

MP2A

MICRO-PAC PLUS™ Low profile toroid power inductors



Product features

- High performance, low profile, surface mount power inductors
- Small footprint and closed magnetic field construction ensure low EMI
- Low DCR and high efficiency
- Frequency range up to 500 kHz
- Molybdenum permalloy (MPP) core material

Applications

- Mobile phones
- Tablets and e-readers
- GPS systems
- Battery power devices
- Notebook and laptop power
- Hand held devices
- Media players

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



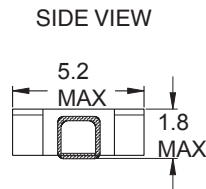
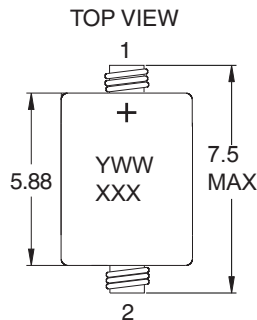
Product specifications

Part Number	Inductance μH (rated)	OCL ⁽¹⁾ $\mu\text{H} \pm 20\%$	DCR ⁽²⁾ typ. Ω	I _{RMS} ⁽³⁾ (A)	I _{SAT} ⁽⁴⁾ (A)	Volt ⁽⁵⁾ μsec
MP2A-R47-R	0.47	0.47	0.024	3.52	5.80	1.20
MP2A-R68-R	0.68	0.68	0.027	3.31	4.83	1.27
MP2A-1R0-R	1.00	1.21	0.067	2.11	3.63	2.00
MP2A-1R5-R	1.50	1.54	0.073	2.02	3.22	2.09
MP2A-2R2-R	2.20	2.30	0.086	1.87	2.64	2.26
MP2A-3R3-R	3.30	3.21	0.098	1.75	2.23	2.42
MP2A-4R7-R	4.70	4.86	0.117	1.60	1.81	2.64
MP2A-6R8-R	6.80	6.85	0.136	1.49	1.53	2.84
MP2A-8R2-R	8.20	8.54	0.167	1.34	1.54	3.15
MP2A-100-R	10.00	10.02	0.179	1.29	1.42	3.26
MP2A-150-R	15.00	15.18	0.217	1.18	1.16	3.59
MP2A-220-R	22.00	21.40	0.311	0.98	0.97	4.30
MP2A-330-R	33.00	32.74	0.476	0.79	0.79	5.32
MP2A-470-R	47.00	46.48	0.727	0.64	0.66	6.57
MP2A-680-R	68.00	68.53	1.108	0.52	0.54	8.11
MP2A-820-R	82.00	81.15	1.463	0.45	0.50	9.32
MP2A-101-R	100.00	99.65	2.015	0.39	0.45	10.94

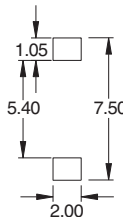
Notes: (1) Open Circuit Inductance Test Parameters: 100 kHz, .25 Vrms, 0.0 Adc.
(2) DCR limits +20 °C.
(3) RMS current for an approximate ΔT of 40 °C without core loss. It is recommended that the temperature of the part not exceed +125 °C.

(4) Peak current for approximately 30% rolloff at +20 °C.
(5) Applied Volt-Time product (V- μs) across the inductor. This value represents the applied V- μs at 300 kHz necessary to generate a core loss equal to 10% of the total losses for 40 °C temperature rise.

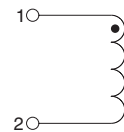
Dimensions- mm



PCB PAD LAYOUT



SCHEMATIC

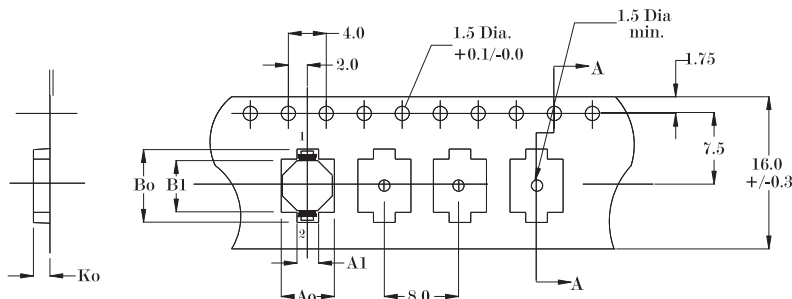


yww = Date Code
xxx = Inductance value per family chart

Do not route traces or vias underneath the inductor

Packaging information- mm

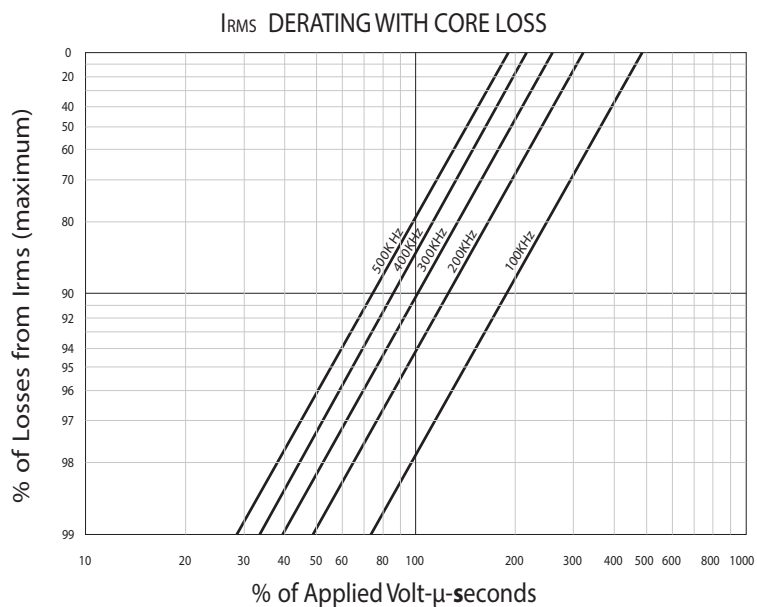
Parts packaged on 13" Diameter reel,
3,900 parts per reel.



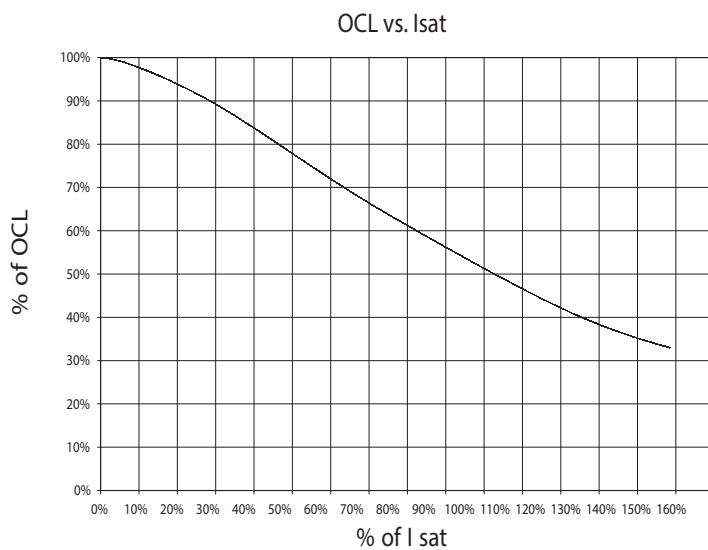
A0=5.6mm
A1=2.3mm
B0=8.5mm
B1=6.3mm
Ko=2.1mm

ACTUAL SIZE
MICRO-PAC PLUS

Core loss



Inductance characteristics



Solder Reflow Profile

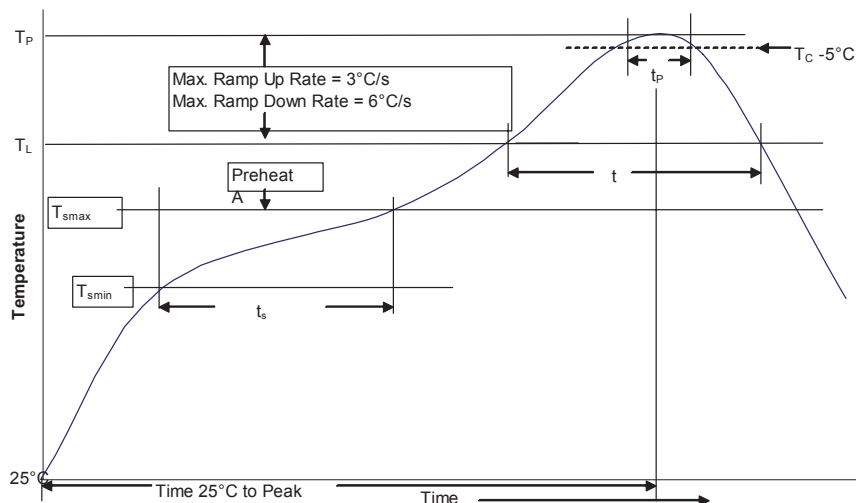


Table 1 - Standard SnPb Solder (T_p)

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.

Life Support Policy: Eaton does not authorize the use of any of its products for use in life support devices or systems without the express written approval of an officer of the Company. Life support systems are devices which support or sustain life, and whose failure to perform, when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.

Eaton reserves the right, without notice, to change design or construction of any products and to discontinue or limit distribution of any products. Eaton also reserves the right to change or update, without notice, any technical information contained in this bulletin.

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

© 2017 Eaton
All Rights Reserved
Printed in USA
Publication No. 4112
July 2017

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Eaton:](#)

[MP2A-R47-R](#) [MP2A-R68-R](#) [MP2A-1R0-R](#) [MP2A-1R5-R](#) [MP2A-100-R](#) [MP2A-101-R](#) [MP2A-150-R](#) [MP2A-2R2-R](#)
[MP2A-220-R](#) [MP2A-3R3-R](#) [MP2A-330-R](#) [MP2A-4R7-R](#) [MP2A-470-R](#) [MP2A-6R8-R](#) [MP2A-680-R](#) [MP2A-8R2-R](#)
[MP2A-820-R](#)