

# Dual Conductor, High Current Power Inductors

## Flat-Pac™ FPT705 Series



### Description

- Halogen free, lead free, RoHS compliant
- 125°C maximum total operating temperature
- 8.0 x 7.1 x 5.35mm maximum surface mount package
- Ferrite core material
- Dual conductor, two-turn construction
- Inductance range from 150nH to 300nH

### Applications

- Designed specifically for use with Picor® Cool-Power® ZVS-Buck Regulator Family (Picor part number Series PI33xx and PI34xx)

### 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, 1400 parts per 13" diameter reel

Product Specifications					
Part Number <sup>6</sup>	OCL <sup>1</sup> ±10% (nH)	FLL <sup>2</sup> min. (nH)	I <sub>rms</sub> <sup>3</sup> (Amps)	I <sub>sat</sub> <sup>4</sup> @ 25°C (Amps)	DCR <sup>5</sup> (mΩ) @ 20°C
FPT705-150-R	150	135	13	35	0.65 ± 0.15
FPT705-170-R	170	153		31	
FPT705-190-R	190	171		28	
FPT705-200-R	200	180		25	
FPT705-230-R	230	207		23	
FPT705-270-R	270	243		19	
FPT705-300-R	300	270		17	

1. Open Circuit Inductance (OCL) test parameters: 100kHz, 0.1V<sub>rms</sub>, 0.0A<sub>dc</sub> @ 25°C (Pins 1-3, short 2-4).
2. Full Load Inductance (FLL) test parameters: 100kHz, 0.1V<sub>rms</sub>, I<sub>sat</sub>1 @ 25°C (Pins 1-3, short 2-4).
3. 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.

4. I<sub>sat</sub>1: Peak current for approximately 2% rolloff at +25°C.
5. DCR Tested from Pins (1-2) and (3-4) @ 20°C.
6. Part Number Definition: FPT705-xxx-R  
 FPT705 = Product code and size  
 xxx= Inductance value in nH  
 "-R" Suffix = RoHS compliant

Ihr Vertriebspartner:  
**HY-LINE**<sup>®</sup>  
 POWER COMPONENTS

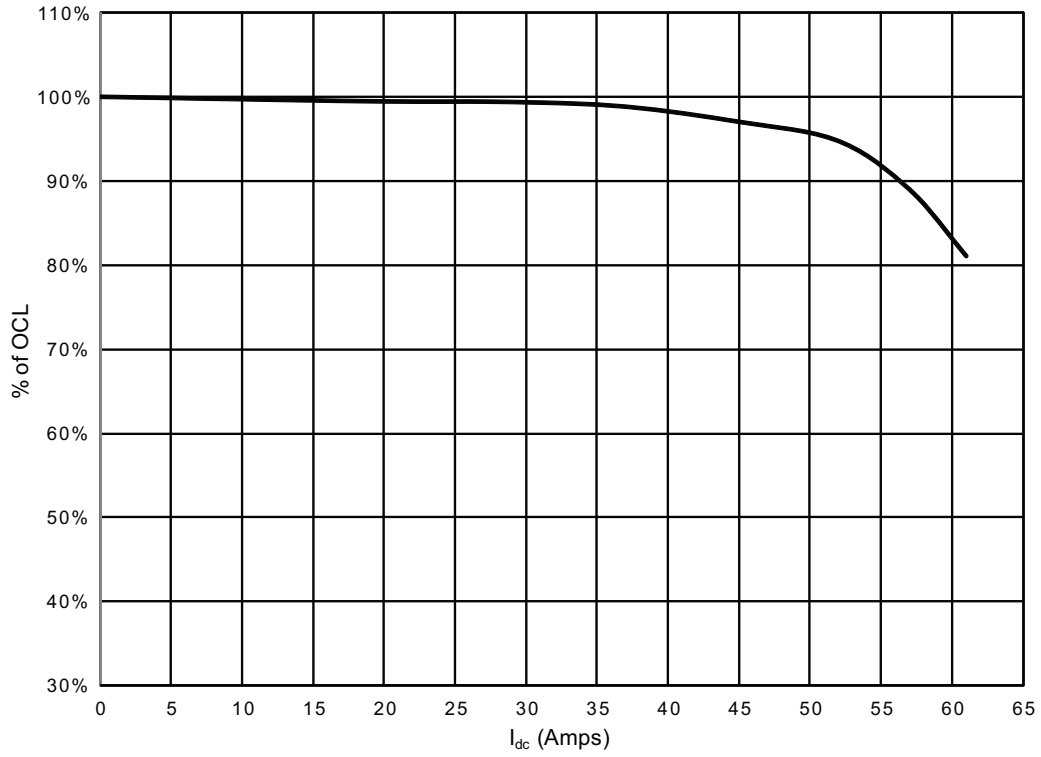
Inselkammerstraße 10  
 D-82008 Unterhaching  
 Tel: +49 (0)89 614 503 10  
 Fax +49 (0)89 614 503 20  
 E-Mail: power@hy-line.de  
 URL: www.hy-line.de

Gründenstrasse 82  
 CH-8247 Flurlingen  
 Tel: +41 (0)52 647 42 00  
 Fax +41 (0)52 647 42 01  
 E-Mail: power@hy-line.ch  
 URL: www.hy-line.ch

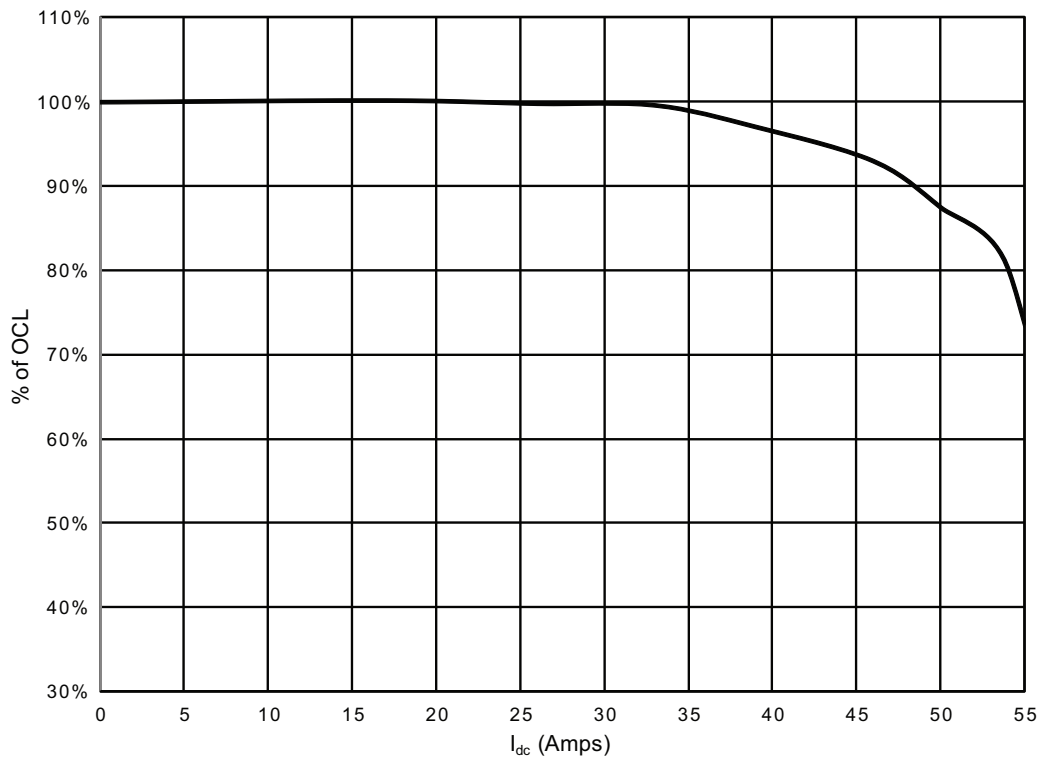


## Inductance Characteristics

FPT705-150-R

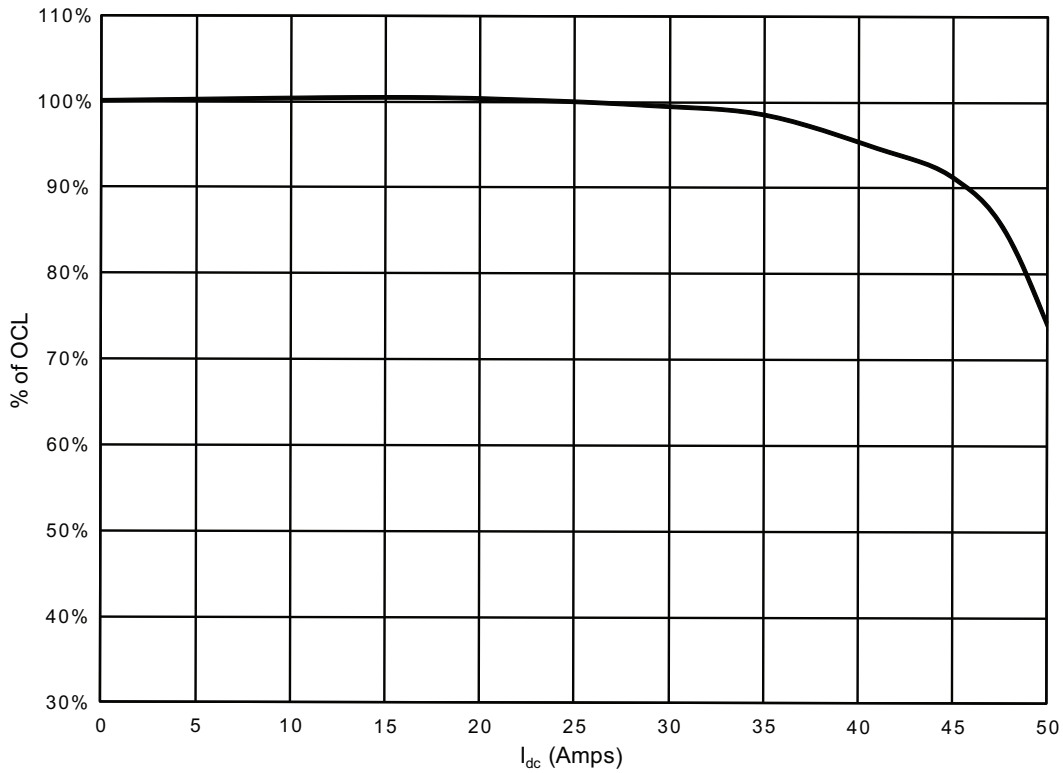


FPT705-170-R

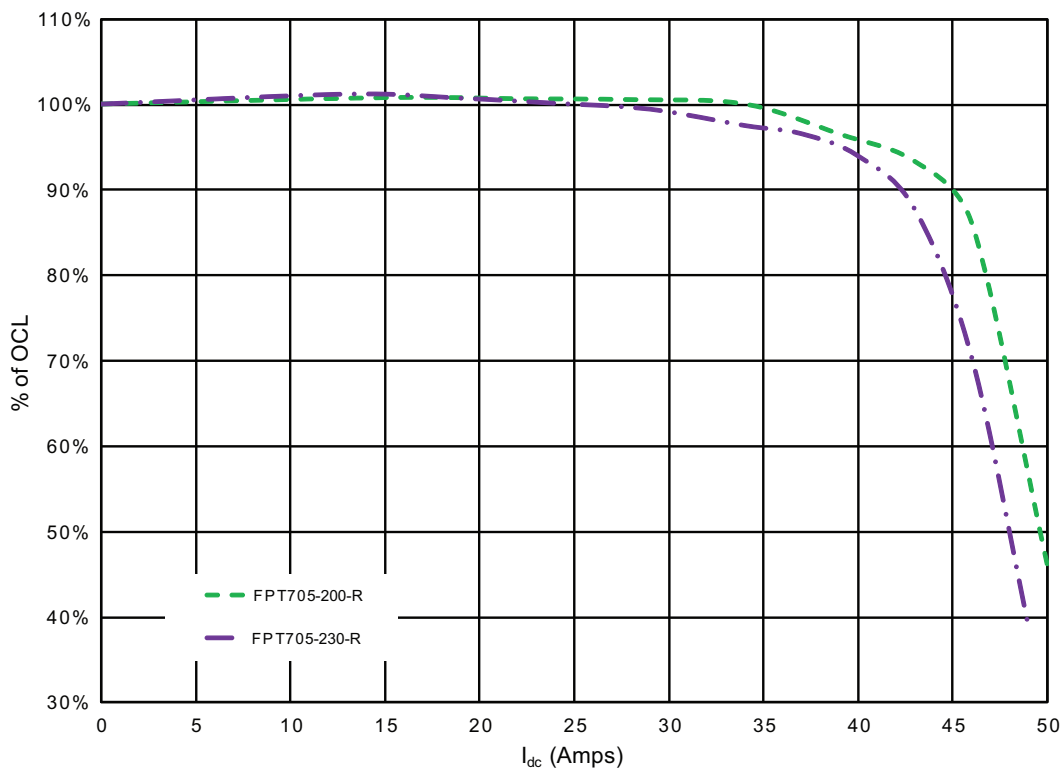


## Inductance Characteristics

FPT705-190-R

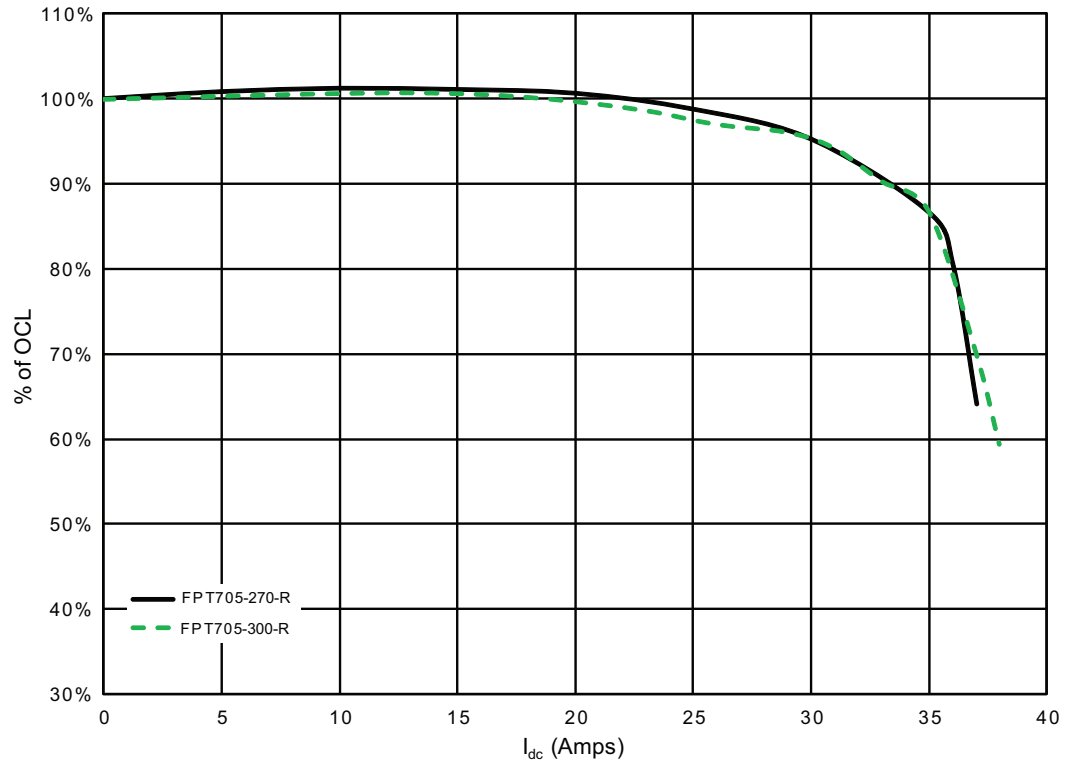


FPT705-200-R & -230-R



## Inductance Characteristics

FPT705-270-R & -300-R



## Solder Reflow Profile

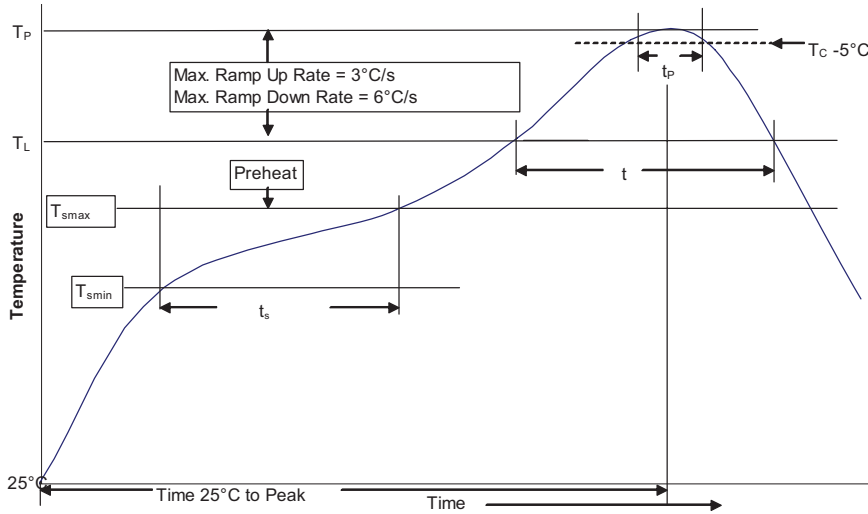


Table 1 - Standard SnPb Solder ( $T_c$ )

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 JDEC J-STD-020D

Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder
Preheat and Soak	<ul style="list-style-type: none"> <li>Temperature min. (<math>T_{smin}</math>)</li> <li>Temperature max. (<math>T_{smax}</math>)</li> <li>Time (<math>T_{smin}</math> to <math>T_{smax}</math>) (<math>t_s</math>)</li> </ul>	<ul style="list-style-type: none"> <li>100°C</li> <li>150°C</li> <li>60-120 Seconds</li> </ul>
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.

Ihr Vertriebspartner:

**HY-LINE**  
POWER COMPONENTS

Inselkammerstraße 10  
D-82008 Unterhaching  
Tel: +49 (0)89 614 503 10  
Fax +49 (0)89 614 503 20  
E-Mail: power@hy-line.de  
URL: www.hy-line.de

Gründenstrasse 82  
CH-8247 Flurlingen  
Tel: +41 (0)52 647 42 00  
Fax +41 (0)52 647 42 01  
E-Mail: power@hy-line.ch  
URL: www.hy-line.ch

### North America

Cooper Electronic Technologies  
1225 Broken Sound Parkway NW  
Boca Raton, FL 33487-3533  
Tel: 1-561-998-4100  
Fax: 1-561-241-6640  
Toll Free: 1-888-414-2645

Cooper Bussmann  
P.O. Box 14460  
St. Louis, MO 63178-4460  
Tel: 1-636-394-2877  
Fax: 1-636-527-1607

### Europe

Cooper Electronic Technologies  
Cooper (UK) Limited  
Burton-on-the-Wolds  
Leicestershire • LE12 5TH UK  
Tel: +44 (0) 1509 882 737  
Fax: +44 (0) 1509 882 786

Cooper Electronic Technologies  
Avda. Santa Eulalia, 290  
08223  
Terrassa, (Barcelona), Spain  
Tel: +34 937 362 812  
+34 937 362 813  
Fax: +34 937 362 719

### Asia Pacific

Cooper Electronic Technologies  
1 Jalan Kilang Timor  
#06-01 Pacific Tech Centre  
Singapore 159303  
Tel: +65 278 6151  
Fax: +65 270 4160

The only controlled copy of this Data Sheet is the electronic read-only version located on the Cooper Bussmann Network Drive. All other copies of this document are by definition uncontrolled. This bulletin is intended to clearly present comprehensive product data and provide technical information that will help the end user with design applications. Cooper Bussmann reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Cooper Bussmann also reserves the right to change or update, without notice, any technical information contained in this bulletin. Once a product has been selected, it should be tested by the user in all possible applications.

Life Support Policy: Cooper Bussmann does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.