



THE DATASHEET OF UP2C-220-R



UP2C

UNI-PAC™ drum core power inductors



Product features

- Miniature surface mount design with rugged case to eliminate core breakage
- Inductance range from 0.470 μ H to 1000 μ H
- Current range up to 18.6 A peak
- Meets UL94V-0 flammability standard
- Ferrite core material

Applications

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

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



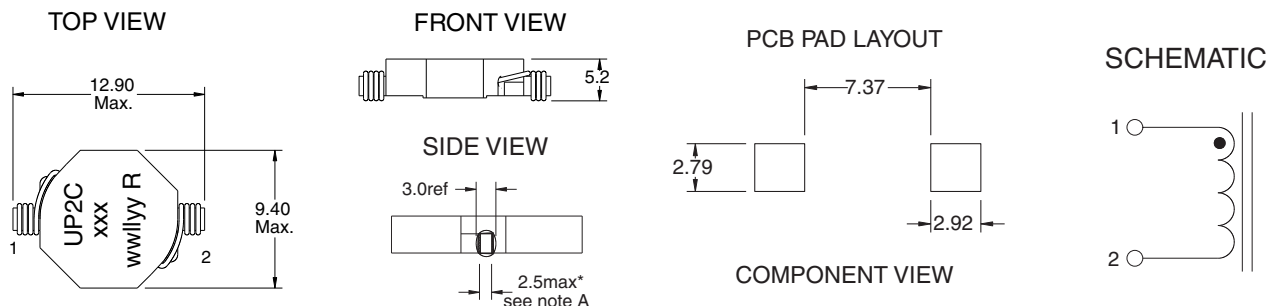
Product specifications

Part Number	Inductance μH (rated)	OCL ⁽¹⁾ $\mu\text{H}\pm 20\%$	I _{RMS} ⁽²⁾ (A)	I _{SAT} ⁽³⁾ (A)	DCR ⁽⁴⁾ m Ω typ.	Volts ⁽⁵⁾ μs (typ)
UP2C-R47-R	0.470	0.48	12.2	18.6	2.5	4.15
UP2C-1R0-R	1.0	1.03	9.80	11.8	3.9	7.0
UP2C-1R5-R	1.5	1.45	8.10	10.0	5.6	8.3
UP2C-2R2-R	2.2	2.00	7.50	8.67	6.6	9.6
UP2C-3R3-R	3.3	3.30	5.90	6.84	10.5	12.1
UP2C-4R7-R	4.7	4.41	5.62	6.20	11.7	13.4
UP2C-6R8-R	6.8	7.16	4.42	4.82	18.0	17.3
UP2C-100-R	10.0	10.56	3.61	3.94	28.3	21.1
UP2C-150-R	15.0	15.97	3.17	3.17	36.9	26.2
UP2C-220-R	22.0	22.33	2.61	2.65	54.0	31.3
UP2C-330-R	33.0	32.11	2.16	2.20	79.7	37.7
UP2C-470-R	47.0	47.90	1.77	1.83	118.5	45.4
UP2C-680-R	68.0	65.03	1.57	1.53	151.7	54.3
UP2C-101-R	100.0	97.85	1.26	1.24	233.1	67.1
UP2C-151-R	150.0	141.9	1.04	1.02	351.4	81.2
UP2C-221-R	220.0	207.8	0.82	0.85	545.0	97.8
UP2C-331-R	330.0	318.2	0.67	0.70	824.3	120
UP2C-471-R	470.0	470.8	0.56	0.58	1191.4	144
UP2C-681-R	680.0	689.7	0.46	0.48	1774.2	173
UP2C-102-R	1000.0	1080.0	0.38	0.40	2657.1	209

Notes: (1) Open Circuit Inductance Test Parameters: 100 kHz, .250 Vrms, 0.0 Adc.
 (2) RMS current for an approximate ΔT of 40 °C without core loss, at an ambient temperature of +85 °C.
 (3) Peak current for approximately 30% rolloff @ +20 °C.

(4) DCR limits +20 °C.
 (5) Applied volt-time product (V-us) across the inductor. This value represents the applied v-us at 300 kHz necessary to generate a core loss equal to 10% of the total losses for a 40 °C temperature rise.

Dimensions-mm

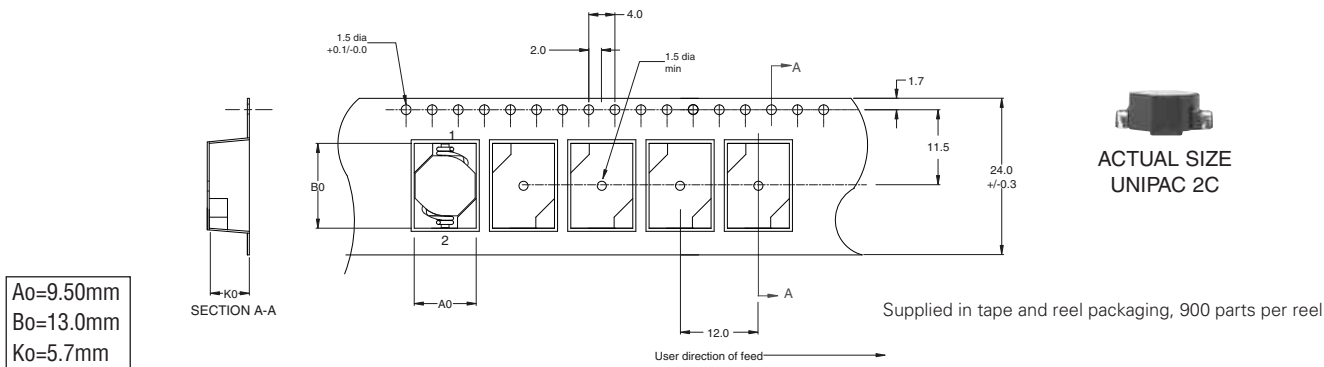


Dimensions in Millimeters.
 wwlyyy = (date code) R = revision level
 xxx = Inductance value per family chart

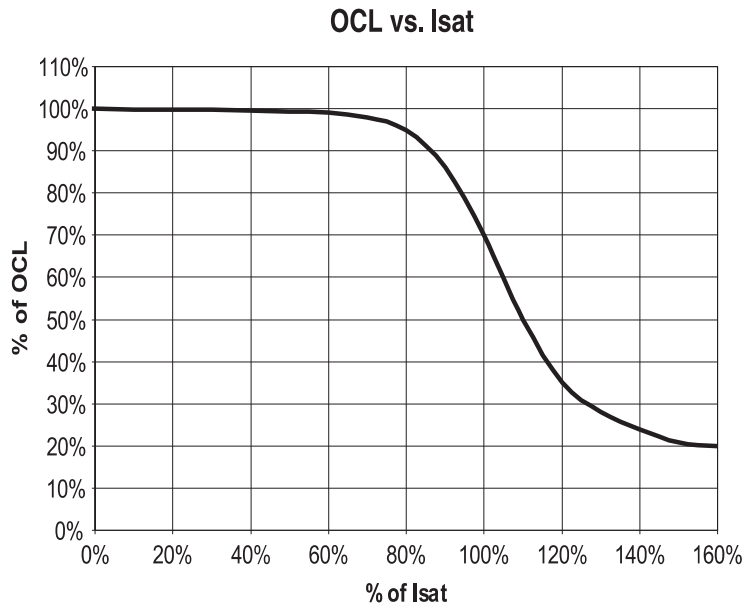
(A) 2.5mm max is width of copper at seating plane. The width above the seating plane may exceed 2.5mm.

Do not route traces or vias underneath the inductor

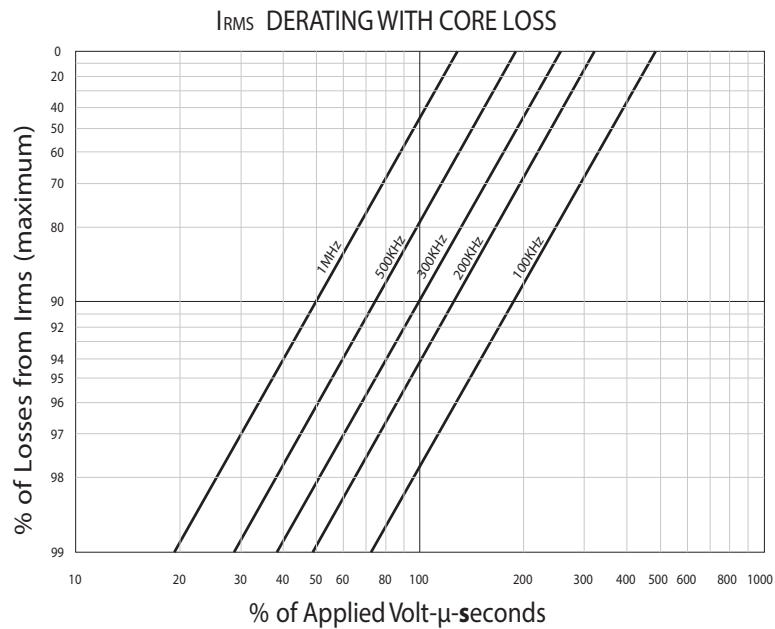
Packaging information-mm



Inductance characteristics



Core loss



Solder Reflow Profile

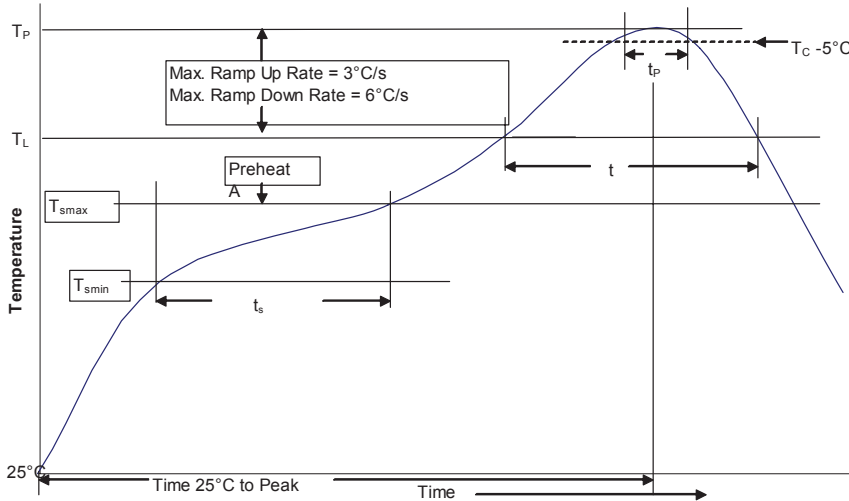


Table 1 - Standard SnPb Solder (T_C)

Package Thickness	Volume mm^3 <350	Volume mm^3 ≥ 350
<2.5mm	235°C	220°C
$\geq 2.5\text{mm}$	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 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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Eaton
Electronics Division
 1000 Eaton Boulevard
 Cleveland, OH 44122
 United States
www.eaton.com/electronics

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