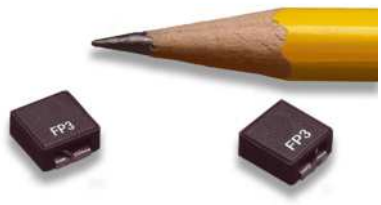
FP3

High current, low profile inductors



Applications

- Voltage Regulator Modules (VRMs)
- Multi-phase regulators
- Desktop and server VRMs and EVRDs
- Notebook and laptop regulators
- Battery power systems
- Graphics cards
- Point-of-load modules

Product description

- Low profile high current inductors
- Inductance range 0.1µh to 15µh
- Design utilizes high temperature iron powder alloy material with a non-organic binder to eliminate thermal aging
- 7.25 x 6.7mm footprint surface mount package in a 3.0mm height
- Magnetically shielded, low EMI
- Current rating up to 34.7Adc (Higher peak currents may be attained with a greater rolloff, see rolloff curve)
- Frequency range up to 2MHz

Environmental data

- Storage temperature range (component): -40°C to +155°C
- Operating temperature range: -40°C to +155°C (ambient plus self temperature rise)
- Solder reflow temperature: J-STD-020D

Pb RoHS

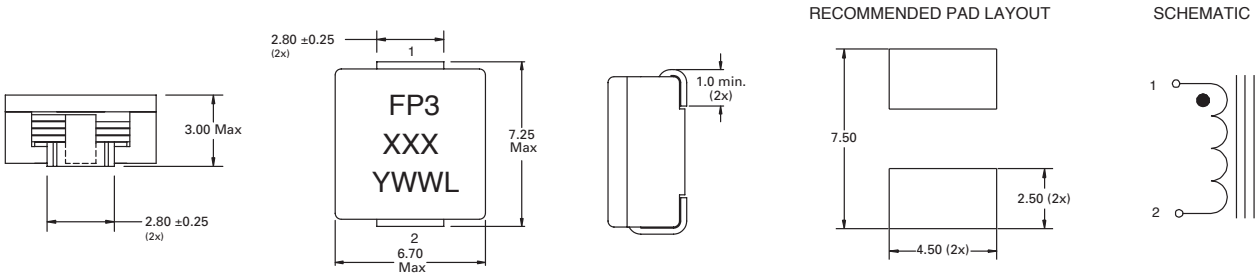
Powering Business Worldwide

Product specifications

Part number[6]	OCL (uH) ± 15%	I_{rms}[2] amps	I_{sat}[3] amps 10%	I_{sat}[4] amps 15%	DCR mOhms @ 20°C typ	DCR mOhms @ 20°C max	K-factor[5]
FP3-R10-R	0.10	19.0	27	34.7	1.00	1.21	803
FP3-R20-R	0.22	15.3	16	20.8	1.54	1.88	482
FP3-R47-R	0.44	10.9	11.6	14.9	3.05	3.67	344
FP3-R68-R	0.72	9.72	9.0	11.6	3.85	4.63	268
FP3-1R0-R	1.10	6.26	7.4	9.5	9.40	11.2	219
FP3-1R5-R	1.50	5.78	6.2	8.0	10.0	13.1	185
FP3-2R0-R	2.00	5.40	5.4	6.9	11.5	15.0	161
FP3-3R3-R	3.20	3.63	4.3	5.5	24.5	30.0	127
FP3-4R7-R	4.70	3.23	3.5	4.2	34.9	40.0	105
FP3-8R2-R	8.5	2.91	2.6	3.4	61.6	74.0	78
FP3-100-R	10.9	2.30	2.3	3.0	84.2	101	69
FP3-150-R	14.9	2.22	2.0	2.5	106.0	127	59

1. OCL (Open Circuit Inductance) Test parameters: 100kHz, 0.1Vrms, 0.0Adc
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 155°C under worst case operating conditions verified in the end application.
3. I_{sat} Amps Peak for approximately 10% rolloff @ 20°C
4. I_{sat} Amps Peak for approximately 15% rolloff @ 20°C
5. K-factor: Used to determine Bp-p for core loss (see graph). Bp-p =K*L*ΔI. Bpp: (Gauss), K: (K factor from table), L: (Inductance in µH), ΔI (Peak to peak ripple current in Amps).
6. Part number definition:
   FP3 = product code and size
   xxx = inductance value in µH
   R = decimal point (if no "R" is present, then last character equals the number of zeros)
   "-R" suffix = RoHS complaint

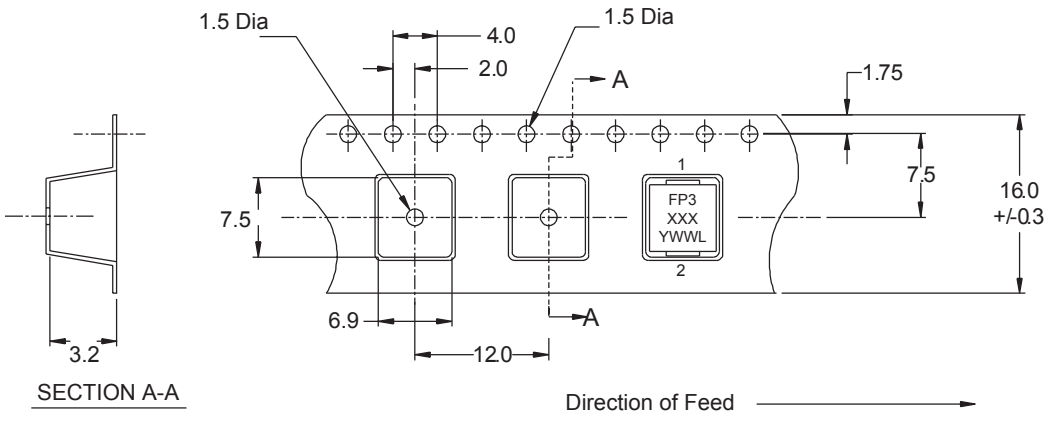
Dimensions–mm



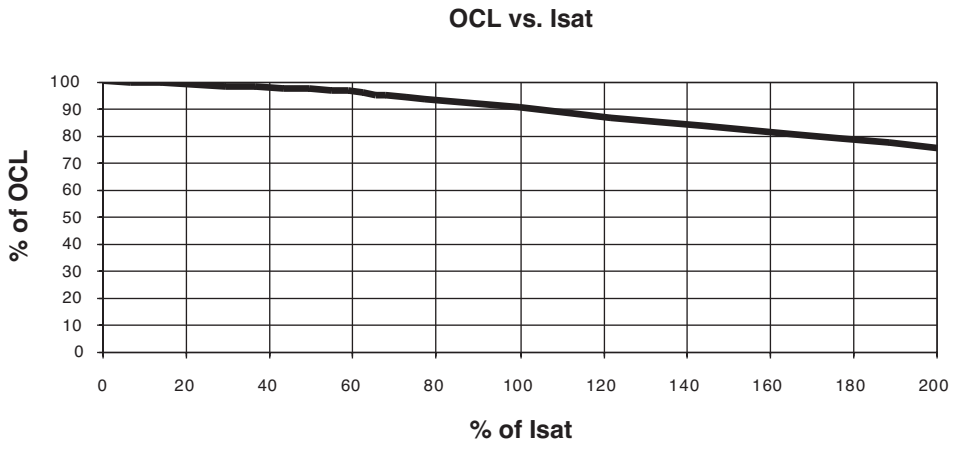
Part marking: FP3 (Product code and size), xxx=(inductance value in µH),
R=decimal point (if no "R" is present, then last character equals the number of zeroes, YWW=Date code, L=Location code

Packaging information (mm)

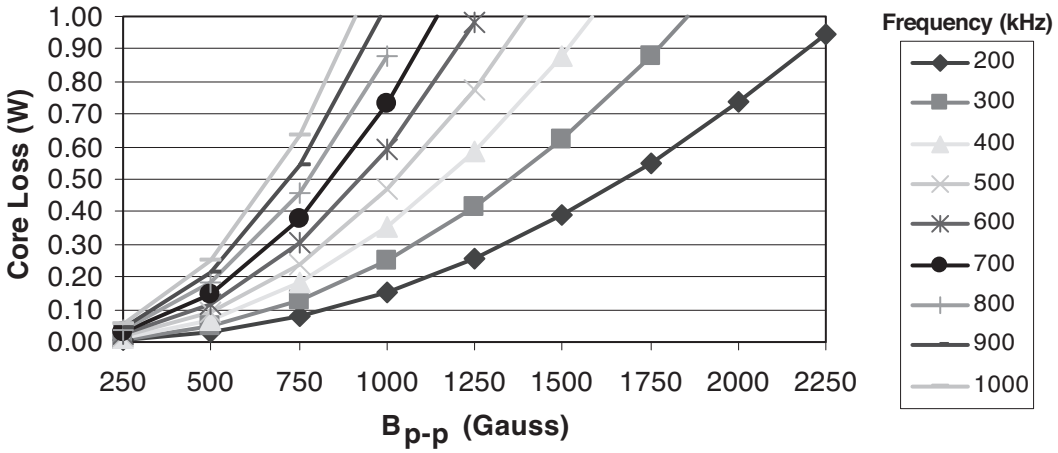
Supplied in tape and reel packaging, 1700 parts per 13" diameter reel



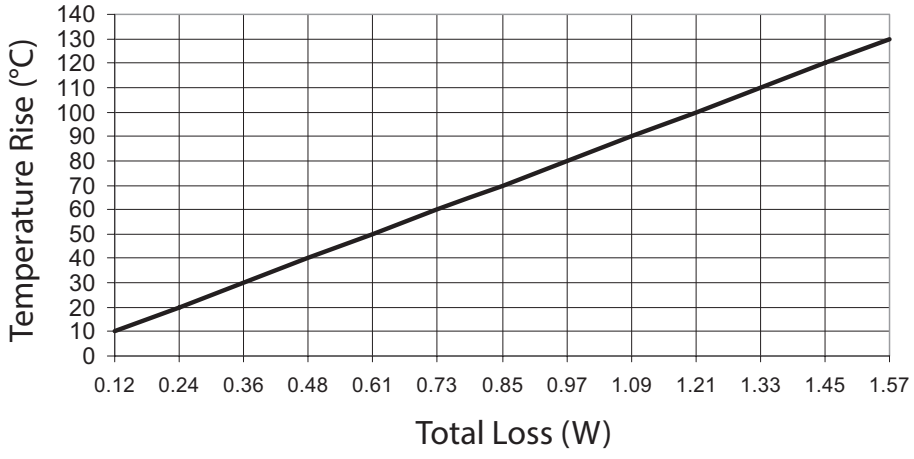
Inductance characteristics



Core loss



Temperature rise vs. total loss



Solder reflow profile

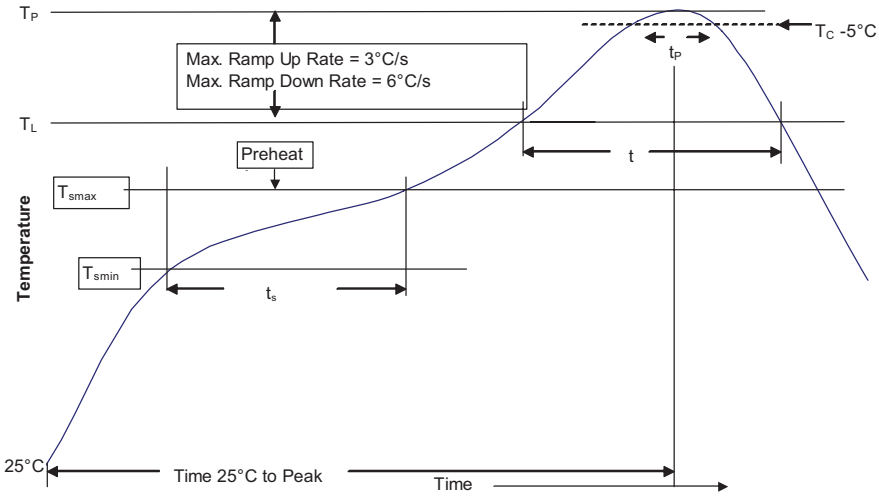


Table 1 - Standard SnPb Solder (T_C)

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 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) 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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