

# 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

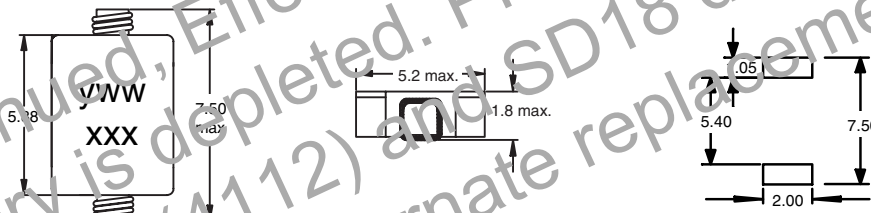
## Product specifications

Part Number	Inductance $\mu\text{H}$	OCL (1) $\mu\text{H} \pm 20\%$	I <sub>rms</sub> (2) Amperes (Typ.)	I <sub>sat</sub> (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

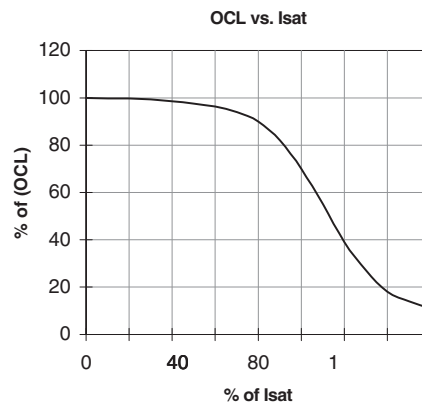


yww = Date Code

xx = Inductance value per family chart

Do not route traces or vias underneath the inductor

## Inductance characteristics



## Solder Reflow Profile

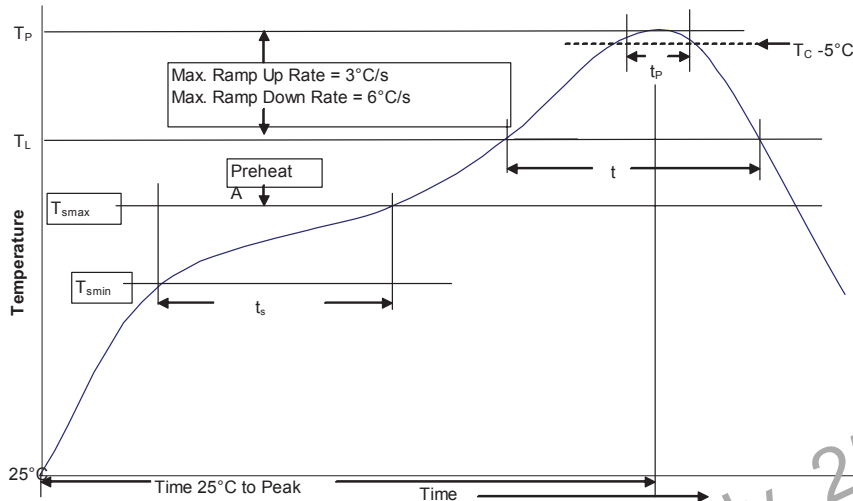


Table 1 - Standard SnPb Solder ( $T_C$ )

Package Thickness	Volume $mm^3$ <350	Volume $mm^3$ $\geq 350$
<2.5mm	235°C	220°C
$\geq 2.5mm$	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 ( $T_{smin}$ 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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