UP0.4C

Unshielded drum core power inductors

Product description

- Protective case over core and winding
- Frequency range 1 kHz to 2 MHz
- Inductance range from 1.2 µH to 100 µH
- Current range from 0.35 A to 3.33 A
- 6.6 mm x 4.45 mm footprint surface mount package in a 2.92 mm height
- Ferrite core material
- Lead free and RoHS compliant

Applications

- Handheld/portable devices
- Computers and peripherals
- Gaming machines/consoles
- DC-DC converters
- Power supplies
- General purpose filtering

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-020D compliant

Pb RoHS

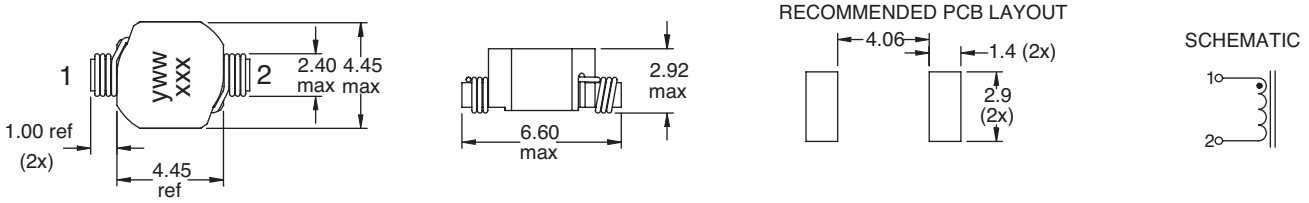
Powering Business Worldwide

Product Specifications

Part Number[4]	Ordering Code[5]	OCL[1] (µH) ± 20%	Irms[2] (A)	Isat[3] (A)	DCR (Ω) maximum @ 20 °C
UP0.4C-1R0-R	UP0-4C-1R0-R	1.16	2.88	3.33	0.030
UP0.4C-1R5-R	UP0-4C-1R5-R	1.49	2.58	2.94	0.034
UP0.4C-2R2-R	UP0-4C-2R2-R	2.27	2.15	2.38	0.050
UP0.4C-3R3-R	UP0-4C-3R3-R	3.22	1.89	2.00	0.060
UP0.4C-4R7-R	UP0-4C-4R7-R	4.95	1.55	1.61	0.088
UP0.4C-6R8-R	UP0-4C-6R8-R	7.06	1.30	1.35	0.128
UP0.4C-100-R	UP0-4C-100-R	9.53	1.16	1.16	0.156
UP0.4C-150-R	UP0-4C-150-R	14.5	0.95	0.94	0.250
UP0.4C-220-R	UP0-4C-220-R	21.8	0.76	0.77	0.360
UP0.4C-270-R	UP0-4C-270-R	27.5	0.69	0.68	0.480
UP0.4C-330-R	UP0-4C-330-R	32.2	0.64	0.63	0.560
UP0.4C-390-R	UP0-4C-390-R	39.0	0.59	0.57	0.650
UP0.4C-470-R	UP0-4C-470-R	46.5	0.53	0.53	0.820
UP0.4C-680-R	UP0-4C-680-R	68.2	0.45	0.43	1.10
UP0.4C-101-R	UP0-4C-101-R	102.5	0.37	0.35	1.58

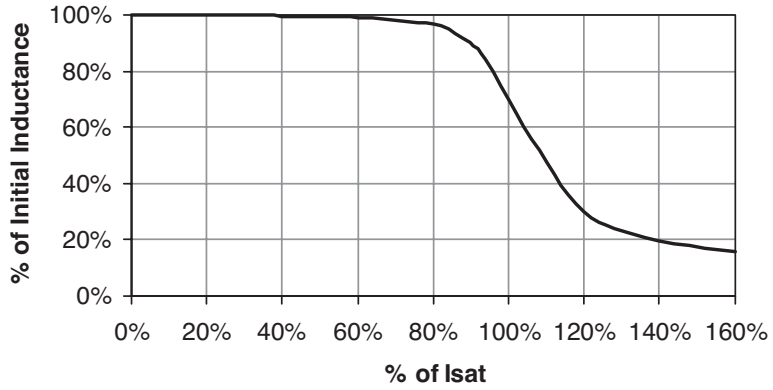
1. Open Circuit Inductance (OCL) Test Parameters: 100 kHz, 0.250 Vrms, 0.0 Adc
2. Irms: DC current for an approximate temperature rise of 40 °C without core loss. Derating is necessary for AC currents. PCB layout, trace thickness and width, air-flow, and proximity of other heat generating components 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.
3. Peak current for approximately 30% roll-off @ 20 °C
4. Part Number Definition: UP0.4C-xxx-R
   UP0.4C= Product code and size
   xxx= Inductance value in µH, R= decimal point, if no R is present then last character equals number of zeros
   -R suffix = RoHS compliant
5. Use ordering code when ordering parts.

Dimensions (mm)



Part marking: yww= date code, xxx=inductance value in uH, R=decimal point, if no R is present then last character equals number of zeros.
Supplied in tape and reel packaging 2,500 parts per reel
Do not route traces or vias underneath the inductor

Inductance characteristics



Solder reflow profile

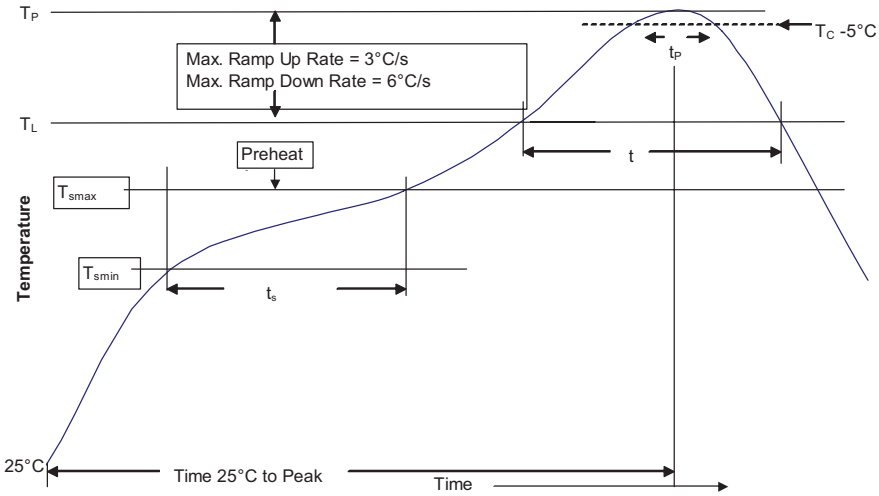


Table 1 - Standard SnPb Solder (T_C)

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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