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## Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# FPV1507

## Dual conductor high current power inductor



### Description

- Dual conductor, two-turn construction
- Magnetically shielded
- 15.1 mm x 8.6 mm footprint surface mount package in a 6.6 mm height
- Ferrite core material
- Halogen free, lead free, RoHS compliant

### Applications

- Multi-phase power supplies
- Compatible with Picor® Cool-Power® ZVS Buck-Boost Regulator Family (Picor part number series PI37xx)

### 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-020D compliant



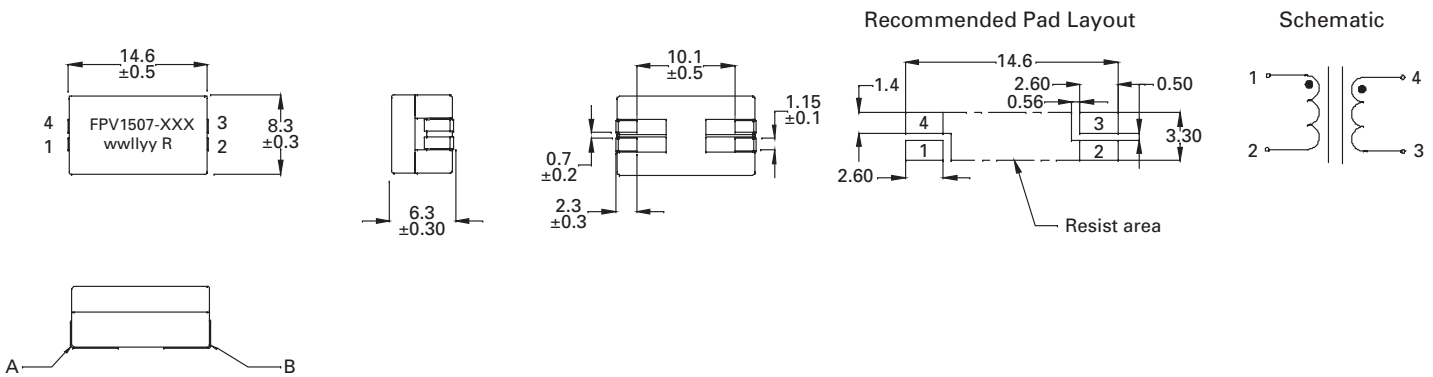
Picor® and Cool-Power® are trademarks of Vicor Corporation.

**Product Specifications**

Part Number <sup>5</sup>	OCL <sup>1</sup> (nH) ±10%	I <sub>rms</sub> <sup>2</sup> (A)	I <sub>sat</sub> <sup>3</sup> (A)	DCR <sup>4</sup> (mΩ) @ 20°C	Q minimum reference only
FPV1507-500-R	500	20	40	1.15 ± 0.173	135
FPV1507-650-R	650	20	31	1.15 ± 0.173	135

- Open Circuit Inductance (OCL) Test Parameters: 1.0 MHz, 0.1 V<sub>rms</sub>, 0.0 Adc, +25 °C (Pins 1-3, short 2-4)
- 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.
- I<sub>sat</sub>: Peak current for approximately 2% rolloff @ +25 °C
- DCR measured from Pins (1-2) and (3-4)
- Part Number Definition: FPV1507-xxx-R  
FPV1507 = Product code and size  
xxx= Inductance value in nH,  
-R suffix = RoHS compliant
- Q test parameters: 1 MHz, 0.1 V<sub>rms</sub>, +25 °C, (Pins 1-3, short 2-4)  
Note: Hipot: 200 Vdc minimum for 2 seconds, 0.1 mA pins (1-2) to (4-3)

**Dimensions (mm)**



DCR measured from point "A" to point "B"

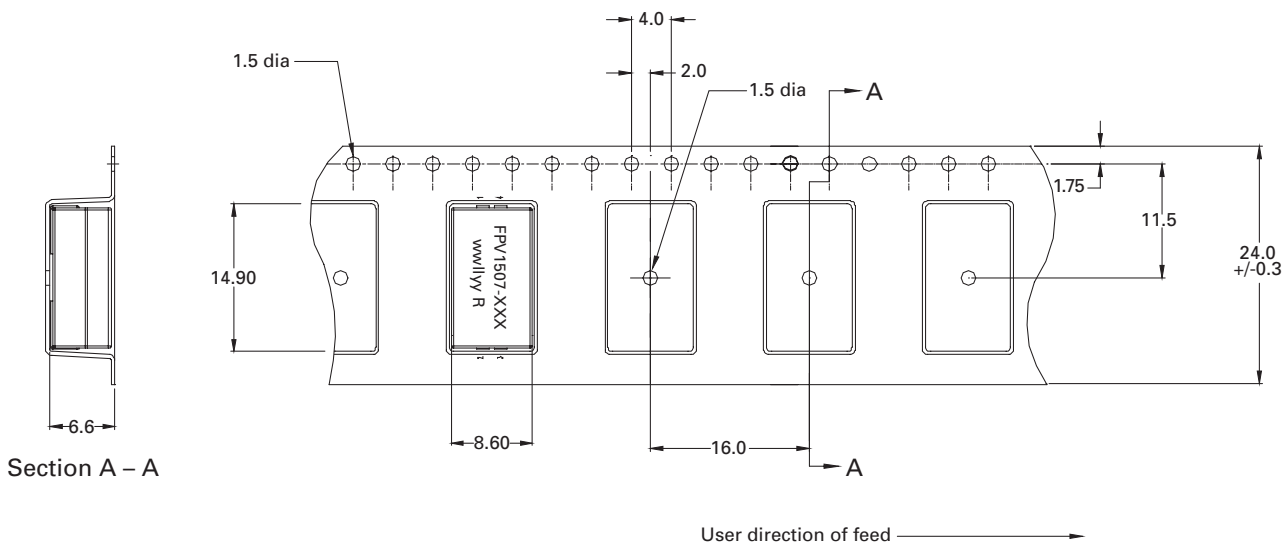
Part marking: FPV1507-XXX (XXX= inductance value in nH), wwlllyy=date code, R=revision level

Soldering surfaces to be coplanar within 0.1 millimeters

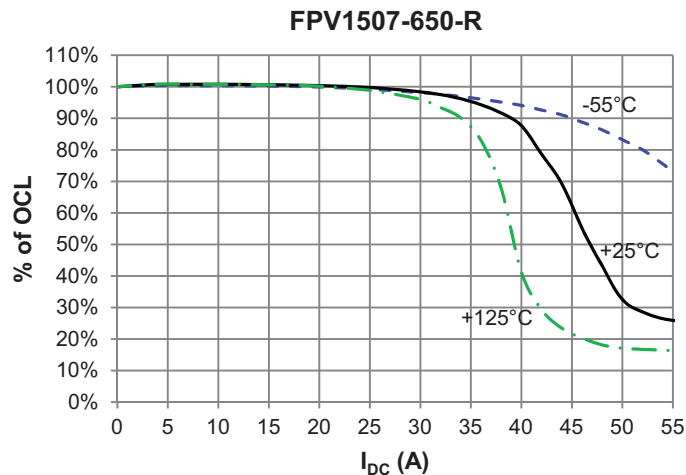
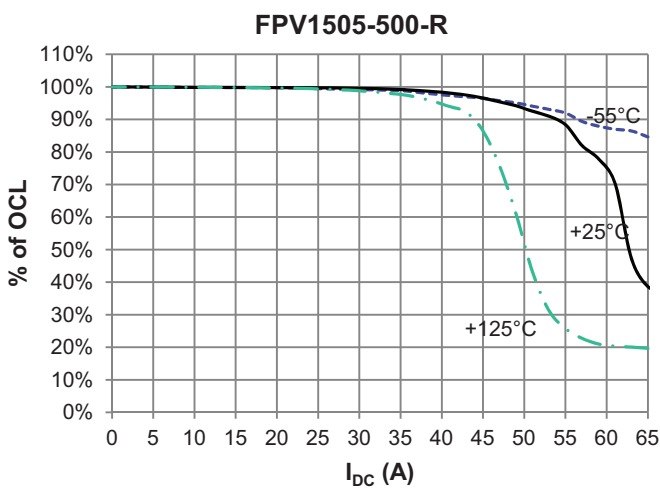
Pins 2 & 4 are connected through the PCB trace

**Packaging information (mm)**

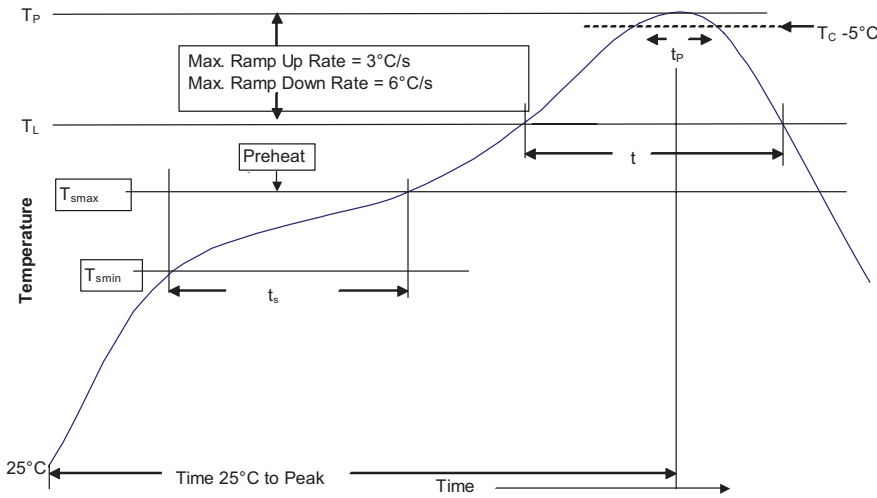
Supplied in tape and reel packaging, 600 parts per 13" diameter reel



**Inductance characteristics**



**Solder reflow profile**



**Table 1 - Standard SnPb Solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> ≥350
<2.5mm	235°C	220°C
≥2.5mm	220°C	220°C

**Table 2 - Lead (Pb) Free Solder (T<sub>C</sub>)**

Package Thickness	Volume mm <sup>3</sup> <350	Volume mm <sup>3</sup> 350 - 2000	Volume mm <sup>3</sup> >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 <sub>smin</sub> )	100°C	150°C
• Temperature max. (T <sub>smax</sub> )	150°C	200°C
• Time (T <sub>smin</sub> to T <sub>smax</sub> ) (t <sub>s</sub> )	60-120 Seconds	60-120 Seconds
Average ramp up rate T <sub>smax</sub> to T <sub>p</sub>	3°C/ Second Max.	3°C/ Second Max.
Liquidous temperature (T <sub>L</sub> )	183°C	217°C
Time at liquidous (t <sub>L</sub> )	60-150 Seconds	60-150 Seconds
Peak package body temperature (T <sub>p</sub> )*	Table 1	Table 2
Time (t <sub>p</sub> )** within 5 °C of the specified classification temperature (T <sub>C</sub> )	20 Seconds**	30 Seconds**
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	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<sub>p</sub>) is defined as a supplier minimum and a user maximum.

\*\* Tolerance for time at peak profile temperature (t<sub>p</sub>) 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/elx

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