FPV1006

High current power inductors

Product features

- Magnetically shielded
- Inductance range 85 nH to 150 nH
- Current range from 25 A to 81 A
- 10.3 mm x 8.7 mm footprint surface mount package in 6.4 mm height
- Ferrite core material

Applications

- Compatible with Picor® Cool-Power® ZVS Buck and Buck-Boost regulator families

Environmental Data

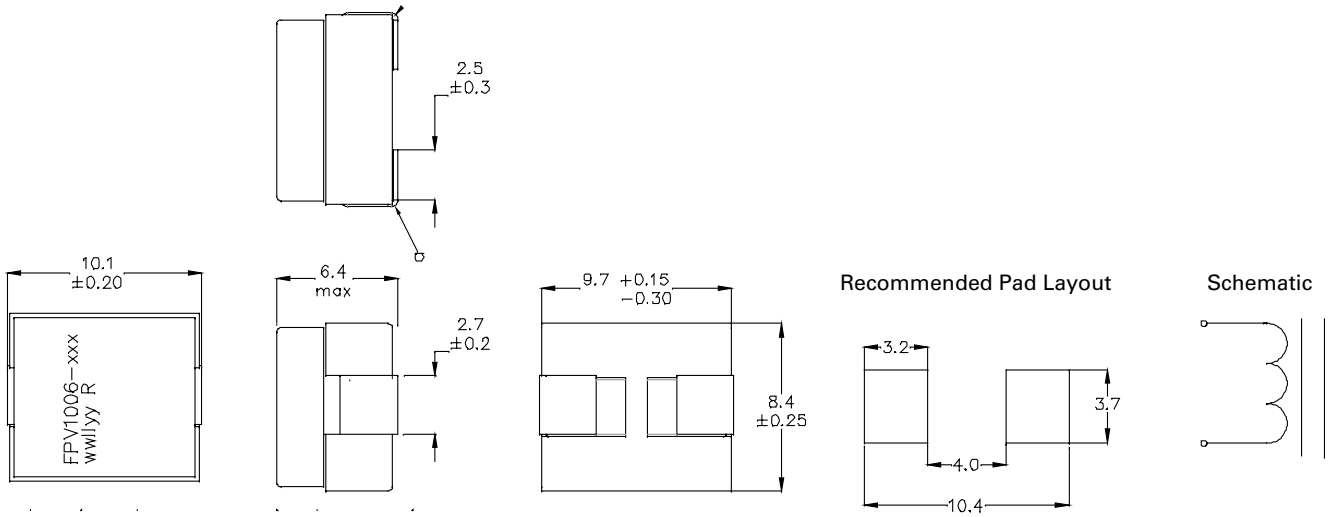
- Storage temperature range (component): -55 °C to +125 °C
- Operating temperature range: -55 °C to +125 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant

Product Specifications

Part Number[4]	OCL[1] (nH) ±10%	I_{rms}[2] (A)	I_{sat}[3] (A)	DCR (mΩ) @ +20 °C maximum
FPV1006-85-R	85	25	81	0.41
FPV1006-125-R	125	25	57	0.41
FPV1006-150-R	150	25	45	0.41

1. Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.1 Vrms, 0.0 Adc, +25 °C
2. 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.
3. I_{sat} : Peak current for approximately 5% rolloff @ +25 °C
4. Part Number Definition: FPV1006-xxx-R
   FPV1006 = Product code and size
   xxx=Inductance value in nH,
   -R suffix = RoHS compliant
   Note: Hipot: 250 Vdc minimum for 2 seconds, conductor to core

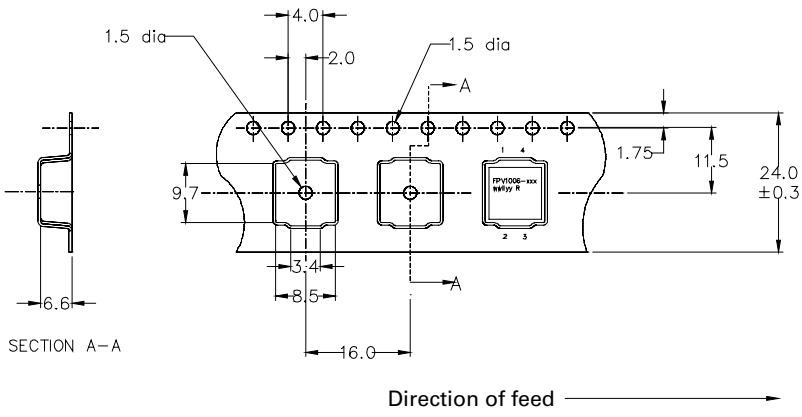
Dimensions (mm)



Part marking: FPV1006–xxx, xxx=inductance value in nH,
wwllyy= date code, R=revision level
Tolerances are ±0.25 unless stated otherwise
Soldering surfaces to be coplanar within 0.102 millimeters
DCR measured from point “a” to point “b”
Do not route traces or vias underneath the inductor.

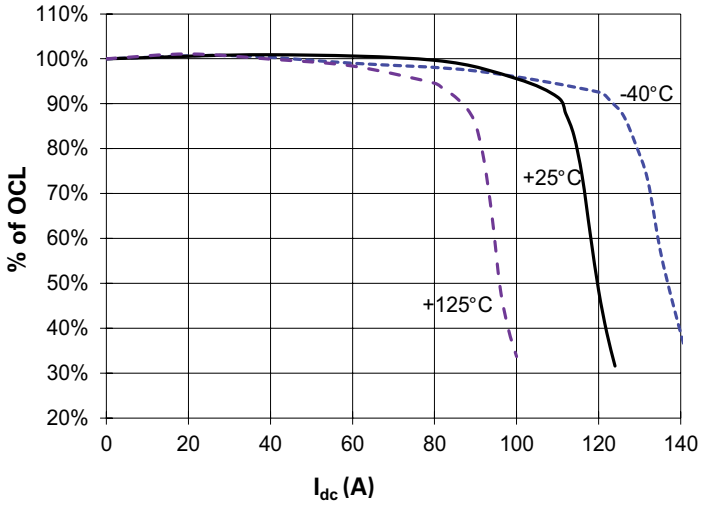
Packaging information (mm)

Supplied in tape and reel packaging, 620 parts per 13” diameter reel

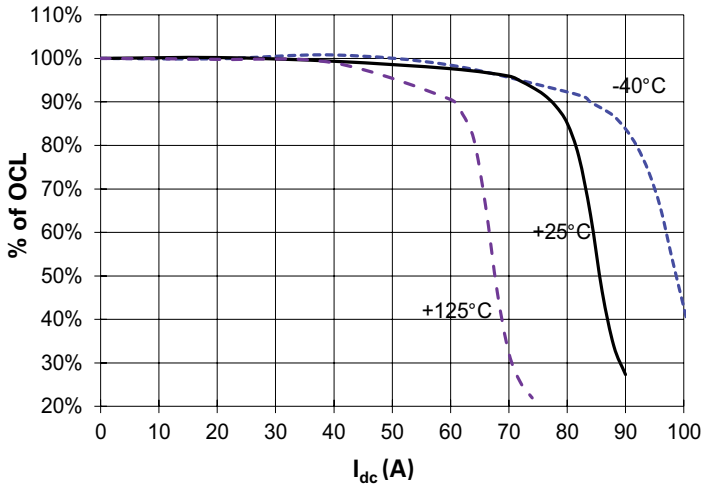


Inductance characteristics

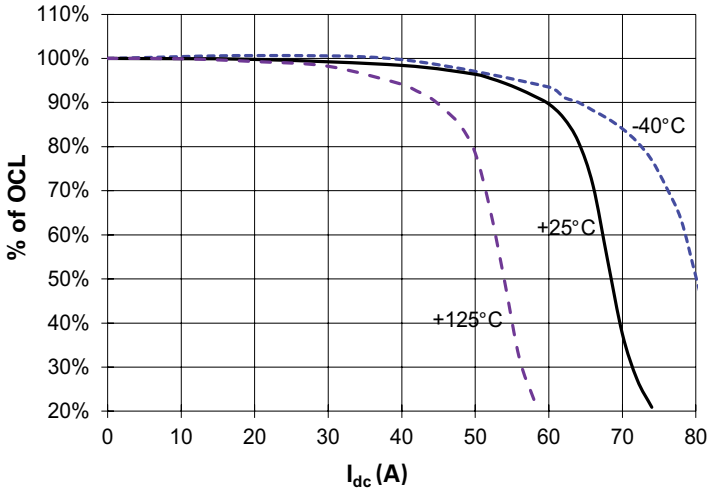
FPV1006-85-R



FPV1006-125-R



FPV1006-150-R



Solder reflow profile

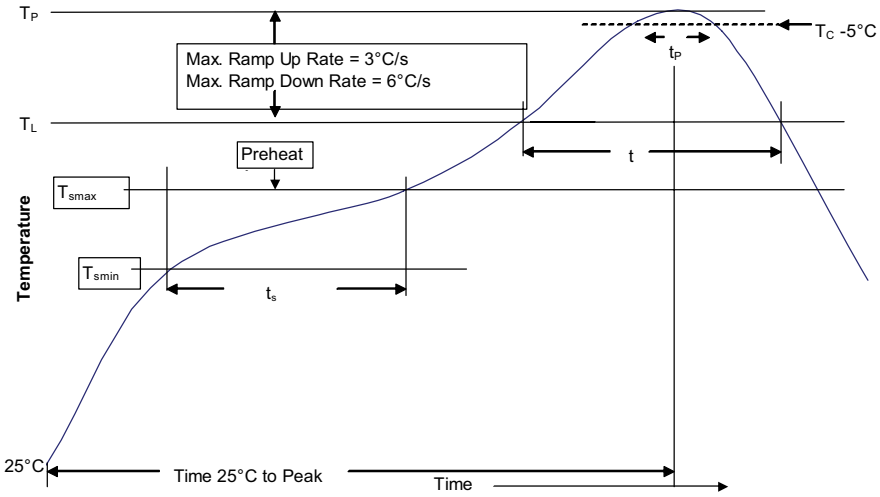


Table 1 - Standard SnPb Solder (T_C)

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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Printed in USA
Publication No. 10390-BU-SB15163
September 2017

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