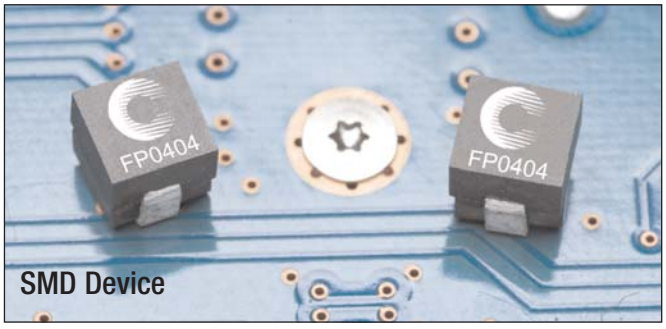
COILTRONICS

High Current, High Frequency Power Inductors

Flat-Pac™ FP0404 Series

HALOGEN HF FREE · Pb · RoHS 2002/95/EC



Description

- Halogen free
- 125°C maximum total temperature operation
- 4.0 x 4.0 x 4.0mm maximum surface mount package
- Ferrite core material
- High current carrying capacity, Low core losses
- Controlled DCR tolerance for sensing circuits
- Frequency range up to 2MHz
- RoHS compliant

Applications

- Multi-phase regulators
- Voltage Regulator Module (VRM)
- Desktop and server VRMs and EVRDs
- Data networking and storage systems
- Notebook regulators
- Graphics cards and battery power systems
- Point-of-load modules
- DCR sensing

Environmental Data

- Storage temperature range: -40°C to +125°C
- Operating temperature range: -40°C to +125°C (ambient plus self temperature rise)
- Solder reflow temperature: J-STD-020D compliant

Packaging

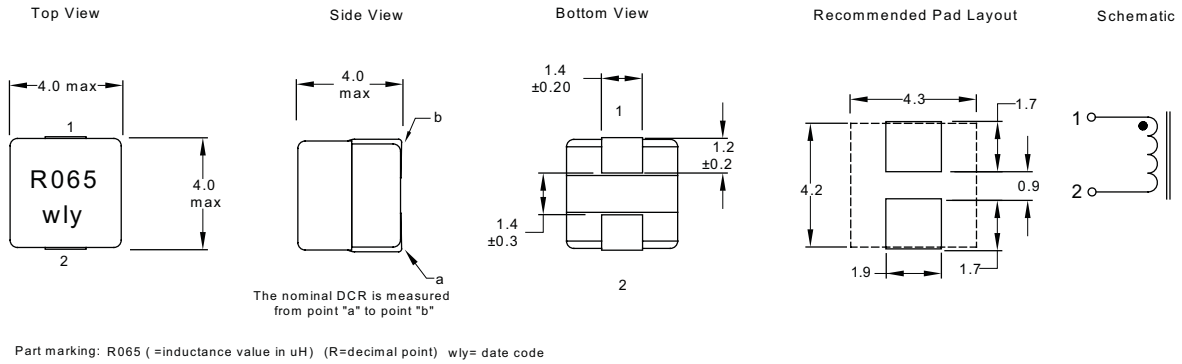
- Supplied in tape and reel packaging, 1800 parts per 13" reel

Product Specifications

Part Number[6]	OCL[1] ± 15% (nH)	FLL[2] Min (nH)	I_{rms}[3] (Amps)	$I_{sat}1$[4] @25°C (Amps)	$I_{sat}2$[5] @125°C (Amps)	DCR (mΩ) @20°C
R1 Version						
FP0404R1-R065-R	65	44	19	24	20	0.32 ± 15%

1. Open Circuit Inductance (OCL) Test Parameters: 100kHz, 0.10V_{rms}, 0.0Adc
2. Full Load Inductance (FLL) Test Parameters: 100kHz, 0.1V_{rms}, $I_{sat}1$
3. I_{rms}: 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. $I_{sat}1$: Peak current for approximately 20% rolloff at +25°C.
5. $I_{sat}2$: Peak current for approximately 20% rolloff at +125°C.
6. Part Number Definition: FP0404Rx-Rxx-R
   - FP0404 = Product code and size
   - Rx is the DCR indicator
   - Rxx= Inductance value in uH, R = decimal point
   - "-R" suffix = RoHS compliant

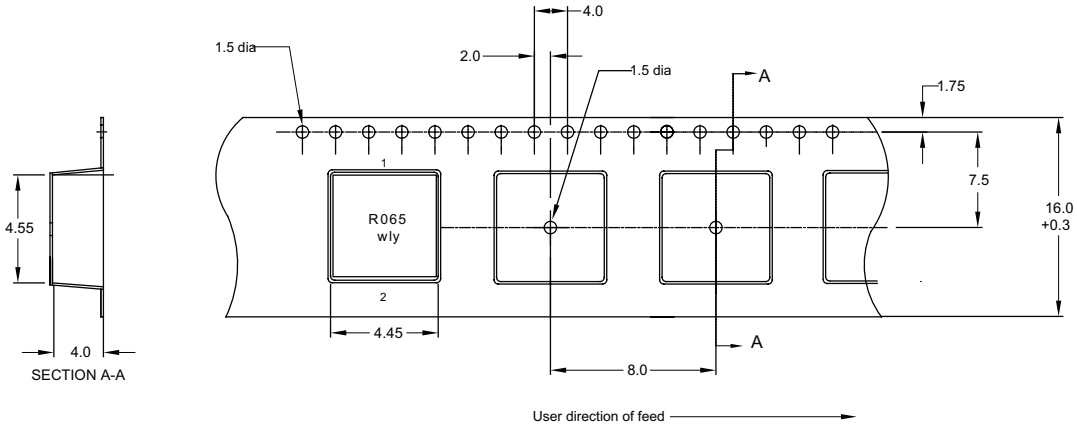
Dimensions - mm



Part marking: R065 (=inductance value in uH) (R=decimal point) wly= date code

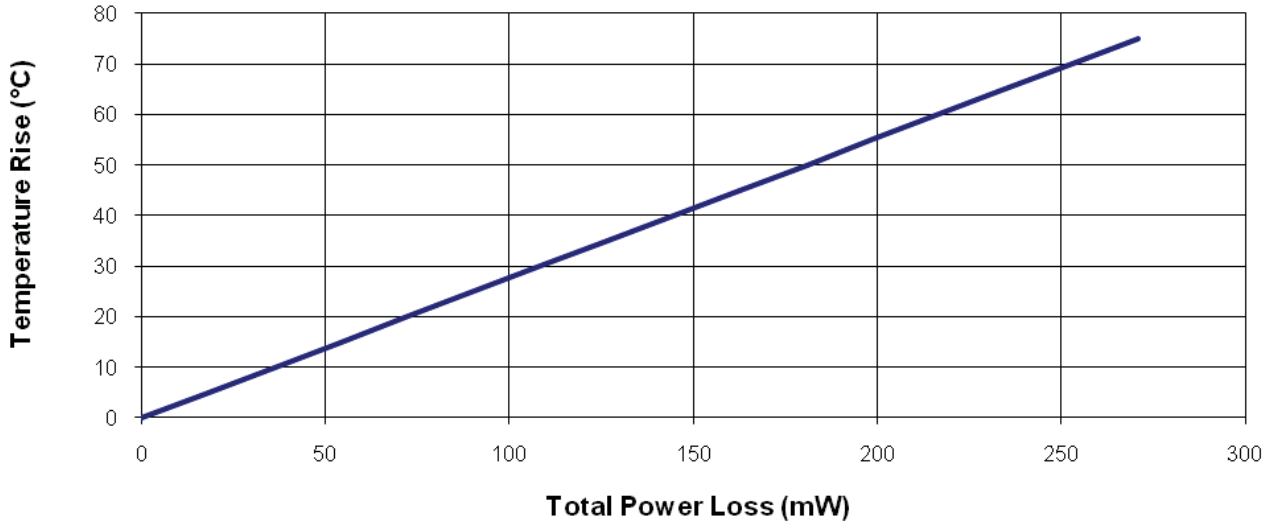
COOPER Bussmann

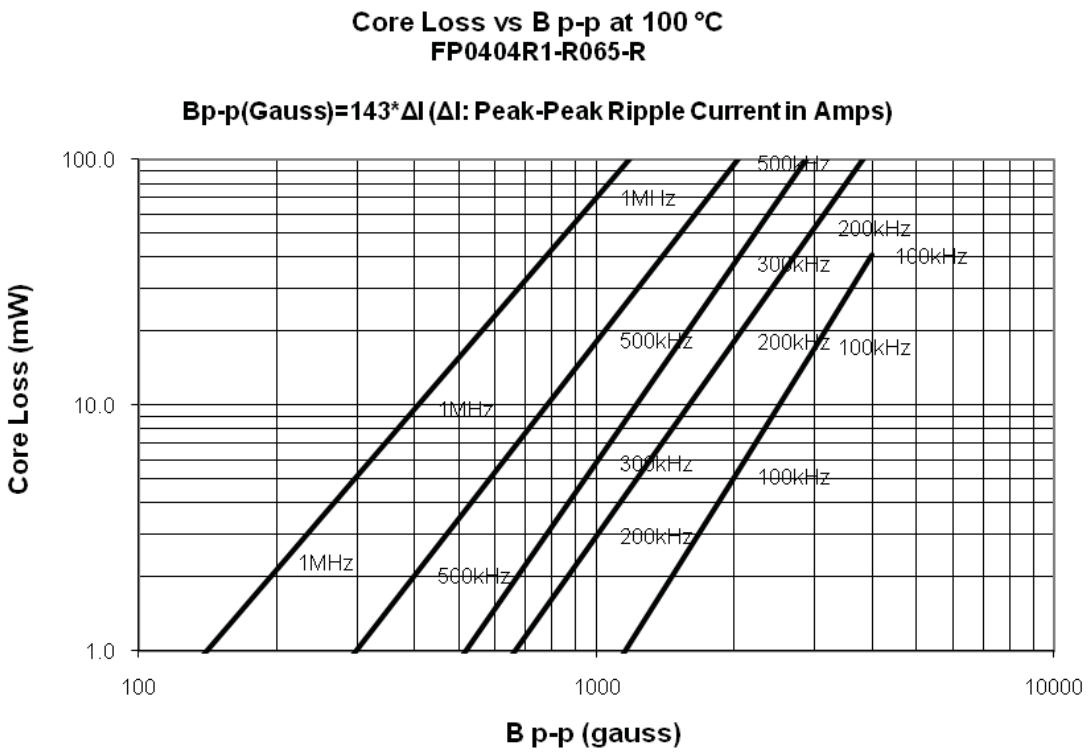
Packaging Information - mm



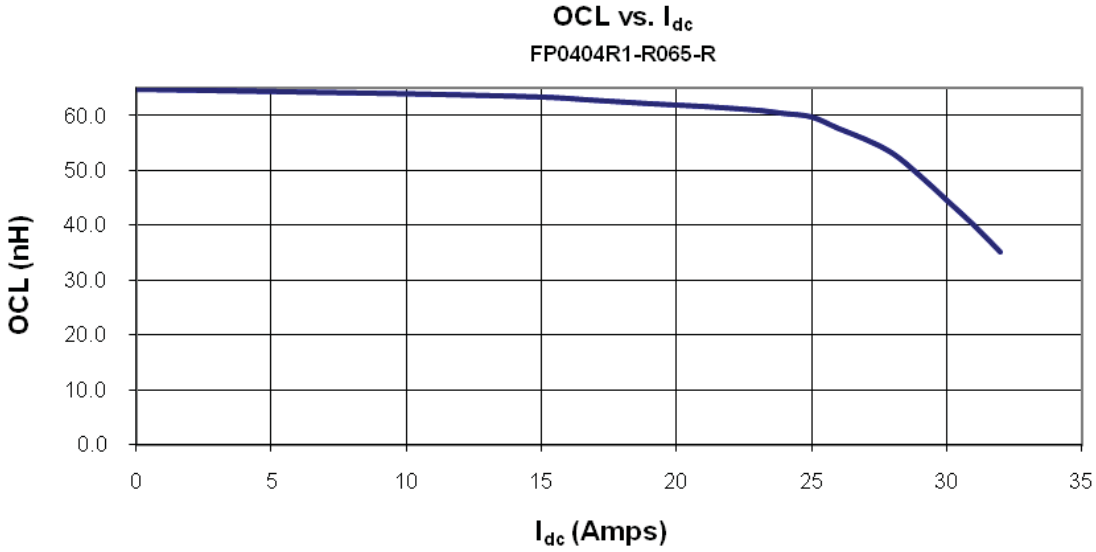
Supplied in tape and reel packaging, 1800 parts per 13” diameter reel.

Temperature Rise vs. Tota Loss





Inductance Characteristics



Solder Reflow Profile

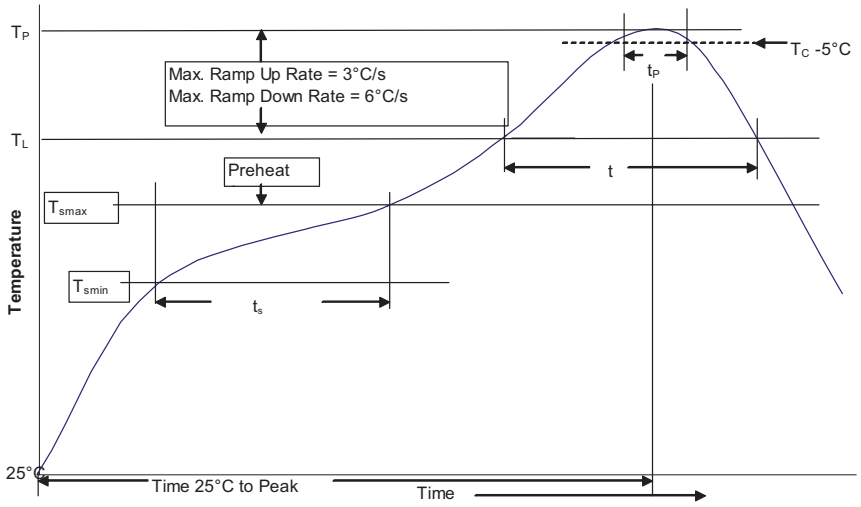


Table 1 - Standard SnPb Solder (T_C)

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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