Specification for Approval

Customer:	
Customer P/N:	
EEC P/N:	MA0624A Series
Spec No.:	
Version No.:	V0.1
Description:	Alloy Powder Molding Inductor
	Surface Mount Package
	Automotive Applications

Customer Approval		**EEC Company Approval**	
Inspected By:		Issued By:	YinJun Chen
Checked By:		Checked By:	HongJun Zhu
Approved By:		Approved By:	Focus Wang
Approved Date:		Issued Date:	2023/4/19

Please Return One Copy to Us After Approved,TKS! (承认后请回寄一份,谢谢)

Remark:
1. Before use, please confirm whether this product is suitable for your design, Scientic only ensure products meet this specification.
2. This specification data change must be confirmed by both parties,any individual modification is invalid.
3. If customer placed orders without signing back this specification, it is regarded as recognition.

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绵阳敦源电子科技有限公司
Mianyang Dunyuan Electronics Technology Co.,Ltd
地址: 四川省绵阳市高新区综合保税区
ADD: Comprehensive Bonded Zone, High-Tech Industrial Development Zone Mianyang, SiChuan

Specification for Approval

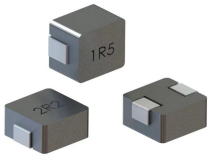
Revision History

Revision	Issued Date	Issued By	Description
V0.1	2023/4/19	YinJun Chen	新版发行

Specification for Approval

1 Features

☆ High performance (Isat) realized by metal dust core.
☆ Low profile：Thickness max. 3mm.
☆ Low loss realized with low DCR.
☆ Capable of corresponding high frequency (1MHz).
☆ 100% lead (Pb) free meet RoHS standard.
☆ Operating temperature -55~+125℃(Including self - temperature rise).



Application

Automotive applications.

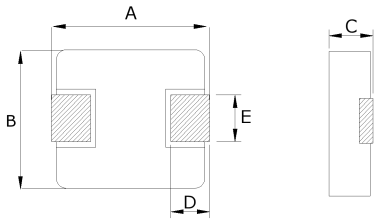
2 Electrical Specifications @ 25°C

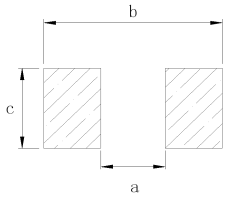
Part No.	Inductance	DC Resistance	Saturation Current	Heating Rating Current
	L0 (μH)	DCR (mΩ)	Isat (A)	Irms (A)
	±20 %, 100 kHz, 1V	Max	TYP	TYP
MA0624A-R22M0	0.22	3.2	34	24
MA0624A-R33M0	0.33	4.1	24.5	18
MA0624A-R47M0	0.47	5.1	22	15
MA0624A-R56M0	0.56	6.5	17	13
MA0624A-R68M0	0.68	7.2	16	12
MA0624A-1R0M0	1	13.5	15	9
MA0624A-1R5M0	1 .50	20	15	8
MA0624A-2R2M0	2.2	28	14	7
MA0624A-3R3M0	3 .30	39	10	5.5
MA0624A-4R7M0	4.7	50	8	5
MA0624A-5R6M0	5.6	60	6.5	4.5
MA0624A-6R8M0	6.8	70	6	4
MA0624A-8R2M0	8.2	90	5	3.5
MA0624A-100M0	10	101	4	3.1

Notes：

1. All test data is referenced to 25 °C ambient
2. Irms (A):DC current (A) that will cause an approximate ΔT of 40 °C(reference ambient temperature is 25 °C)
3. Isat(A):DC current (A) that will cause L0 to drop approximately **30 %**
4. The part temperature (ambient + temp rise) should not exceed 125 °C under worst case operating conditions. Circuit design, component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature should be verified in the end application.

3 Dimensions (mm)& recommend layout

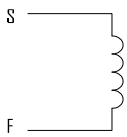




Recommend Land Pattern

A	B	C	D	E	a typ	b typ	c typ
7.0±0.3	6.6±0.2	2.2±0.2	1.6±0.3	3.0±0.3	3.7	8.4	3.5

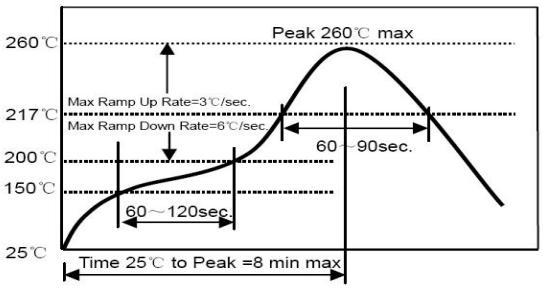
4 Schematics



Schematics

5 Recommended Solder Profile

a. Reflow Profile



Preheat condition: 150 ~200℃/60~120sec.

Allowed time above 217℃: 60~90sec.

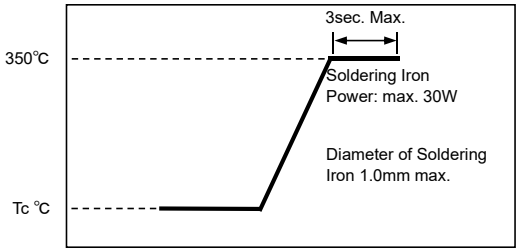
Max temp: 260℃

Max time at max temp: 10 sec.

Solder paste: Sn/3.0Ag/0.5Cu

Allowed Reflow time: 2x max

b. Iron Soldering Profile



Iron soldering power: Max. 30W

Pre-heating: 150℃/60sec.

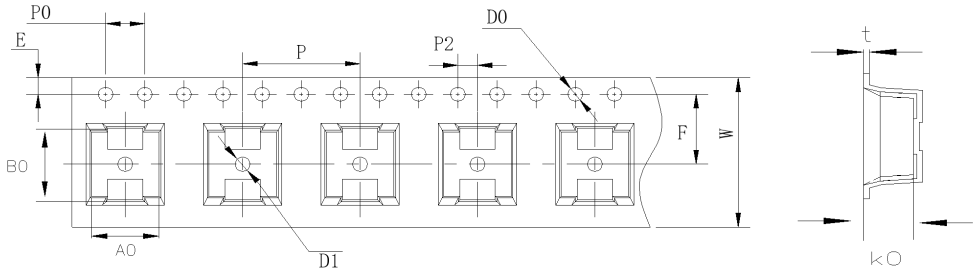
Soldering Tip temperature: 350℃ Max.

Soldering time: 3sec. Max.

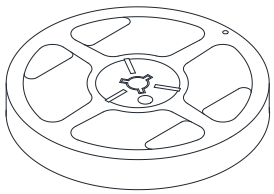
Solder paste: Sn/3.0Ag/0.5Cu

Max.1 times for iron soldering

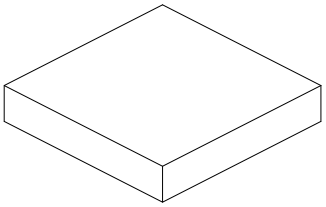
6 Packaging specification



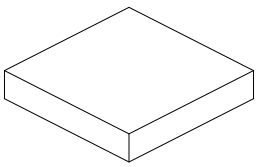
Tape dimensions (mm)											
W	P	P0	P2	D0	D1	t	A0	B0	K0	E	F
16±0.3	12±0.1	4±0.1	2±0.1	1.5±0.1	1.5±0.1	0.35±0.05	6.9±0.1	7.5±0.1	3.3 ±0.1	1.75 ±0.1	7.5 ±0.1



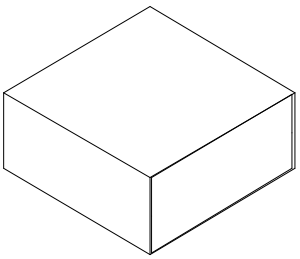
Two Reel



One Inner Carton



Four Inner Carton



One Export Carton

Package Quantity:

One Reel=1500 Pcs

One Inner Carton=1500*2=3000 Pcs

One Export Carton=3000*4=12000 Pcs

7 Reliability test

NO.	Test Item	Specification and Requirement	Test Condition
1	Solderability	1. No case deformation or change in visual 2. New solder coverage More than 95%	1.Preheat：155℃±5℃，60S±2S 2.Tin: lead-free. 3.Temperature:240℃±5℃，flux 3.0S±0.5S.
2	Mechanical shock	1. No case deformation or change in visual 2. △L/Lo≦±10%	1. Acceleration： 100G 2. Pulse time:：6ms 3. 3 times in each positive and negative direction of 3 mutual perpendicular directions
3	Mechanical vibration	1. No case deformation or change in visual 2. △L/Lo≦±10%	1. Reflow: 2times 2. Frequency: 10HZ～50HZ～10HZ，20 Min/Cycles 3. Amplitude: 1.52 mm±10% 4. Directions: X,Y,Z 5. Time: 12 cycle / direction
4	Thermal Shock	Inductance change: Within ± 10% Without distinct damage in visual	1. First -55℃ for 30 minutes，last 125 ℃ for 30 minutes as 1 cycle. Go through 1000 cycles. 2. Max transfer time is 3 minutes. 3. Measured at room temperature after placing for 24±2 hours
5	Biased Humidity	Inductance change: Within ± 10% Without distinct damage in visual	1.Reflow 2 times, 2.85℃±3℃,85%±3%RH,1000 hours 3.Measured at room temperature after placing for 24±2 hours
6	Low temperature storage	Inductance change: Within ± 10% Without distinct damage in visual	1. Temperature：-55 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours
7	High temperature storage	Inductance change: Within ± 10% Without distinct damage in visual	1. Temperature：+125 ± 2℃ 2. Time：1000 hours 3. Measured at room temperature after placing for 24±2 hours

REMINDERS

☆ The best assembly quality guarantee period of product: 12 months (From shipment date)
Storage condition : seal in packaging, (temperature: 5 to 40°C, humidity: 10 to 75% RH or less).

☆ If taking out for use, the remaining products should be sealed in plastic bags and preserved in accordance with the above conditions, to avoid oxidation of electrodes and affect soldering status.

☆ Do not use or store in locations where there are conditions such as gas corrosion (salt, acid, alkali, etc.).

☆ Before soldering, be sure to preheat components.
The preheating temperature should be set so that the temperature difference between the solder temperature and chip temperature does not exceed 150°C.

☆ Always handle products with care to avoid damage.

☆ Do not touch electrodes with bare hands directly, as oil secretions may inhibit soldering.
Always ensure optimum conditions for soldering.

☆ Soldering corrections after mounting should be within the range of the conditions determined in the specifications.If overheated, a short circuit, performance deterioration, or lifespan shortening may occur.

☆ Use a wrist band to discharge static electricity in your body through the grounding wire.

☆ Do not expose the products to magnets or magnetic fields.

☆ Do not use for a purpose outside of the contents regulated in the delivery specifications.