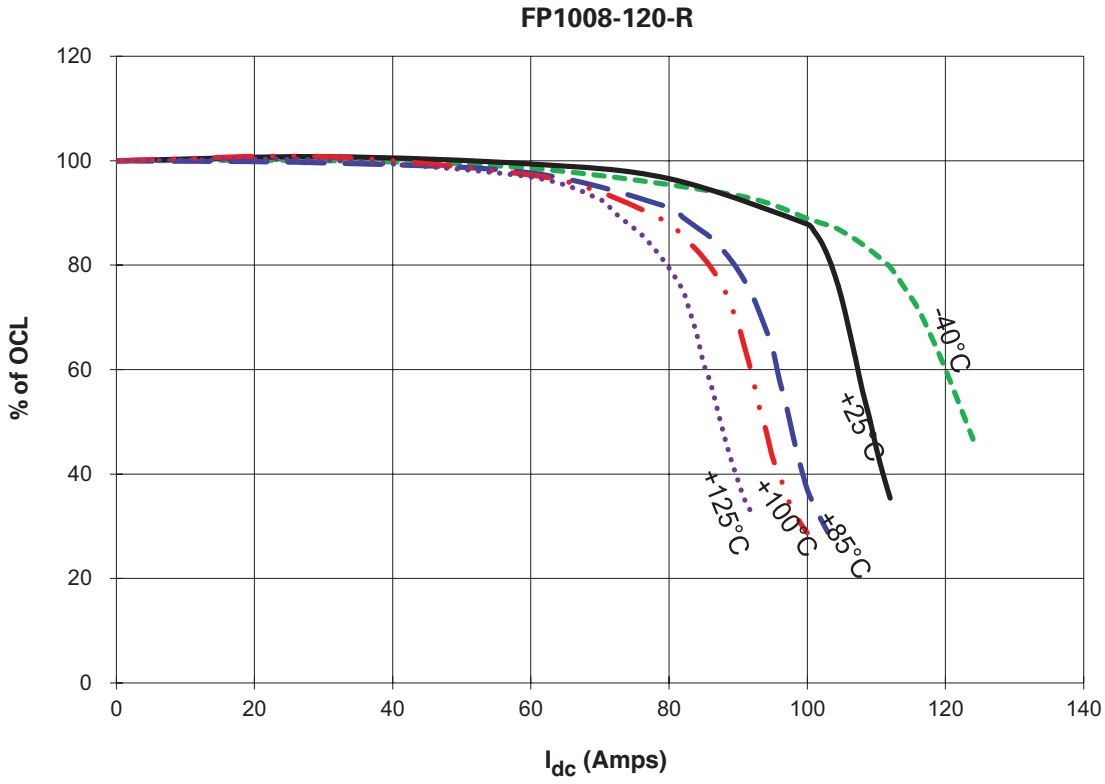
Supplied in tape-and-reel packaging, 350 parts on a 13″ diameter reel.

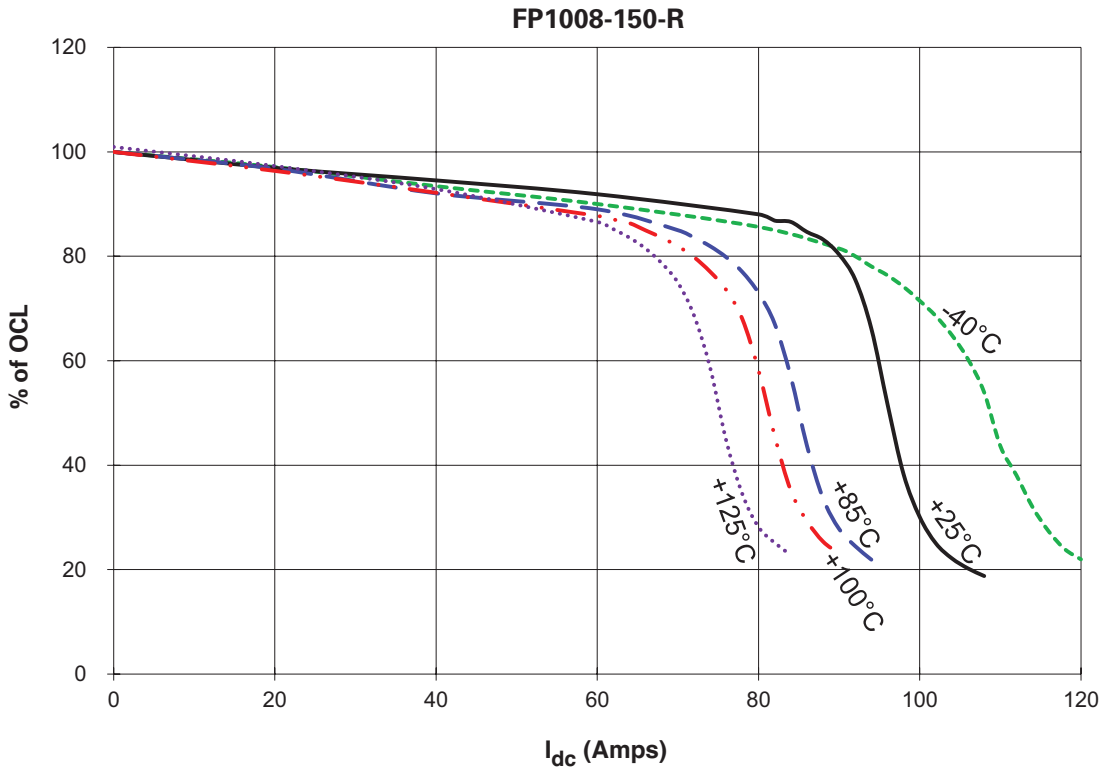


Core loss vs. B $_{p-p}$

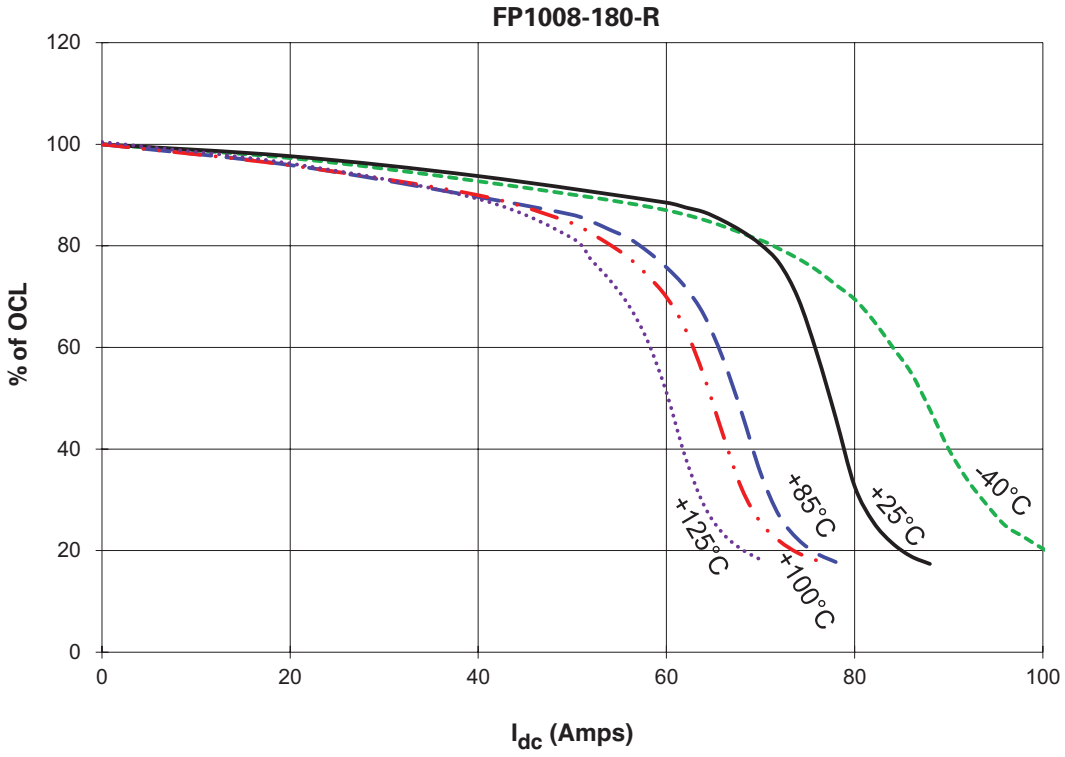


Inductance characteristics





Inductance characteristics



Solder reflow profile

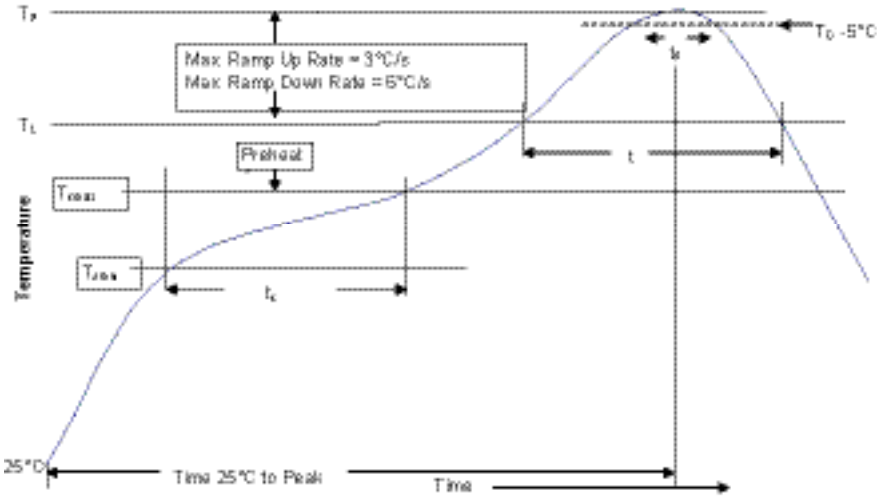


Table 1 - Standard SnPb Solder (T_C)

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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