

# 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



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## Product Specifications

Part Number <sup>4</sup>	OCL <sup>1</sup> (nH) ±10%	I <sub>rms</sub> <sup>2</sup> (A)	I <sub>sat</sub> <sup>3</sup> (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<sub>rms</sub>: 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<sub>sat</sub>: Peak current for approximately 5% rolloff @ +25 °C

4. Part Number Definition: FPV1006-xxx-R

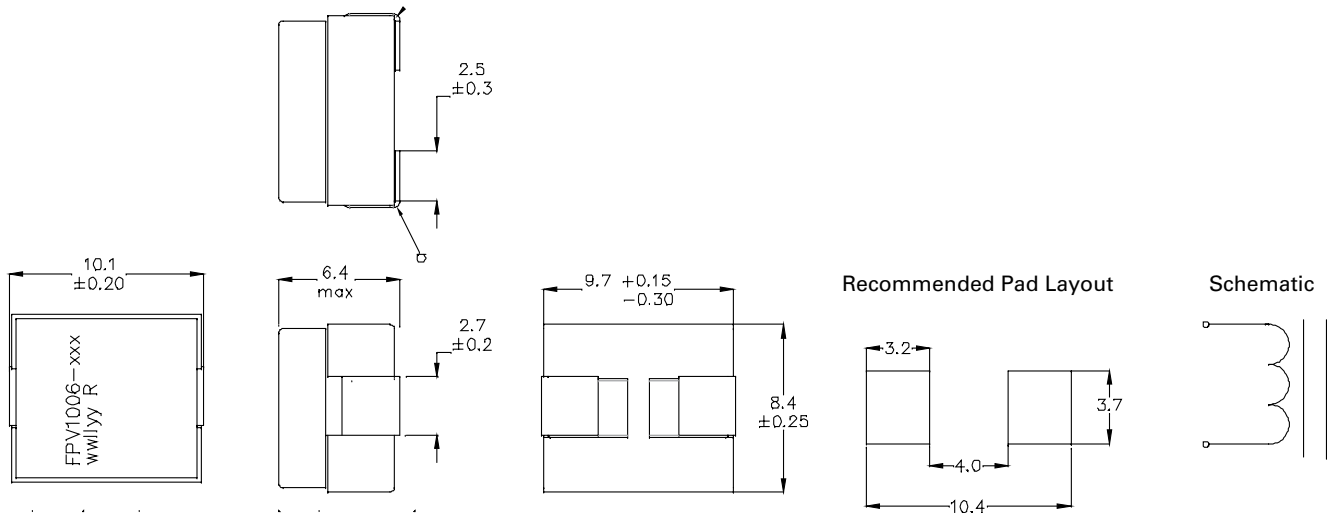
FPV1006 = Product code and size

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,

wwlllyy= date code, R=revision level

Tolerances are ±0.25 unless stated otherwise

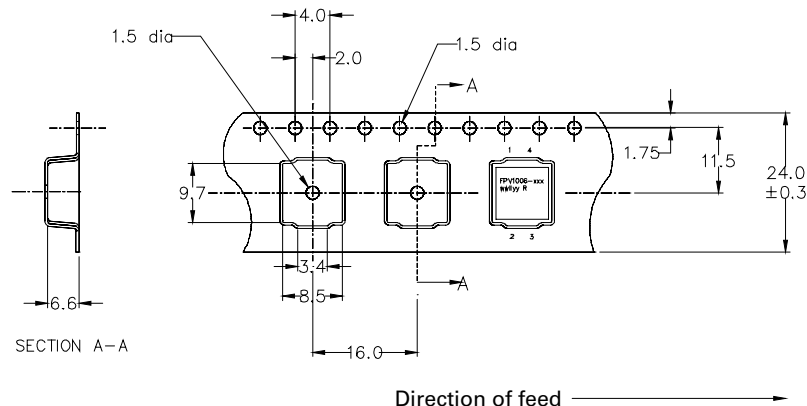
Soldering surfaces to be coplanar within 0.102 millimeters

DCR measured from point "a" to point "b"

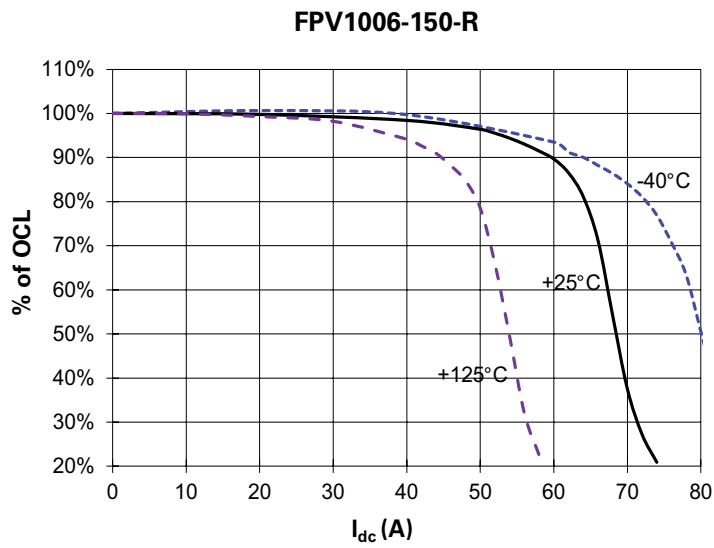
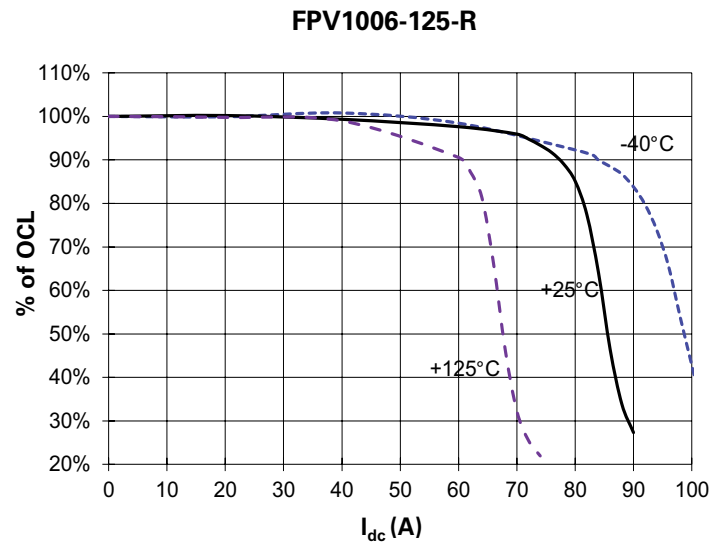
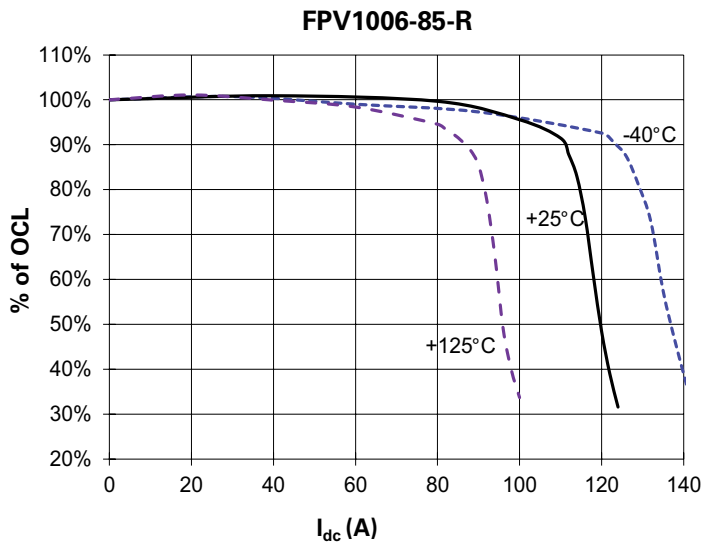
Do not route traces or vias underneath the inductor.

## Packaging information (mm)

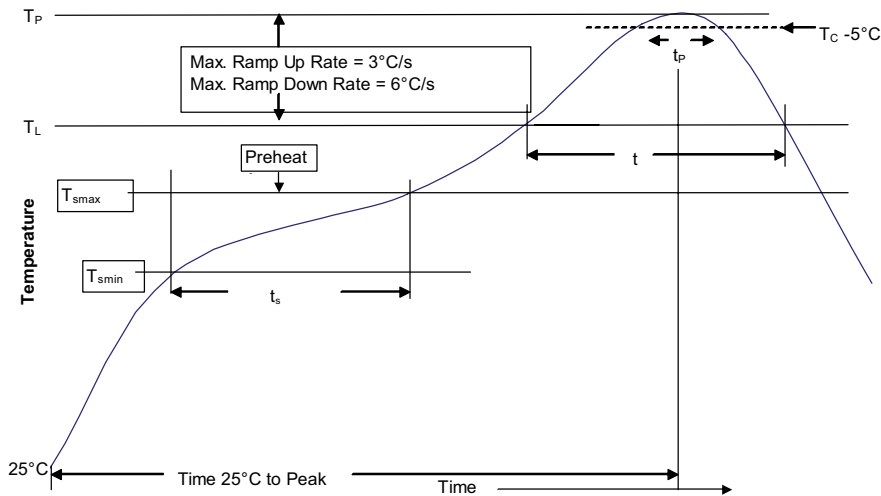
Supplied in tape and reel packaging, 620 parts per 13" diameter reel



Inductance characteristics



## Solder reflow profile



**Table 1 - Standard SnPb Solder ( $T_C$ )**

Package Thickness	Volume $\text{mm}^3$ <350	Volume $\text{mm}^3$ $\geq 350$
<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 $\text{mm}^3$ <350	Volume $\text{mm}^3$ 350 - 2000	Volume $\text{mm}^3$ >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 JEDEC 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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**Eaton**  
**Electronics Division**  
1000 Eaton Boulevard  
Cleveland, OH 44122  
United States  
www.eaton.com/electronics

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