

UP2.8B

UNI-PAC™ low profile drum core power inductors



Applications

- DC-DC converters
- Filter inductors
- Signal conditioning
- Energy storage applications
- Computer and battery powered equipment
- Handheld/portable devices
- Gaming machines/consoles

Product features

- Miniature size and rugged construction
- Low DCR and high efficiency
- Designed for high shock environments
- Frequency range 1 kHz to 2 MHz
- Ferrite core material

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

RoHS



Powering Business Worldwide

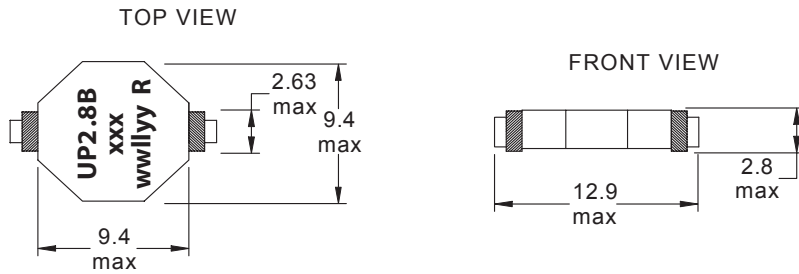
Product specifications

| Part Number | Ordering Code | OCL (1) $\mu\text{H} \pm 20\%$ | I _{rms} (2) (A) | I _{sat} (3) (A) | DCR (4) Ohms (Max.) |
|--------------|---------------|-----------------------------------|-----------------------------|-----------------------------|---------------------------|
| UP2.8B-1R0-R | UP2-8B-1R0-R | 0.98 | 3.6 | 8.0 | .0286 |
| UP2.8B-1R5-R | UP2-8B-1R5-R | 1.59 | 3.3 | 6.4 | .0349 |
| UP2.8B-2R2-R | UP2-8B-2R2-R | 2.44 | 3.1 | 5.2 | .0356 |
| UP2.8B-3R3-R | UP2-8B-3R3-R | 3.24 | 2.8 | 4.5 | .0474 |
| UP2.8B-4R7-R | UP2-8B-4R7-R | 4.15 | 2.7 | 3.9 | .0478 |
| UP2.8B-6R8-R | UP2-8B-6R8-R | 6.73 | 2.4 | 3.2 | .067 |
| UP2.8B-100-R | UP2-8B-100-R | 10 | 2.1 | 2.7 | .080 |
| UP2.8B-150-R | UP2-8B-150-R | 15 | 1.7 | 2.2 | .120 |
| UP2.8B-220-R | UP2-8B-220-R | 22 | 1.5 | 1.7 | .190 |
| UP2.8B-330-R | UP2-8B-330-R | 33 | 1.3 | 1.5 | .250 |
| UP2.8B-470-R | UP2-8B-470-R | 47 | 1.0 | 1.2 | .340 |
| UP2.8B-680-R | UP2-8B-680-R | 68 | .89 | 1.0 | .480 |
| UP2.8B-101-R | UP2-8B-101-R | 100 | .78 | .84 | .622 |
| UP2.8B-151-R | UP2-8B-151-R | 150 | .62 | .74 | .971 |

1) Open Circuit Inductance Test Parameters: 100 kHz, 0.250 Vrms, 0.0 Adc
2) RMS current, delta temp. of 40 °C ambient temperature of +85 °C

3) Peak current for approximately 10% roll-off @ +20 °C
4) Values @ +20 °C

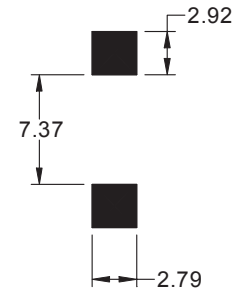
Dimensions-mm



wwlyy = date code R = (revision level)
xxx = Inductance value per family chart

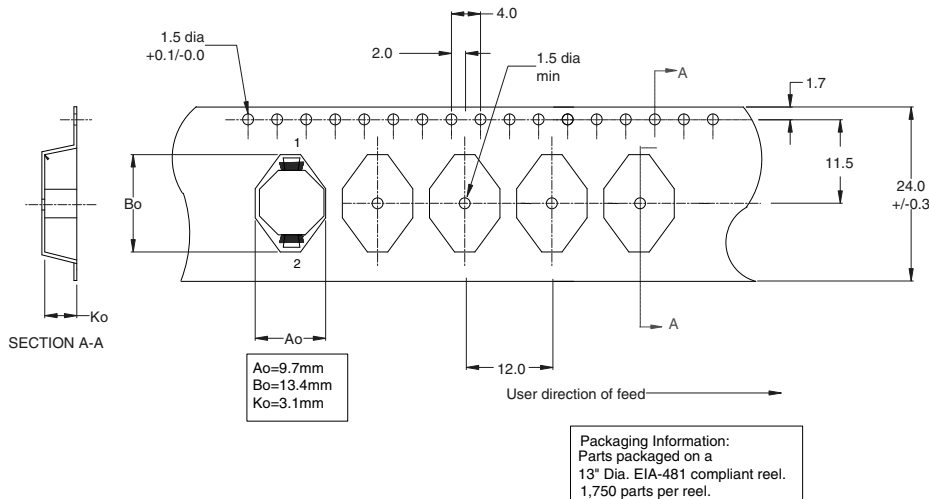
Do not route traces or vias underneath the inductor

Recommended PCB Layout

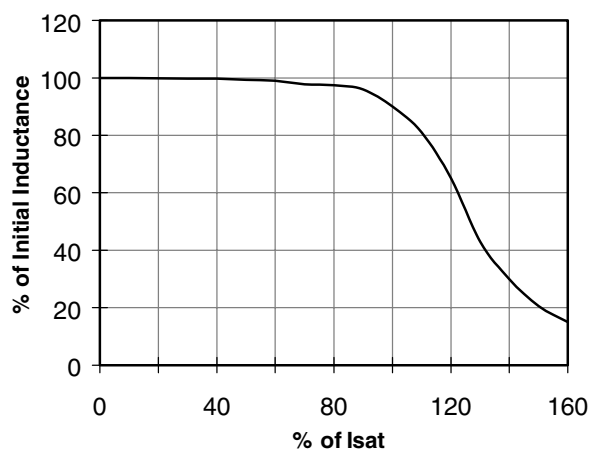


Component View

Packaging information-mm



Inductance characteristics



Solder Reflow Profile

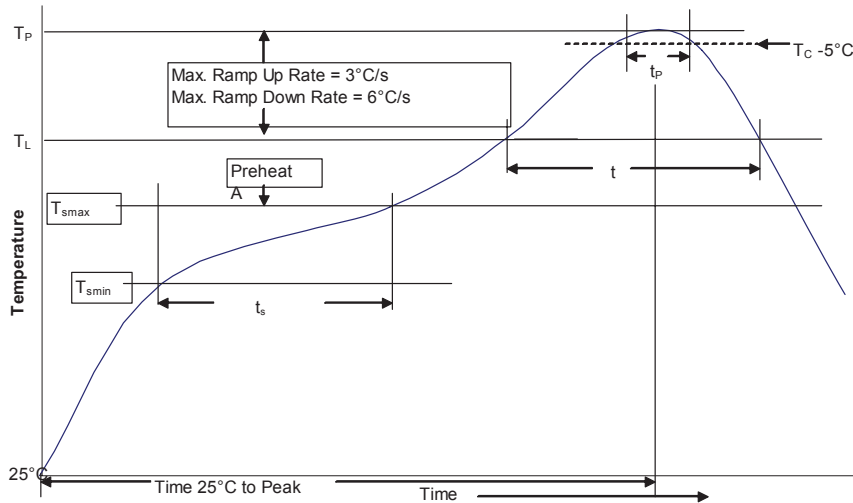


Table 1 - Standard SnPb Solder (T_p)

| 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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