

MP2

MICRO-PAC™ Low profile toroid power inductors



Applications

- PC cards,
- mobile phones
- Disk drives
- GPS systems

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: IEC-STD-020 (latest revision) compliant

Product features

- High performance, ferrite-based, low profile, surface mount inductors
- Small footprint and closed magnetic field construction allow for low EMI
- Low DCR and high efficiency
- Ferrite core material

RoHS

Discontinued, Effective July 25, 2016 or until inventory is depleted. Please review MP2A data sheet (4112) and SD18 data sheet (PM-4311) as alternate replacements.

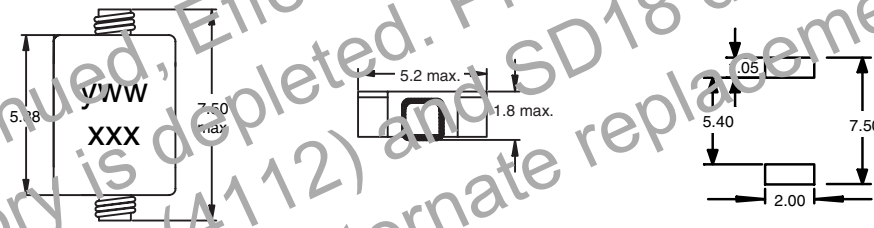
Product specifications

| Part Number | Inductance μH | OCL (1) $\mu\text{H} \pm 20\%$ | I _{rms} (2) Amperes (Typ.) | I _{sat} (3) Amperes (Typ.) | DCR (4) Ohms (Max.) | Q (5) (Typ.) | SRF MHz (Typ.) |
|-------------|--------------------------|--------------------------------|-------------------------------------|-------------------------------------|---------------------|--------------|----------------|
| MP2-R47-R | 0.47 | 0.40 | 2.02 | 3.40 | 0.075 | 10 | 300 |
| MP2-1R0-R | 1.0 | 1.02 | 1.67 | 2.10 | 0.103 | 20 | 160 |
| MP2-1R5-R | 1.5 | 1.59 | 1.51 | 1.70 | 0.118 | 25 | 155 |
| MP2-2R2-R | 2.2 | 2.29 | 1.39 | 1.40 | 0.130 | 32 | 150 |
| MP2-3R3-R | 3.3 | 3.58 | 1.25 | 1.10 | 0.156 | 42 | 140 |
| MP2-4R7-R | 4.7 | 4.60 | 1.18 | 1.00 | 0.180 | 46 | 130 |
| MP2-6R8-R | 6.8 | 7.02 | 1.06 | 0.80 | 0.202 | 46 | 110 |
| MP2-100-R | 10.0 | 9.95 | 0.98 | 0.68 | 0.240 | 55 | 100 |
| MP2-150-R | 15.0 | 15.30 | 0.88 | 0.54 | 0.300 | 65 | 60 |
| MP2-220-R | 22.0 | 21.80 | 0.80 | 0.45 | 0.360 | 65 | 45 |
| MP2-330-R | 33.0 | 33.70 | 0.64 | 0.37 | 0.556 | 65 | 35 |
| MP2-470-R | 47.0 | 46.40 | 0.52 | 0.31 | 0.833 | 65 | 28 |

1) Open Circuit Inductance Test Parameters: 100kHz, 0.250 Vrms, 0.0 Adc
 2) RMS current, delta temp. of 40° C ambient temperature of 85° C
 3) Peak current for approximately 30% roll-off

4) Values @ 20° C
 5) Measured @ 300KHz

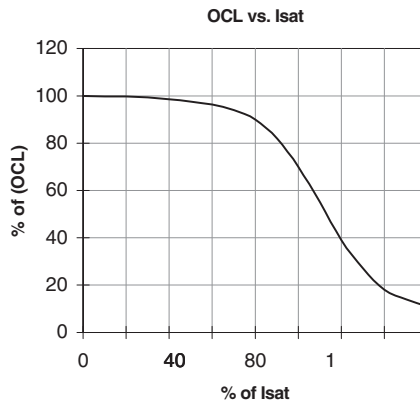
Dimensions- mm



yww = Date Code
 xx = Inductance value per nominal value

Do not route traces or vias underneath the inductor.

Inductance characteristics



Solder Reflow Profile

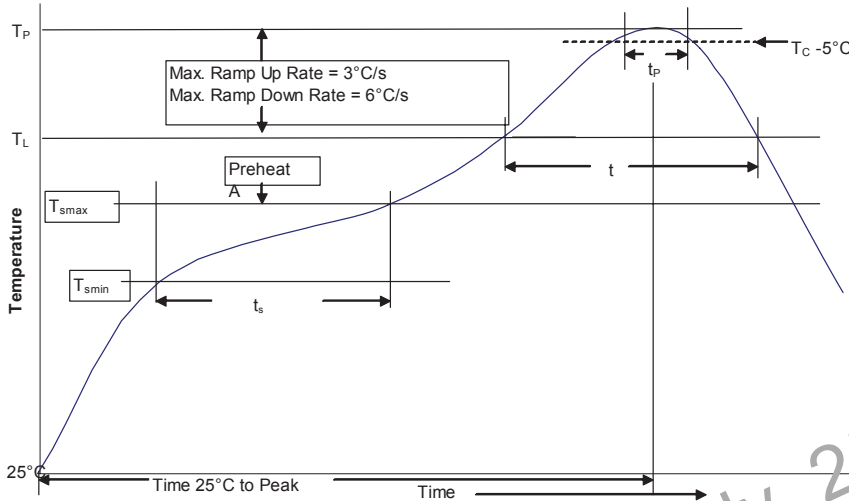


Table 1 - Standard SnPb Solder (T_C)

| Package Thickness | Volume <350 mm ³ | Volume ≥350 mm ³ |
|-------------------|-----------------------------|-----------------------------|
| <2.5mm | 235°C | 220°C |
| ≥2.5mm | 220°C | 220°C |

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

| Package Thickness | Volume <350 mm ³ | Volume 350 - 2000 mm ³ | Volume >2000 mm ³ |
|-------------------|-----------------------------|-----------------------------------|------------------------------|
| <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 _{smin} to T _{smax}) | 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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