#### **Product specifications**

Part Number <sup>7</sup>	OCL <sup>1</sup> (nH)±10%	FLL <sup>2</sup> (nH) minimum	I <sub>rms</sub> ³ (amps)	l <sub>sat</sub> 1 <sup>4</sup> (amps)	l <sub>sat</sub> 2 <sup>5</sup> (amps)	DCR (mΩ) @ 20°C ±5%	K-factor <sup>8</sup>
R1 version							
FP1007R1-R12-R	120	86	60	81	65	0.29 ± 10%	371
FP1007R1-R14-R	140	100	60	72	56	0.29 ± 10%	371
FP1007R1-R17-R	170	122	60	58	46	0.29 ± 10%	371
FP1007R1-R22-R	215	155	60	50	36	0.29 ± 10%	371
FP1007R1-R30-R	300	216	60	32	26	0.29 ± 10%	371
R2 version							
FP1007R2-R12-R	120	86	51	81	65	0.48 ± 8%	368
FP1007R2-R14-R	140	100	51	72	56	0.48 ± 8%	368
FP1007R2-R17-R	170	122	51	58	46	0.48 ± 8%	368
FP1007R2-R22-R	215	155	51	50	36	0.48 ± 8%	368
FP1007R2-R30-R	300	216	51	32	26	0.48 ± 8%	368
R3 version							
FP1007R3-R12-R	115	83	61	94	86	0.29 ± 5%	354
FP1007R3-R15-R	150	108	61	76	70	0.29 ± 5%	354
FP1007R3-R17-R	175	126	61	66	60	0.29 ± 5%	354
FP1007R3-R22-R	215	155	61	50	43	0.29 ± 5%	354
FP1007R3-R23-R	230	165	61	48	40	0.29 ± 5%	354
FP1007R3-R27-R	270	194	61	40	34	0.29 ± 5%	354
FP1007R3-R30-R	300	216	61	35	30	0.29 ± 5%	354

- 1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.1Vrms, 0.0Adc, +25°C
- 2. Full Load Inductance (FLL) Test Parameters: 100kHz, 0.1Vrms, I<sub>sat</sub>1, +25°C
- 3. I<sub>ms</sub>: Irms: 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 20% rolloff @ +25°C
- 5. I<sub>sat</sub> 2: Peak current for approximately 20% rolloff @ +125°C

6. K-factor: Used to determine  $B_{p,p}$  for core loss (see graph).  $B_{p,p} = K * L * \Delta I * 10^3. B_{p,p}$  (Gauss), K: (K-factor from table), L: (Inductance in nH),  $\Delta I$  (Peak-to-peak ripple current in Amps).

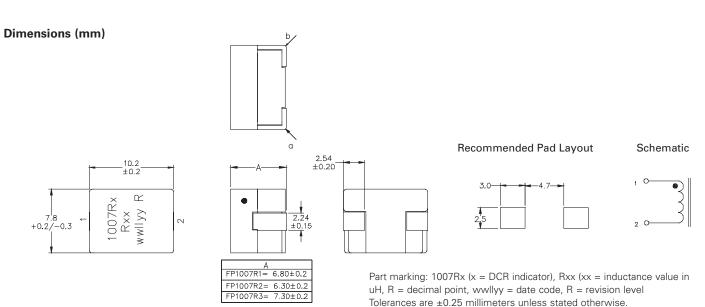
PCB tolerances are  $\pm 0.1$  millimeters unless stated otherwise All soldering surfaces to be coplanar within 0.1 millimeter

DCR measured from point "a" to point "b"
Do not route traces or vias underneath the inductor

- 7. Part Number Definition: FP1007Rx-Rxx-R FP1007R= Product code and size
  - x = DCR indicator

 $Rxx = Inductance value in \mu H$ , R = decimal point

-R suffix = RoHS compliant



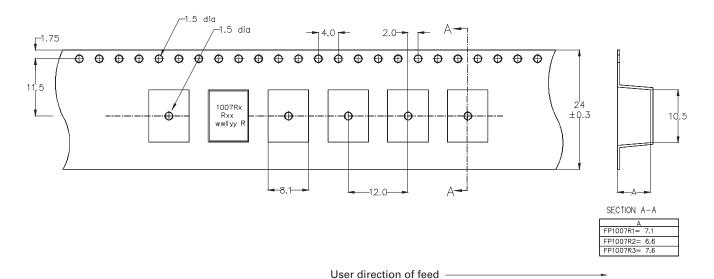
## Packaging information (mm)

Supplied in tape and reel packaging,

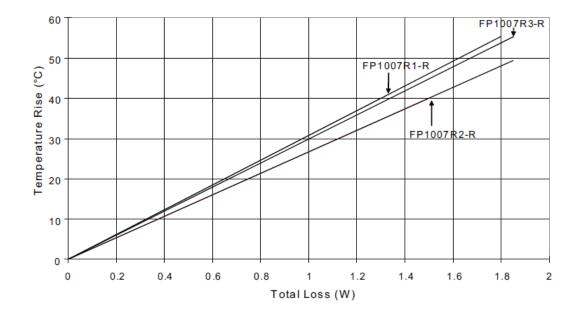
FP1007R1 700 parts per 13 " diameter reel

FP1007R2 750 parts per 13 " diameter reel

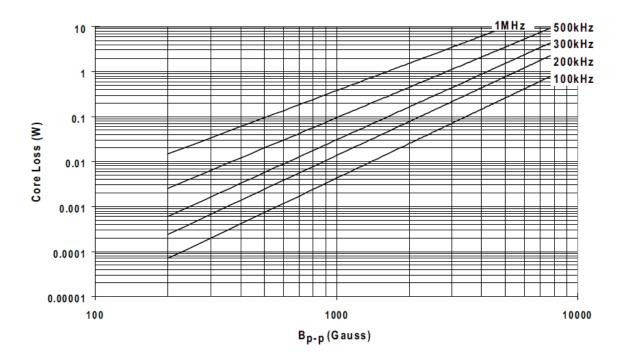
FP1007R3 650 parts per 13 " diameter reel



# Temperature rise vs. total loss

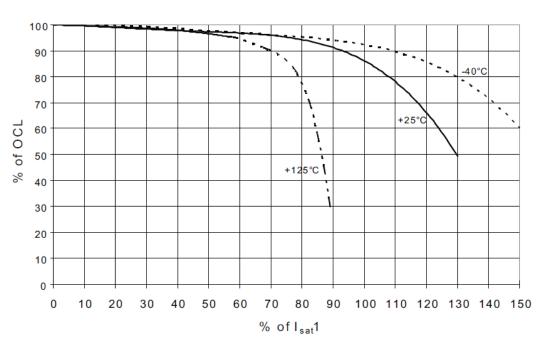


# Core loss vs. B<sub>p-p</sub>



## **Inductance characteristics**





## Solder reflow profile

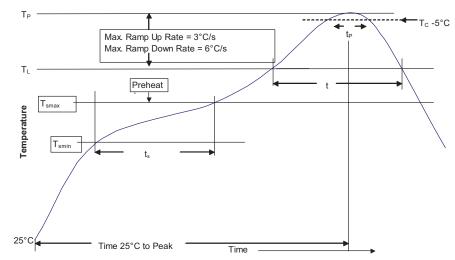


Table 1 - Standard SnPb Solder (T<sub>C</sub>)

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<sub>C</sub>)

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**

Standard SnPb Solder	Lead (Pb) Free Solder
100°C	150°C
150°C	200°C
60-120 Seconds	60-120 Seconds
3°C/ Second Max.	3°C/ Second Max.
183°C 60-150 Seconds	217°C 60-150 Seconds
Table 1	Table 2
20 Seconds**	30 Seconds**
6°C/ Second Max.	6°C/ Second Max.
6 Minutes Max.	8 Minutes Max.
	100°C 150°C 60-120 Seconds 3°C/ Second Max. 183°C 60-150 Seconds Table 1 20 Seconds** 6°C/ Second Max.

 $<sup>^{*}</sup>$  Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.

Life Support Policy: Eaton 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.

Eaton Electronics Division 1000 Eaton Boulevard Cleveland, OH 44122 United States www.eaton.com/elx

© 2015 Eaton All Rights Reserved Printed in USA Publication No. 4341 BU-10927 October 2015



All other trademarks are property of their respective owners.



<sup>\*\*</sup> Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.