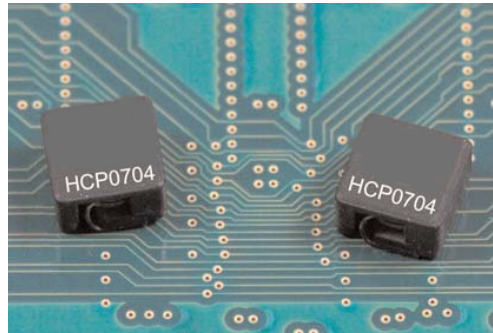


HCP0704

High current power inductors



Product features

- 6.8 x 6.8 x 4.2 mm surface mount package
- Iron powder core material
- Magnetically shielded, low EMI
- High temperature core material eliminates thermal aging issues
- High current carrying capacity, low core losses
- Tight DCR tolerance for sensing circuits
- Inductance range from 0.40 μ H to 4.7 μ H
- Current range from 5.0 A to 27 A
- Frequency range up to 2 MHz
- Halogen free, lead free, RoHS compliant

Applications

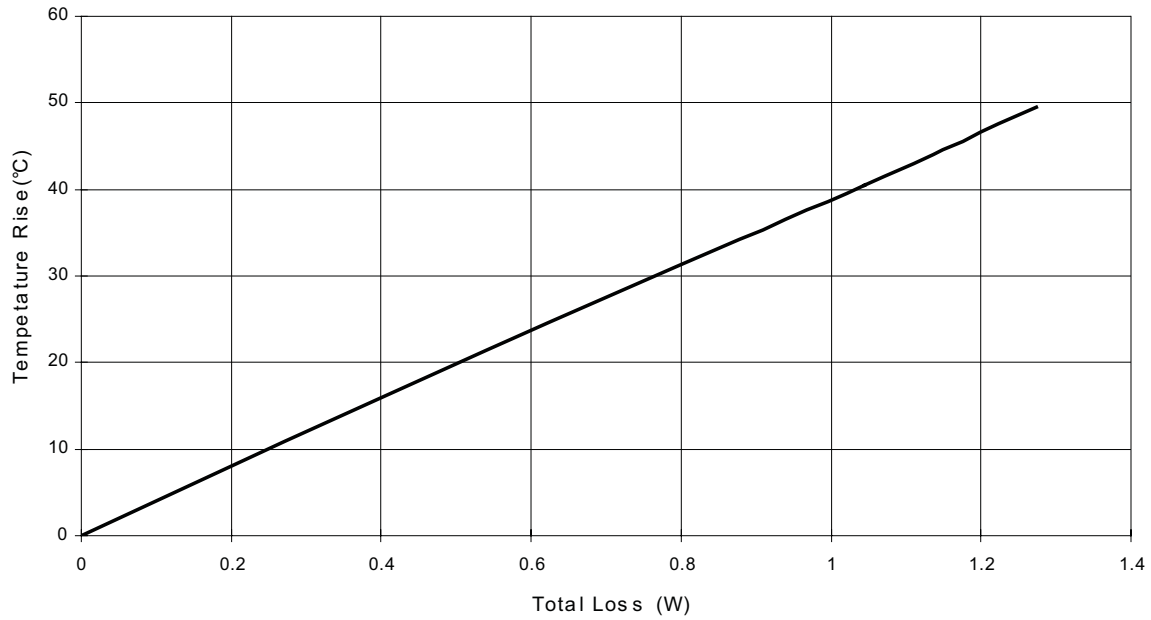
- Voltage Regulator Module (VRM)
- Multi-phase regulators
- Desktop and servers
- Base station equipment
- Notebook and laptop regulators
- Data networking and storage systems
- Point-of-load modules (POL)
- Battery power systems
- DCR sensing circuits

Environmental Data

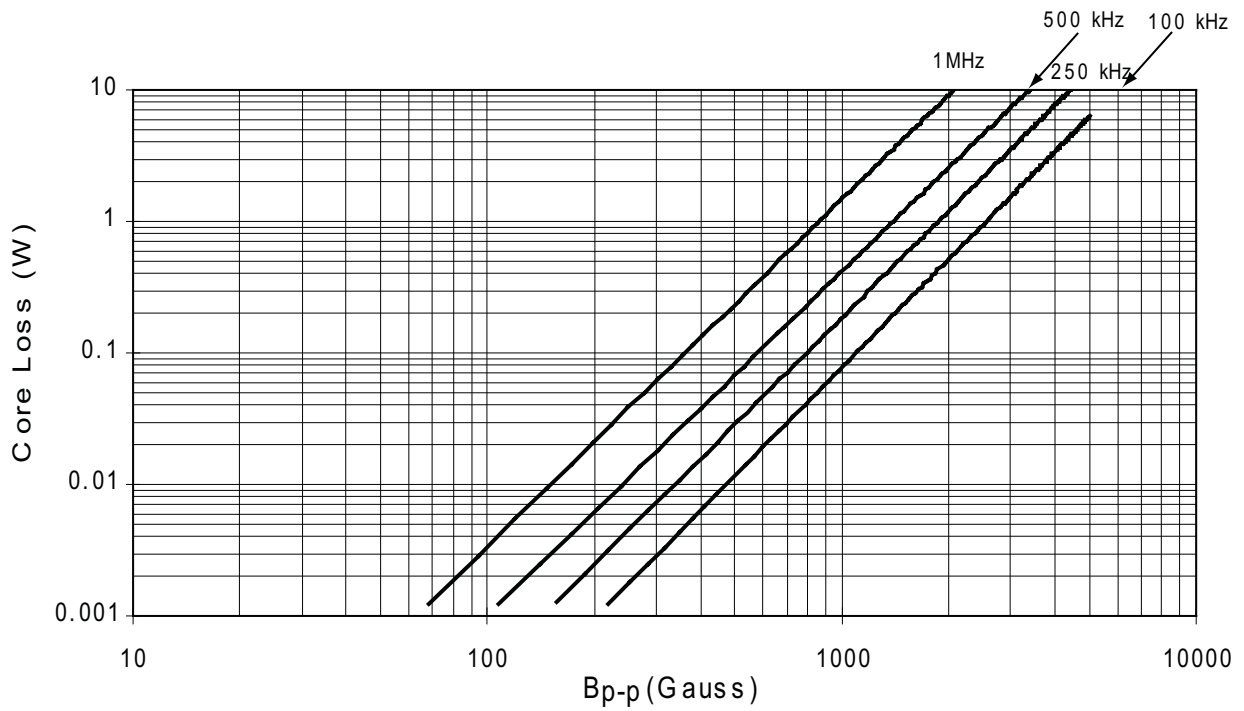
- Storage temperature range (Component): -40 °C to +155 °C
- Operating temperature range: -40 °C to +155 °C (ambient plus self-temperature rise)
- Solder reflow temperature: J-STD-020 (latest revision) compliant



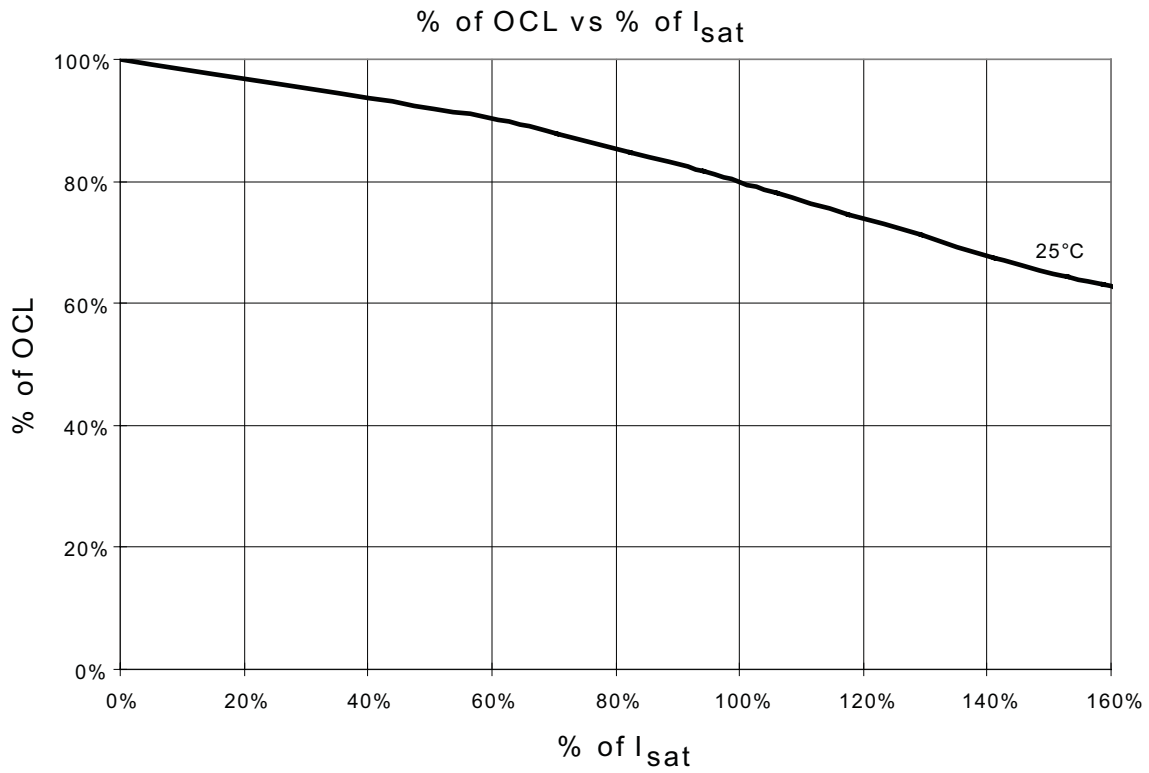
Temperature rise vs. total loss



Core loss vs. B_{p-p}



Inductance characteristics



Solder reflow profile

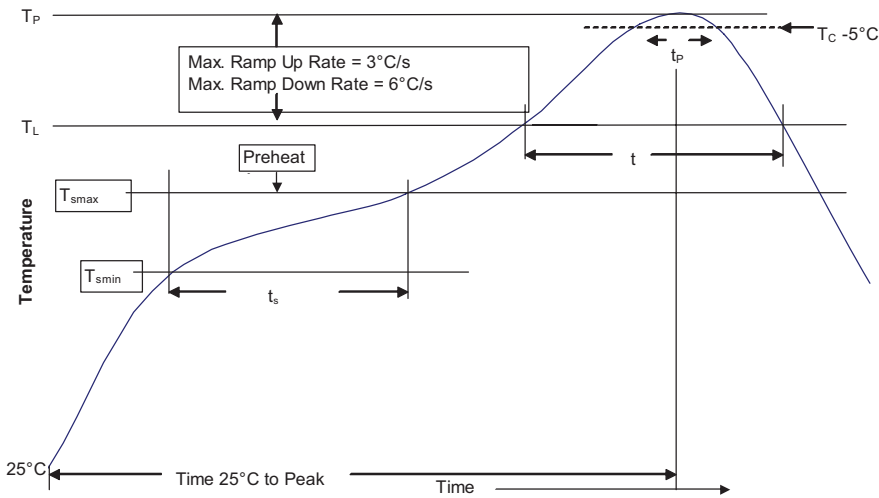


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5mm)	235°C	220°C
≥2.5mm	220°C	220°C

Table 2 - Lead (Pb) Free Solder (T_C)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350 - 2000	Volume 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 JEDEC J-STD-020

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)	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.

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