

UP2UC

UNI-PAC™ drum core power inductors



Product features

- 12.7 mm x 9.5 mm x 5.21 mm drum core
- Inductance range from 1.0 μ H to 1000 μ H
- Current range from 0.30 A to 9.0 A
- Ferrite core material

Applications

- Desktop computer
- Workstations/servers
- DVD Players
- Portable power devices
- Base stations
- Industrial power supplies
- Output filter chokes
- Test equipment instrumentation
- Buck or boost inductor

Environmental data

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



1 Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.25 V_{rms}, 0.0 Adc 2 I_{rms}: DC current for an approximate ΔT 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 the part temperature not exceed +125 °C under worst case operating conditions verified in the end application. 3 I_{sat}: Peak current for approximately 7.5% rolloff at +25 °C.	4 K-factor: Used to determine B_{p-p} for core loss (see graph). B_{p-p} = K * L * ΔI, B_{p-p}: (Gauss), K: (K-factor from table), L: (inductance in μH), ΔI (peak-to-peak ripple current in amps). 6 Part Number Definition: UP2CU-xxx-R • UP2CU = Product code and size • xxx= Inductance value in μH, R = decimal point. If no R is present, then third digit equals the number of zeros. • "-R" suffix = RoHS compliant
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Top View	Side View	Bottom View	Recommended Pad Layout	Schematic
UP2UC xxx = Inductance value in μH (R = Decimal point). If no "R" is present, then the third digit equals the number of zeros. wwllwv = Date code R = Revision level				

Packaging information-mm

3" diameter reel.

5.5

Section A-A

User direction of feed

4.0

2.0

16

1.5 dia.

1.75

11.5

24 ± 0.30

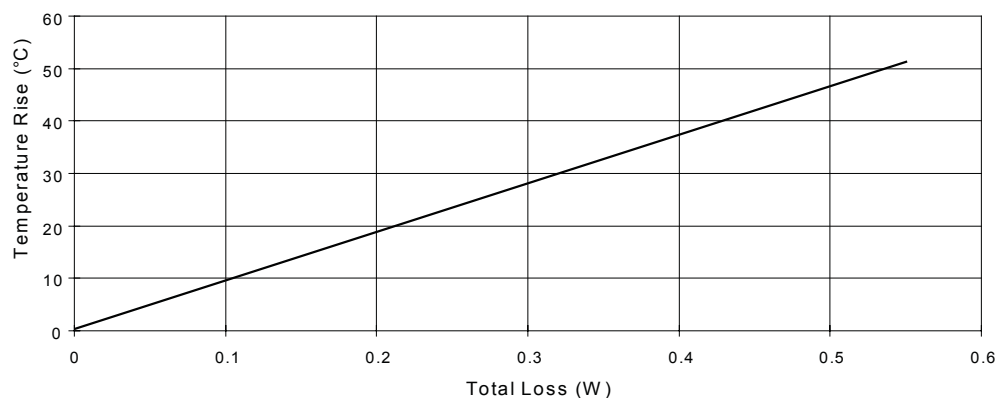
13.4

4.40

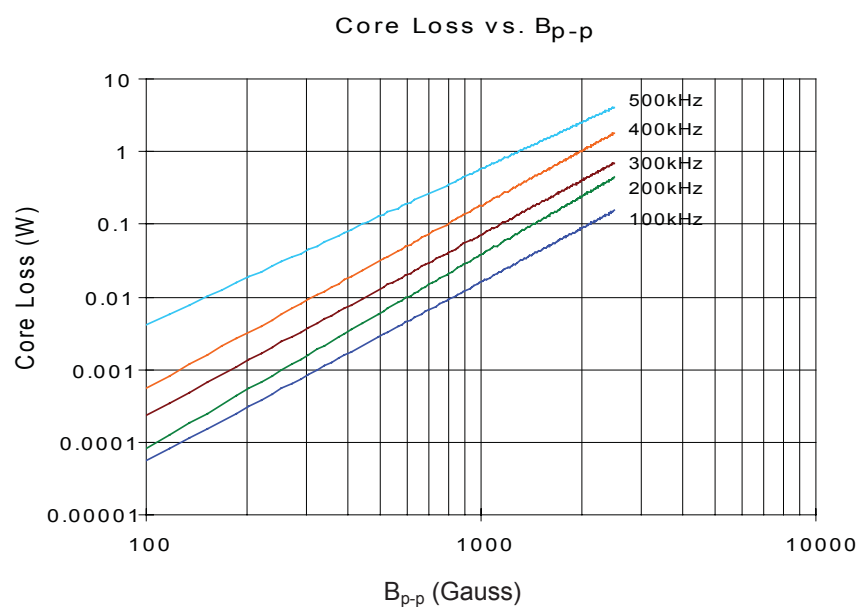
9.70

UPRUC-xxx model R

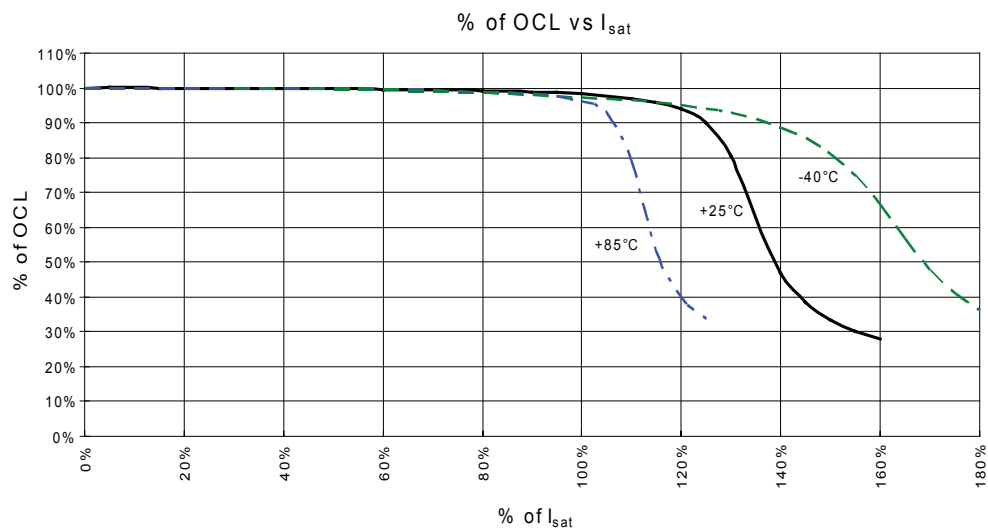
Temperature rise vs total loss



Core loss vs Bp-p



Inductance characteristics



Solder Reflow Profile

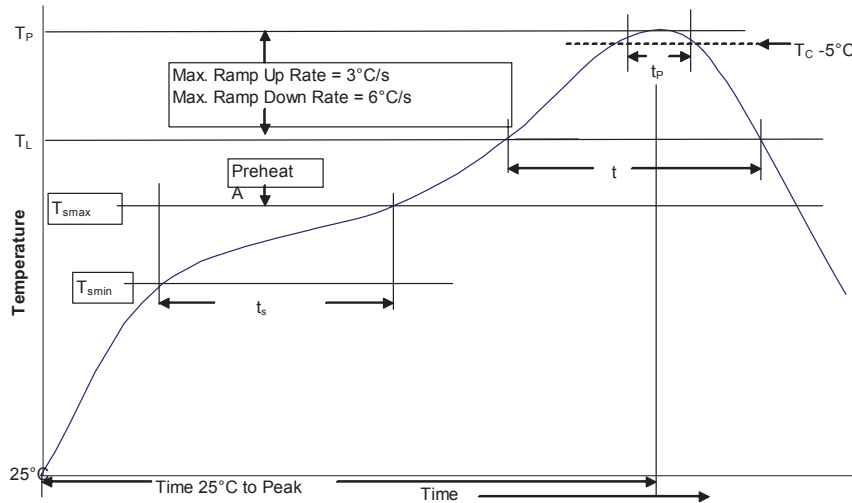


Table 1 - Standard SnPb Solder (T_p)

Package Thickness	Volume mm^3 <350	Volume mm^3 ≥ 350
<2.5mm	235°C	220°C
$\geq 2.5mm$	220°C	220°C

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

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 JDEC 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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