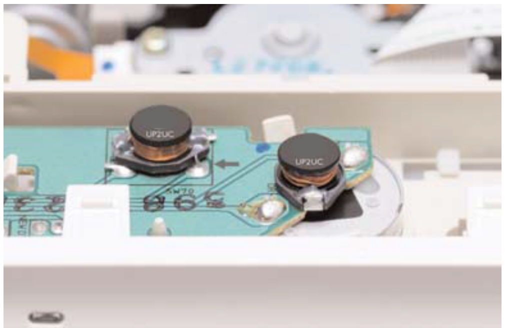
Technical Data **4369**

Effective August 2017
Supersedes June 2009

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 µH to 1000 µH
- 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

Pb HALOGEN HF FREE RoHS

EATON
Powering Business Worldwide

Product specifications

Part Number[5]	OCL[1] µH ± 20%	I_{rms}[2] (A)	I_{sat}[3] (A) @ +25 °C	SRF MHz Typical	DCR mΩ@ +20 °C Typical	DCR mΩ@ +20 °C Maximum	K-factor[4]
UP2UC-1R0-R	1.0	6.8	9.0	100	4.0	9.0	216
UP2UC-1R5-R	1.5	6.4	8.0	90.0	4.4	10.0	177
UP2UC-2R2-R	2.2	6.1	7.0	80.0	5.8	12.0	130
UP2UC-3R3-R	3.3	5.4	6.4	65.0	9.9	15.0	114
UP2UC-4R7-R	4.7	4.8	5.4	45.0	12.0	18.0	92.52
UP2UC-6R8-R	6.8	4.4	4.6	38.0	25.8	27.0	77.72
UP2UC-100-R	10.0	3.9	3.8	30.0	25.9	38.0	62.68
UP2UC-150-R	15.0	3.1	3.0	27.0	35.4	46.0	49.82
UP2UC-220-R	22.0	2.7	2.6	19.0	55.9	85.0	41.34
UP2UC-330-R	33.0	2.1	2.0	15.0	81.6	100	34.09
UP2UC-470-R	47.0	1.8	1.6	12.0	120	140	29.00
UP2UC-680-R	68.0	1.5	1.4	10.0	145	200	24.59
UP2UC-101-R	100	1.3	1.2	9.0	211	280	20.89
UP2UC-151-R	150	1.0	1.0	6.0	347	400	15.80
UP2UC-221-R	220	0.80	0.80	5.0	491	610	13.04
UP2UC-331-R	330	0.60	0.60	4.5	750	1020	10.85
UP2UC-471-R	470	0.50	0.50	3.5	1188	1270	9.39
UP2UC-681-R	680	0.40	0.40	2.5	1811	2020	7.56
UP2UC-102-R	1000	0.30	0.30	2.0	2757	3000	6.13

[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.

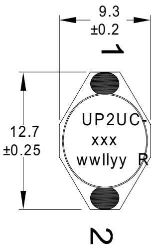
[3] I_{sat}: Peak current for approximately 7.5% rolloff at +25 °C.

[4] K-factor: Used to determine B_{p-p} for core loss (see graph). $B_{p-p} = K * L * \Delta I$, B_{p-p}: (Gauss), K: (K-factor from table), L: (inductance in µH), ΔI (peak-to-peak ripple current in amps).

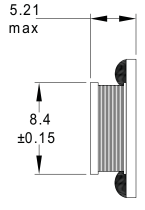
[6] Part Number Definition: UP2CU-xxx-R
- UP2CU = Product code and size
- xxx= Inductance value in µH, R = decimal point. If no R is present, then third digit equals the number of zeros.
- "-R" suffix = RoHS compliant

Dimensions-mm

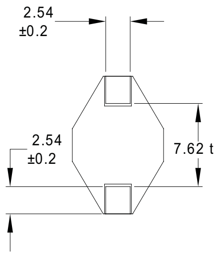
Top View



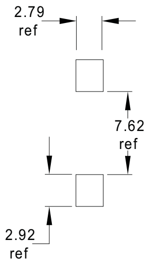
Side View



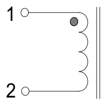
Bottom View



Recommended Pad Layout



Schematic

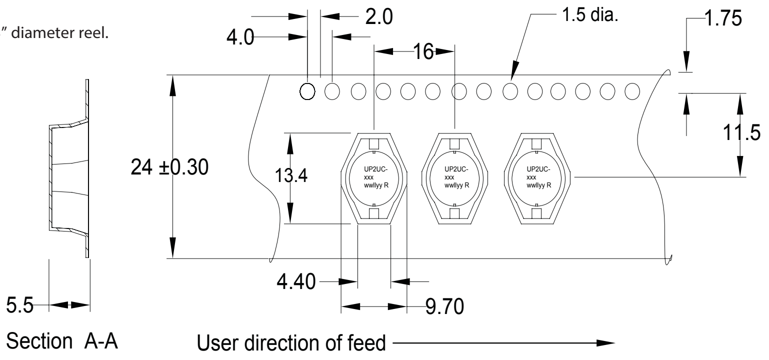


Part Marking: UP2UC xxx = Inductance value in µH (R = Decimal point). If no "R" is present, then the third digit equals the number of zeros. wwllyy = Date code R = Revision level

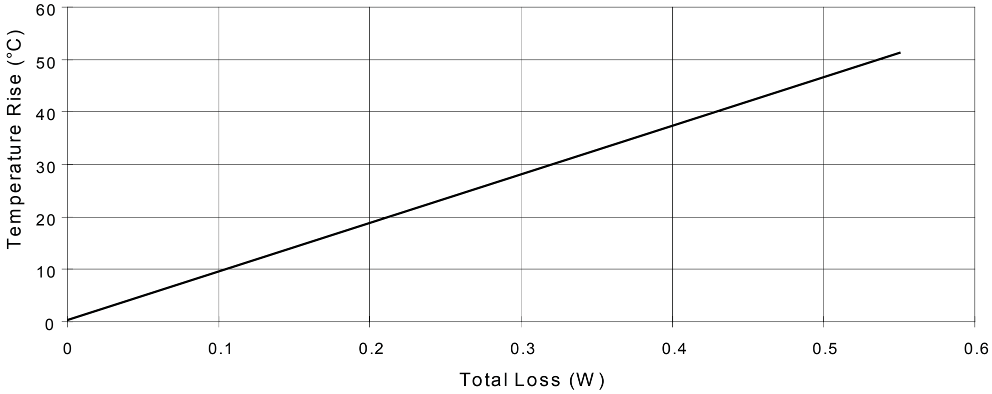
Tolerances are ±0.254 mm unless otherwise specified.
Do not route traces or vias underneath the inductor

Packaging information-mm

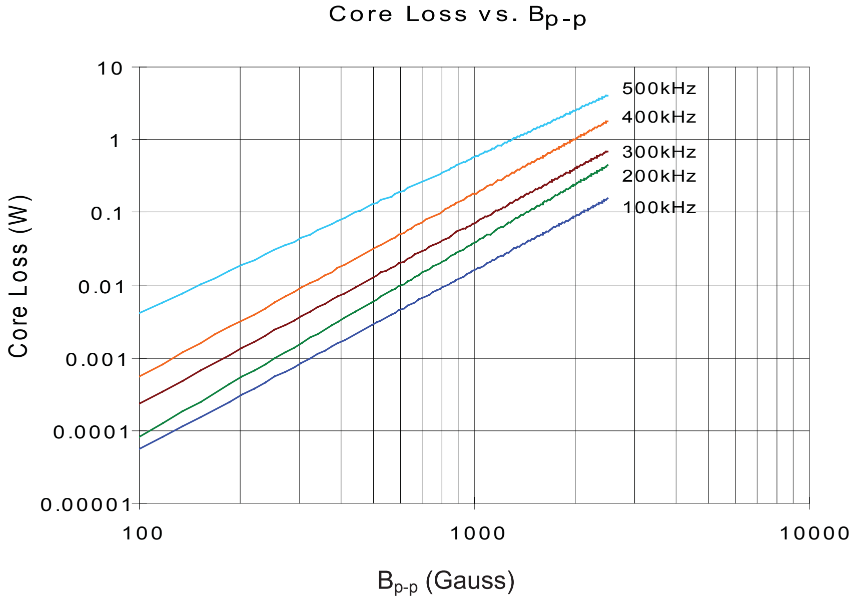
Supplied in tape-and-reel packaging, 600 parts per reel, 13" diameter reel.



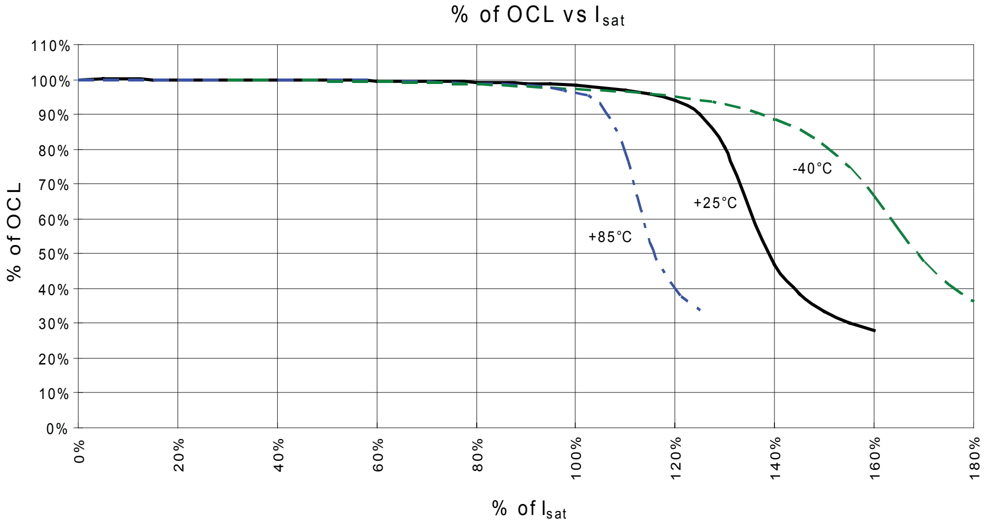
Temperature rise vs total loss



Core loss vs Bp-p



Inductance characteristics



Solder Reflow Profile

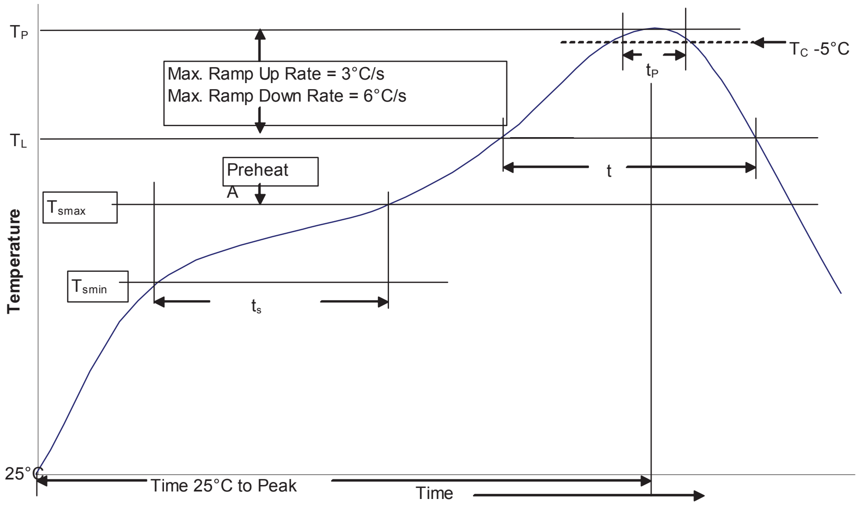


Table 1 - Standard SnPb Solder (T_C)

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-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 (TL) 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.

Eaton
Electronics Division
1000 Eaton Boulevard
Cleveland, OH 44122
United States
www.eaton.com/electronics

Printed in USA
Publication No. 4369 BU09493
August 2017

Powering Business Worldwide