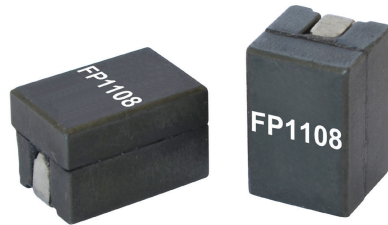


FP1108R

High frequency, high current power inductors



Product features

- 11.0 mm x 8.0 mm x 7.5 mm surface mount package
- Ferrite core material
- Tight tolerance DCR for sensing circuits
- Inductance range from 100 nH to 210 nH
- Current range from 55 A to 100+ A

Applications

- Multi-phase regulators
- Voltage Regulator Modules (VRMs)
- Desktop and server VRMs and EVRDs
- Notebook and laptop 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 plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

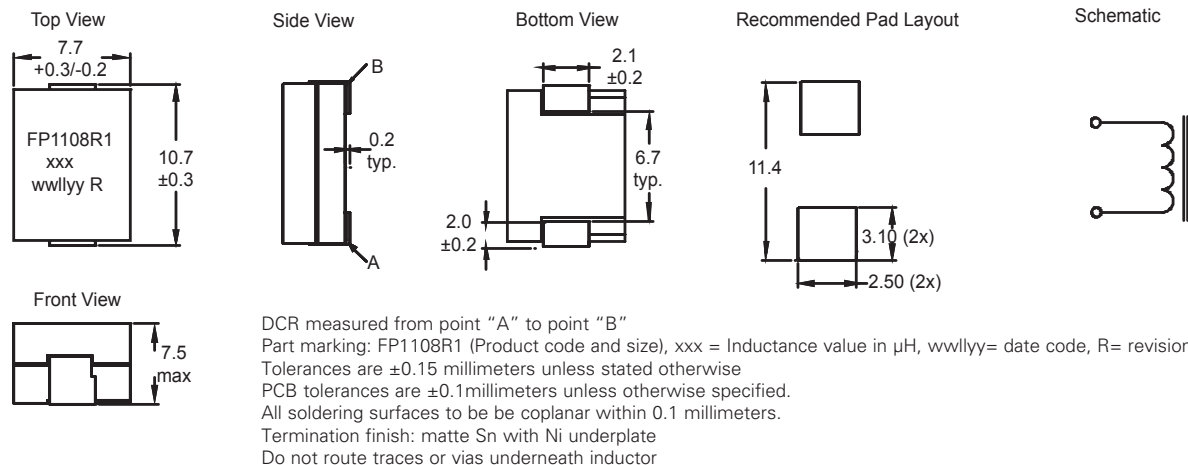


Product specifications

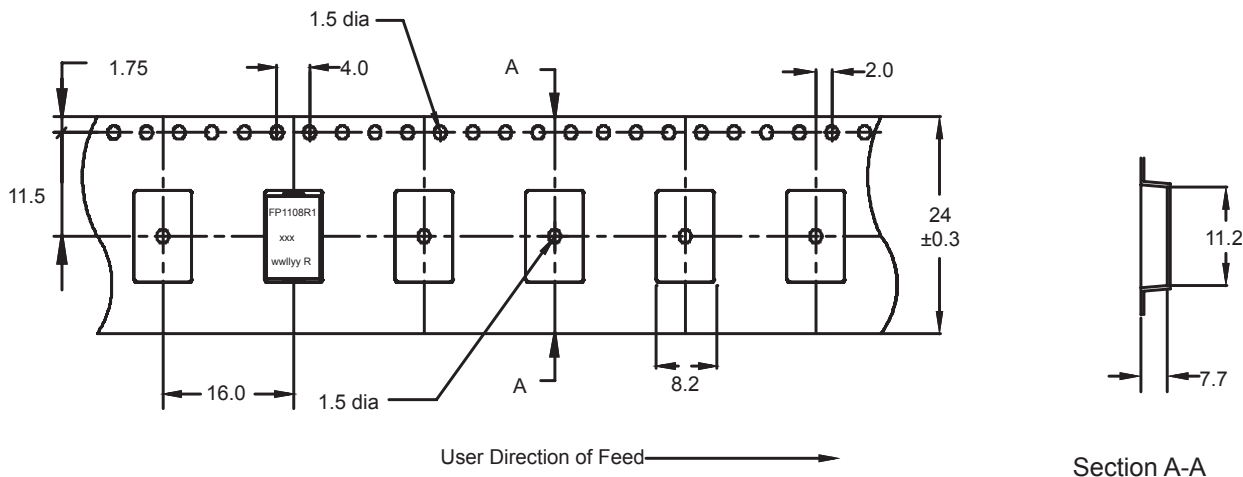
| Part Number ⁹ | OCL ¹ (nH) ±10% | FLL min. ² (nH) | I _{rms} ³ (A) | I _{sat} 1 ⁴ (A) | I _{sat} 2 ⁵ (A) | I _{sat} 3 ⁶ (A) | I _{sat} 4 ⁷ (A) | DCR (mΩ) @ +20 °C | K-factor ⁸ |
|--------------------------|-------------------------------|-------------------------------|--------------------------------------|--|--|--|--|----------------------|-----------------------|
| FP1108R1-R10-R | 100 | 81 | 65 | 100+ | 96 | 94 | 90 | 0.29±5% | 330 |
| FP1108R1-R15-R | 150 | 110 | | 77 | 72 | 66 | 63 | | 330 |
| FP1108R1-R18-R | 180 | 132 | | 65 | 61 | 58 | 50 | | 330 |
| FP1108R1-R21-R | 210 | 151 | | 55 | 51 | 48 | 45 | | 330 |

- Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.1 V_{rms}, 0.0 Adc, +25 °C
- Full Load Inductance (FLL) Test Parameters: 100 kHz, 0.1 V_{rms}, I_{sat}1, +25 °C
- 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.
- I_{sat}1: Peak current for approximately 20% (R10 10%) rolloff @ +25 °C (R10 10%)
- I_{sat}2: Peak current for approximately 20% (R10 10%) rolloff @ +85 °C
- I_{sat}3: Peak current for approximately 20% (R10 10%) rolloff @ +100 °C
- I_{sat}4: Peak current for approximately 20% (R10 10%) rolloff @ +125 °C
- K-factor: Used to determine B_{pp} for core loss (see graph). B_{pp} = K * L * ΔI. B_{pp}: (Gauss), K: (K-factor from table), L: (Inductance in μH), ΔI (peak to peak ripple current in amps).
- Part Number Definition: FP1108Rx-yyy-R
 - FP1108Rx = Product code and size
 - Rx = DCR indicator
 - yyy= Inductance value in μH
 - "-R" suffix = RoHS compliant

Dimensions - mm



Packaging information - mm

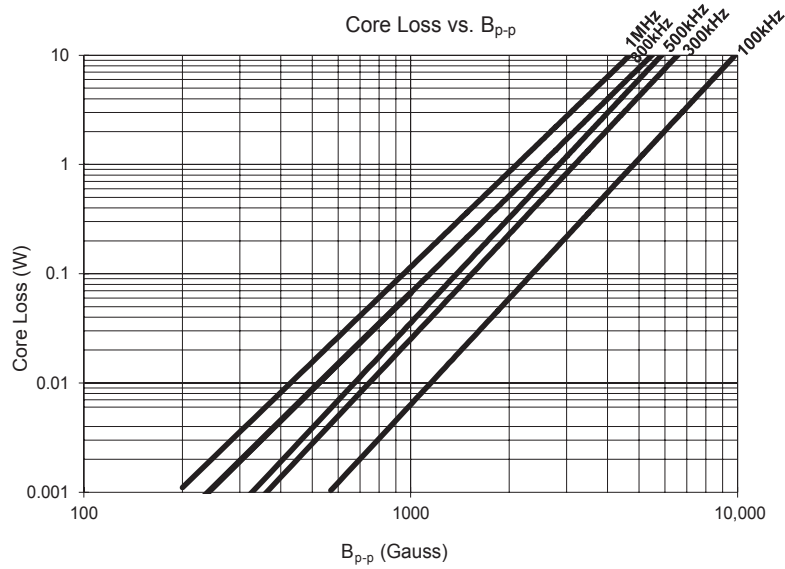


Supplied in tape and reel packaging, 500 parts per 13" diameter reel.

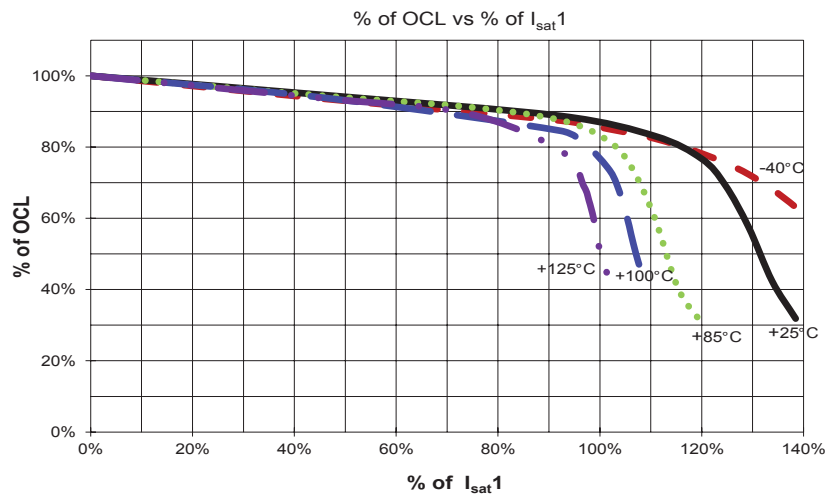
Temperature rise vs total loss



Core loss vs Bp-p



Inductance characteristics



Solder Reflow Profile

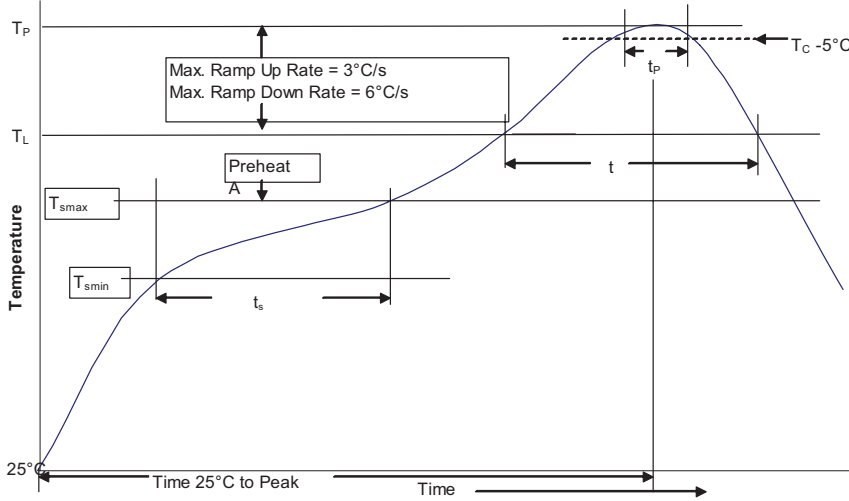


Table 1 - Standard SnPb Solder (T_c)

| Package Thickness | Volume mm^3 <350 | Volume mm^3 ≥ 350 |
|---------------------|---------------------------|---------------------------------|
| <2.5mm | 235°C | 220°C |
| $\geq 2.5\text{mm}$ | 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 JDEC J-STD-020

| Profile Feature | Standard SnPb Solder | Lead (Pb) Free Solder |
|--|---|-----------------------|
| Preheat and Soak | • Temperature min. (T_{smin}) | 100°C |
| | • Temperature max. (T_{smax}) | 150°C |
| | • Time (T_{smin} to T_{smax}) (t_s) | 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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