



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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High Current, High Frequency, Power Inductors

Flat-Pac™ FP1007R6 Series



Description

- Halogen free, lead free, RoHS compliant
- 125°C Maximum total temperature operation
- 10.5 x 8.0 x 7.0mm Maximum surface mount package
- Ferrite core material
- Controlled DCR tolerance for sensing circuits
- Inductance Range from 150nH to 470nH
- Current range from 23.5 to 75 Amps
- Frequency range up to 2MHz

Applications

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

Environmental Data

- Storage temperature range: -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

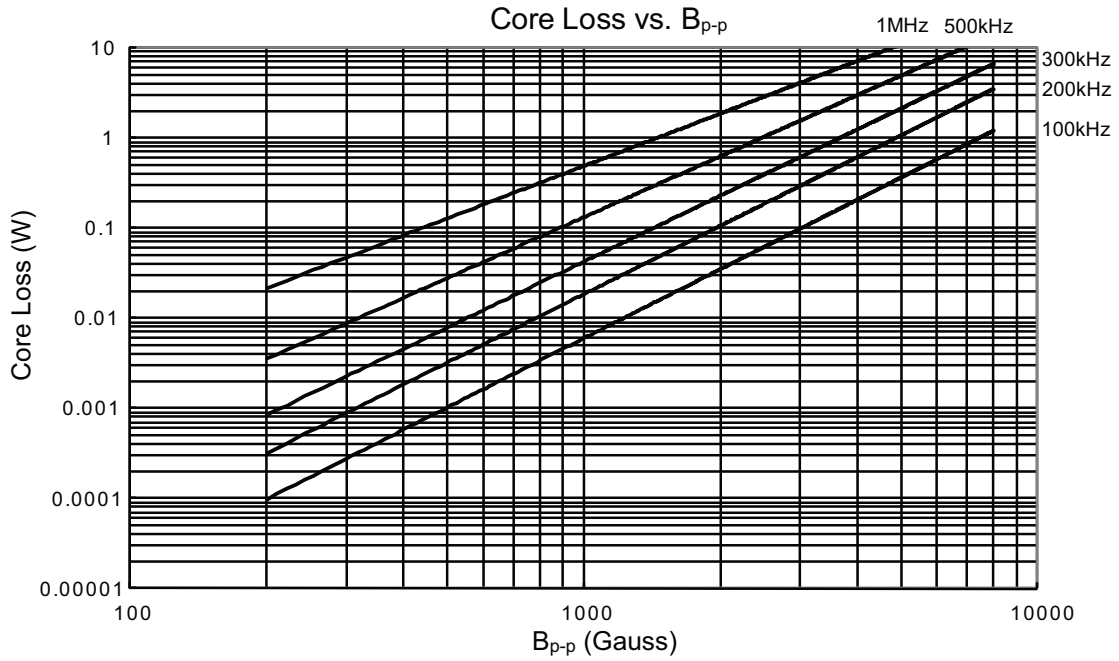
- Supplied in tape-and-reel packaging, 700 parts per 13 inch diameter reel

Product Specifications							
Part Number ⁷	OCL ¹ ±10% (nH)	FLL ² Min. (nH)	I _{rms} ³ (Amps)	I _{sat} ¹⁴ @25°C (Amps)	I _{sat} ²⁵ @100°C (Amps)	DCR @20°C (mΩ)	K-Factor ⁶
FP1007R6-R15-R	150	108	61	75.0	60.0	0.29 ± 5%	348.8
FP1007R6-R18-R	180	129		60.0	50.0		
FP1007R6-R22-R	220	158		50.0	40.0		
FP1007R6-R27-R	270	194		41.0	33.0		
FP1007R6-R33-R	330	237		33.0	26.5		
FP1007R6-R39-R	390	280		28.0	22.5		
FP1007R6-R47-R	470	338		23.5	19.0		

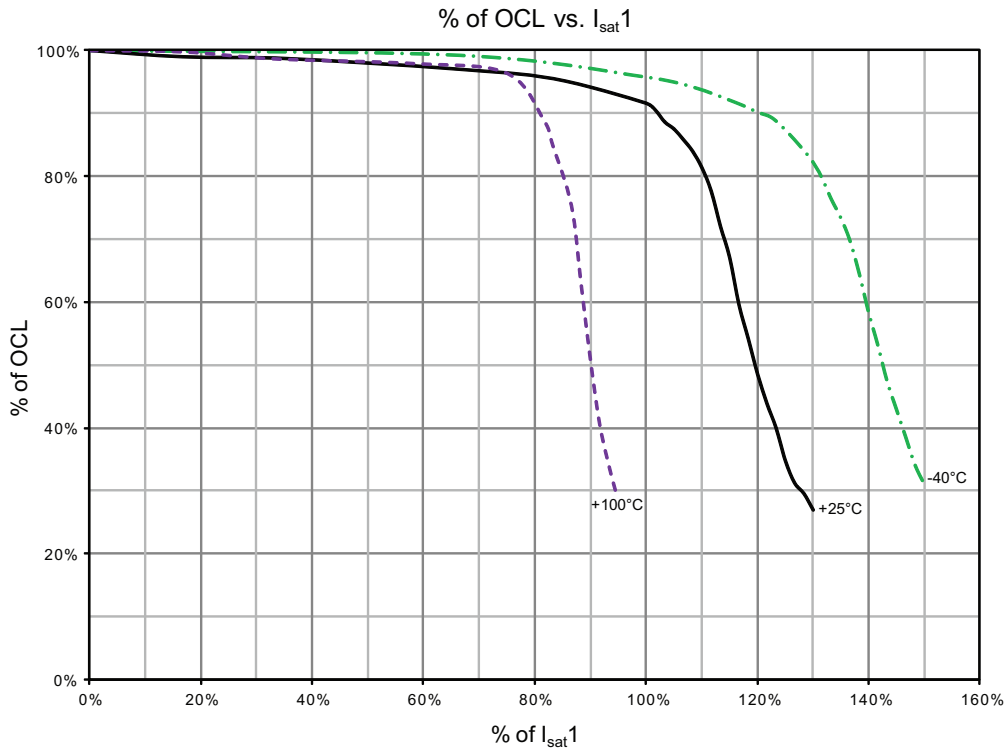
1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.10V_{rms}, 0.0Acd
 2. Full Load Inductance (FLL) Test Parameters: 100kHz, 0.1V_{rms}, I_{sat}1
 3. I_{rms}: DC current for an approximate temperature rise of 40°C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness 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 at +25°C.

5. I_{sat}2: Peak current for approximately 20% rolloff at +100°C.
 6. 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).
 7. Part Number Definition: FP1007R6-Rxx-R
 FP1007R6 = Product code and size
 Rxx= Inductance value in uH, R = decimal point
 -R suffix = RoHS compliant

Core Loss



Inductance Characteristics



Solder Reflow Profile

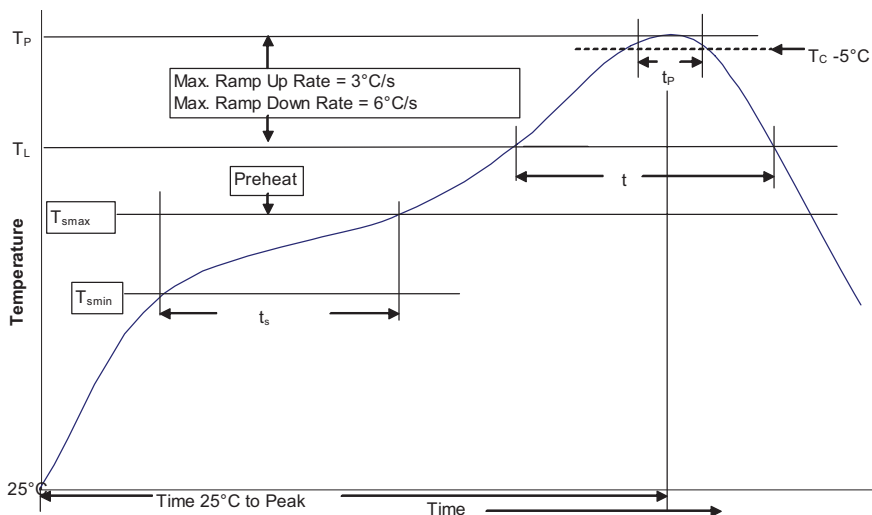


Table 1 - Standard SnPb Solder (T_c)

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-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.

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