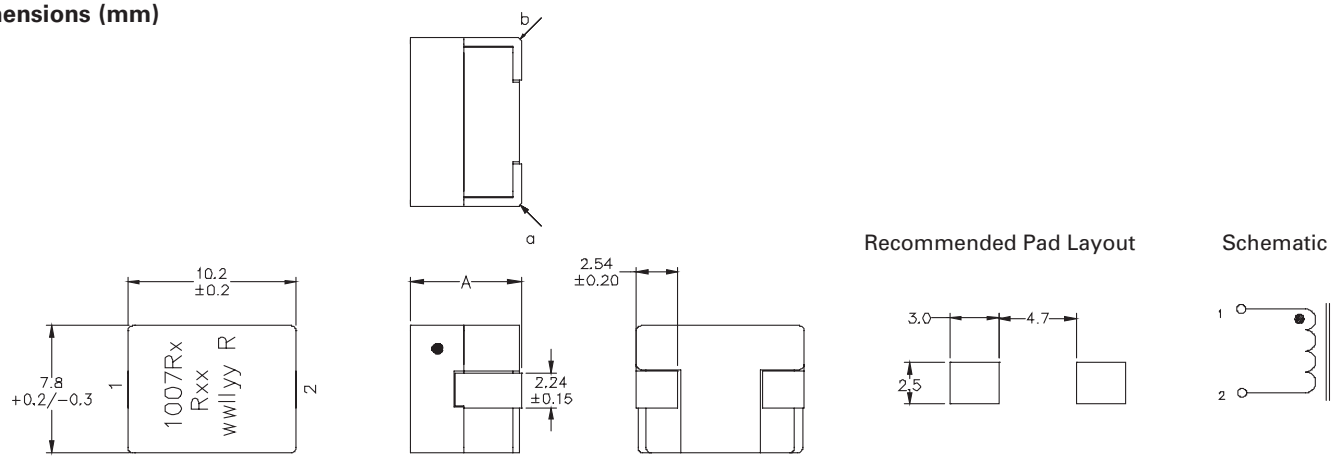
Product specifications

Part Number[7]	OCL[1] (nH)±10%	FLL[2] (nH) minimum	I_{rms}[3] (amps)	$I_{sat}1$[4] (amps)	$I_{sat}2$[5] (amps)	DCR (mΩ) @ 20°C ±5%	K-factor[8]
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, $I_{sat}1$, +25°C
3. I_{rms}: Irms: DC current for an approximate temperature rise of 40ºC 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. $I_{sat}1$: Peak current for approximately 20% rolloff @ +25°C
5. $I_{sat}2$: 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), ΔI (Peak-to-peak ripple current in Amps).
7. Part Number Definition: FP1007Rx-Rxx-R
   FP1007R= Product code and size
   x = DCR indicator
   Rxx = Inductance value in µH, R= decimal point
   -R suffix = RoHS compliant

Dimensions (mm)



A
FP1007R1= 6.80±0.2
FP1007R2= 6.30±0.2
FP1007R3= 7.30±0.2

Part marking: 1007Rx (x = DCR indicator), Rxx (xx = inductance value in uH, R = decimal point, wwllyy = date code, R = revision level
Tolerances are ±0.25 millimeters unless stated otherwise.
PCB tolerances are ±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

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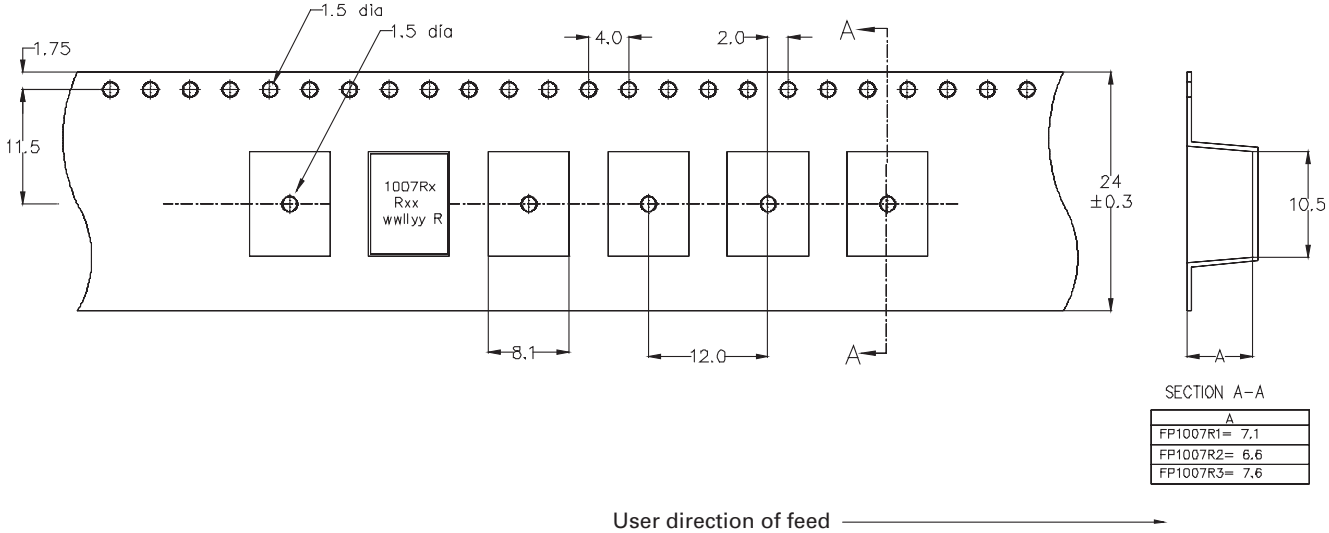
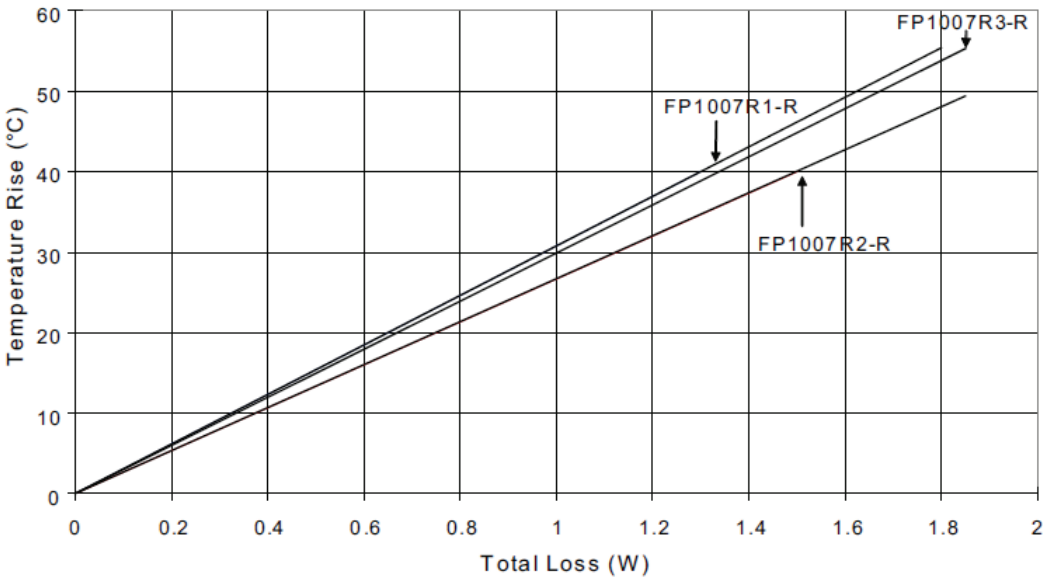
Packaging information (mm)

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



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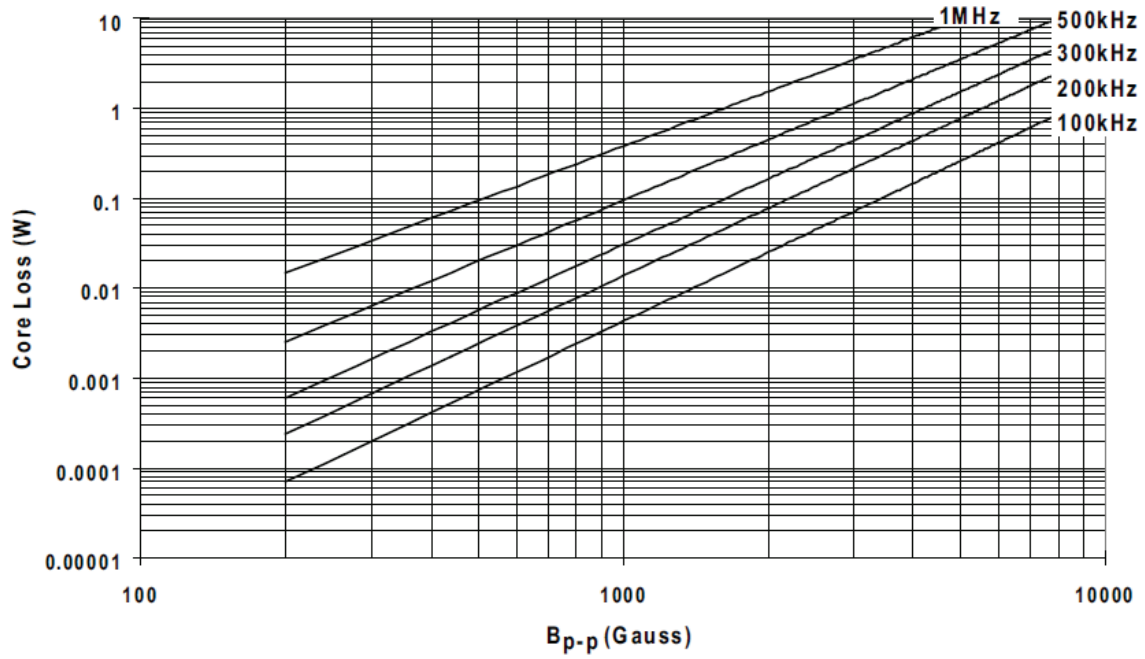
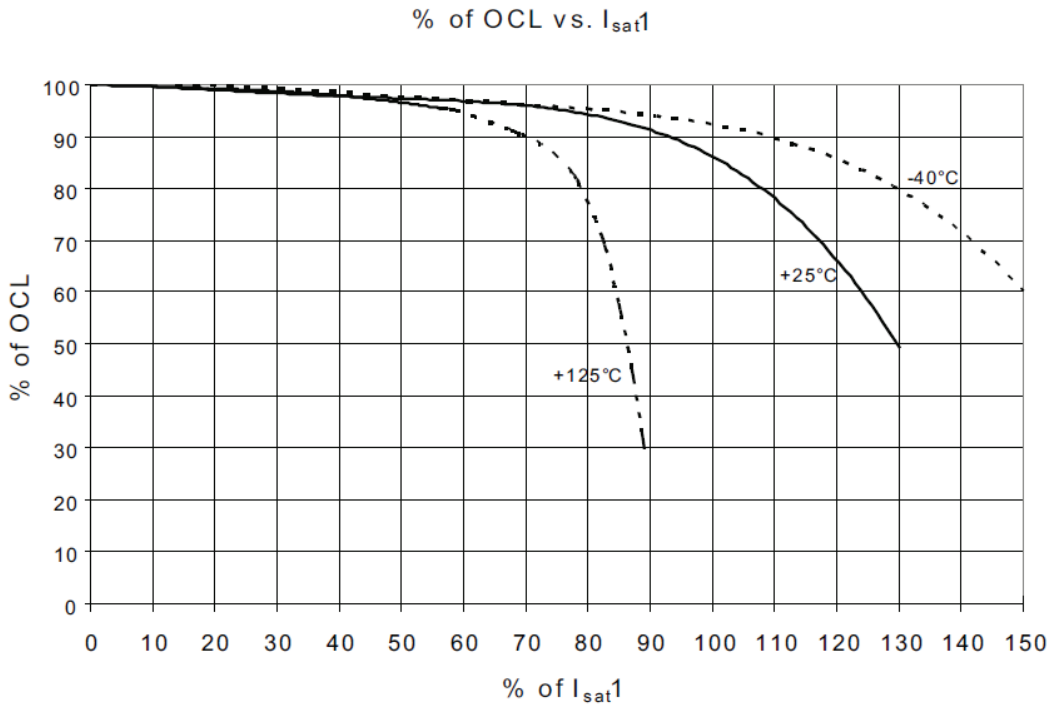
Core loss vs. B_{p-p}



Inductance characteristics



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Solder reflow profile

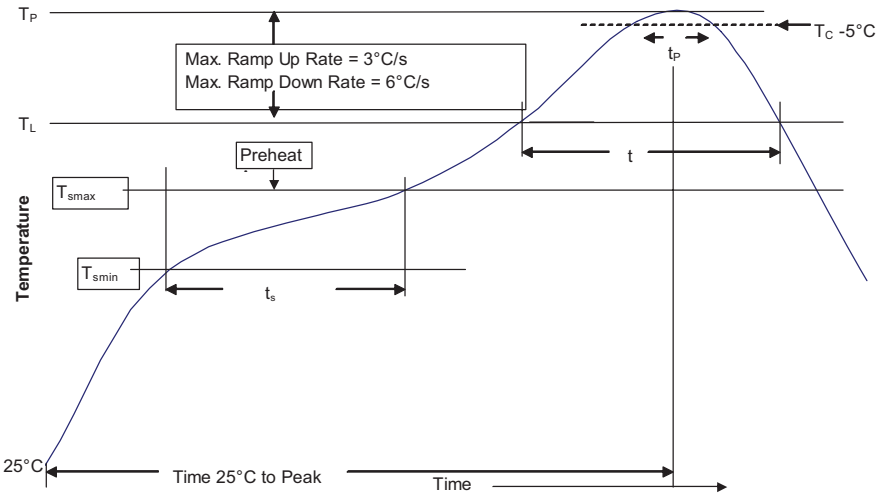

Table 1 - Standard SnPb Solder (T_C)

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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