

SPECIFICATION FOR APPROVAL

製品規格書

SPEC NO : SAAMP190101

CUSTOMER :

客戶名稱 :

CUSTOMER PART NO :

客戶料號 :

PART NO :

旭創料號 : AMP Series

QUANTITY :

數量 : 10 PCS

DATE :

日期 : 2019/2/13

REV NO :

版本 : 1.0

CUSTOMER APPROVE

RSiN SIGNATURE

CUSTOMER SIGNATURE



Approved

Rejected

R&D DEPARTMENT

PREPARED BY

制定

Davy

CHECKED BY

複核

Amanda

APPROVED BY

核准

Vincent

旭創科技股份有限公司

RSiN Technology Co., Ltd.

深圳市旭創電子有限公司

RSiN Electronics Co., Ltd.

深圳市寶安區松崗街道東方社區立業路8號7樓720

www.rsin.top

sales@rsin.top

TEL:0755-27385050

FAX:0755-27385055

Revision History

變更履歷

PART NO : AMP Series

旭創料號 :

版本 REV. No	修改日期 REVISED DATE	變更內容及理由 REASON AND DETAIL OF REVISION	制定 PREPARED	複核 CHECKED	核准 APPROVED
1.0	2019/2/13	第一版發行	Davy	Amanda	Vincent

⊕ Feature

- High current saturation.
- Magnetically Shielded Structure.
- Low profile construction and miniature size.

⊕ Applications

- DC to DC converters.
- Power line filtering.
- DVC/DSC/PDA, LCD display.

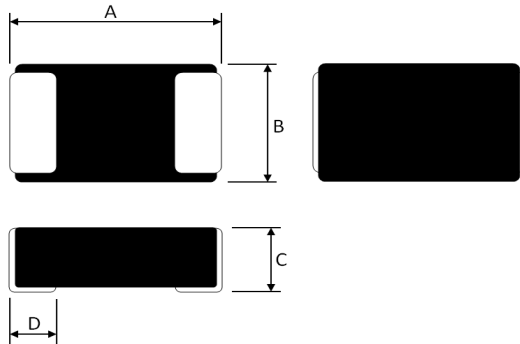
⊕ Product Identification :



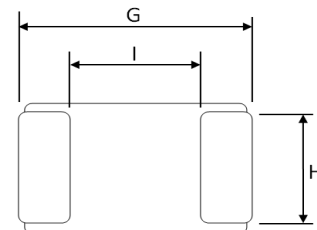
Series name	Dimensions(WxLxH)		Internal code
AMP	201610	2.0*1.6*1.08mm	A
	252010	2.5*2.0*1.05mm	:
	252012	2.5*2.0*1.26mm	R = Trapezoid E = Octagonal S = Square

Inductance		Tolerance	
1R0	1 μH	J	5%
100	10 μH	K	10%
101	100 μH	M	20%
102	1000 μH	N	30%

⊕ Shapes And Dimensions



⊕ Recommended PCB Pattern



Part No.	Dimensions(mm)								
	A	B	C	D			G	H	I
AMP201610	2.0	1.6	1.00	0.50			2.00	1.60	0.90
	±0.20	±0.20	Max.	±0.30			Ref	Ref	Ref
AMP252010	2.5	2.0	1.00	0.60			2.80	2.00	1.20
	±0.20	±0.20	Max.	±0.30			Ref	Ref	Ref
AMP252012	2.5	2.0	1.20	0.60			2.80	2.00	1.20
	±0.20	±0.20	Max.	±0.30			Ref	Ref	Ref

⊕ Equivalent Circuit Schematic :



⊕ Material List :

No.	Supplier	Location	Material
1	TopCore	Core	Metal alloy powder
2	Elektrisola	Wire	Grade1 P180
3	GAOXIN	Solder	Sn99.3 Cu0.7
4	RSiN	Epoxy	Magnetic powder resin
5	-	-	-

- 1.Operating temperature -40°C ~ +125°C
- 2.Storage conditions -50°C ~ +125°C

⊕ Electrical Characteristics :

Part No.	Inductance (μ H)	DCR (m Ω)		Isat (A)		Irms (A)		Test Frequency
		Max.	Typ.	Max.	Typ.	Max.	Typ.	
AMP201610S-R24M	0.24 \pm 20%	21	17	5.05	5.60	4.50	5.00	1MHz / 1V
AMP201610S-R33M	0.33 \pm 20%	29	24	4.50	5.00	3.69	4.10	1MHz / 1V
AMP201610S-R47M	0.47 \pm 20%	40	33	4.00	4.40	3.15	3.50	1MHz / 1V
AMP201610S-R68M	0.68 \pm 20%	49	41	3.33	3.70	3.06	3.40	1MHz / 1V
AMP201610S-1R0M	1 \pm 20%	69	60	2.61	2.90	2.26	2.60	1MHz / 1V
AMP201610S-1R5M	1.5 \pm 20%	129	114	2.25	2.50	1.81	2.00	1MHz / 1V
AMP201610S-2R2M	2.2 \pm 20%	150	135	1.71	1.90	1.50	1.70	1MHz / 1V

⊕ Electrical Characteristics :

Part No.	Inductance (μ H)	DCR (m Ω)		Isat (A)		Irms (A)		Test Frequency
		Max.	Typ.	Max.	Typ.	Max.	Typ.	
AMP252010S-R22M	0.22 \pm 20%	12.5	9	7.2	7.9	5.3	5.9	1MHz / 1V
AMP252010S-R33M	0.33 \pm 20%	26	21	6	6.6	4	4.4	1MHz / 1V
AMP252010S-R47M	0.47 \pm 20%	32	27	4.5	5	3.51	3.9	1MHz / 1V
AMP252010S-R68M	0.68 \pm 20%	44	37	3.87	4.3	3.06	3.4	1MHz / 1V
AMP252010S-1R0M	1 \pm 20%	54	45	3.15	3.5	2.7	3	1MHz / 1V
AMP252010S-1R5M	1.5 \pm 20%	91	76	2.34	2.6	2.25	2.5	1MHz / 1V
AMP252010S-2R2M	2.2 \pm 20%	119	99	2.16	2.4	2.07	2.3	1MHz / 1V
AMP252010S-4R7M	4.7 \pm 20%	262	220	1.62	1.8	1.22	1.36	1MHz / 1V

⊕ Electrical Characteristics :

Part No.	Inductance (μ H)	DCR (m Ω)		Isat (A)		Irms (A)		Test Frequency
		Max.	Typ.	Max.	Typ.	Max.	Typ.	
AMP252012S-R47M	0.47 \pm 20%	25	21	4.95	5.3	4.18	4.6	1MHz / 1V
AMP252012S-R68M	0.68 \pm 20%	35	29	4.63	5	3.36	3.7	1MHz / 1V
AMP252012S-1R0M	1 \pm 20%	49	41	4.04	4.4	3.18	3.5	1MHz / 1V
AMP252012S-1R5M	1.5 \pm 20%	77	64	2.91	3.2	2.27	2.5	1MHz / 1V
AMP252012S-2R2M	2.2 \pm 20%	98	85	2.73	3	2.06	2.27	1MHz / 1V
AMP252012S-4R7M	4.7 \pm 20%	235	196	1.58	1.9	1.4	1.61	1MHz / 1V

Note : Specifications which provide more details for the proper and safe use of the described product are available upon request. all specifications are subject to change without notice.

Isat : DC Saturation Current that will cause initial inductance to drop approximately 30% max.

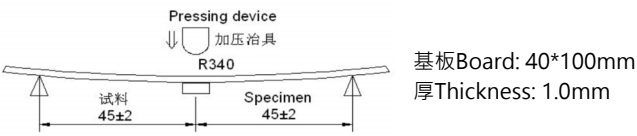
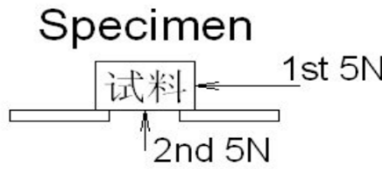
Irms : DC Current that will cause an approximate Δ T of 40 °C

Test Instrument :

L : LCR meter 4285A or equivalent.

DCR : HIOKI micro-ohm meter RM3542 or equivalent.

⊕ General Characteristics

項目 Item	Conditions	Specification
温度特性 Temperature drift	在温度-25 ~ + 85°C之间测试。 To be measured in the range of -25°C to 85°C.	Inductance temperature coefficient 2000 ppm/°C or less
保存温度范围 Storage Temperature	在包装的状态下。 With taping.	- 50°C ~ + 125°C
使用温度范围 Operating Temperature	包括制品的发热温度。 Including self temperature rise.	- 40°C ~ + 125°C
弯曲测试 Bending test	<p>试件焊接在基板上，按箭头方向以大约0.5mm/秒的速度加压，直到基板变形幅度到3mm 保持30秒。</p> <p>Apply pressure gradually in the direction of the arrow at a rate of about 0.5mm/s until bent depth reaches 3mm and hold for 30±5s.</p>  <p>The diagram shows a specimen of length 45±2mm supported at both ends by triangular stands. A pressing device with a radius of R340 is applied to the center of the specimen. The board is labeled as 40*100mm thick.</p>	Change from an initial value L : within±10%
固着强度 Adhesion strength	<p>按箭头方向用R0.5 的加压棒在试件中施加一定的静力并保持60±5秒。</p> <p>A static load using a R0.5 pressing tool shall be applied the arrow and to the body of the specimen in the direction of the arrow and shall be hold for 60±5s. Measure after removing pressure.</p>  <p>The diagram shows a specimen on a substrate. A horizontal arrow labeled '1st 5N' points to the left, and a vertical arrow labeled '2nd 5N' points upwards from the center of the specimen.</p>	Change from an initial value L : within±10%

<p>耐振性 Vibration</p>	<p>振动频率10 ~ 55 ~ 10Hz, 振幅1.5mm, 分X,Y,Z方向各振动1 小时 (共3 小时) 。</p> <p>The specimen shall be subjected to a vibration of 1.5mm amplitude, sweep frequency 10~55Hz (10Hz to 55Hz to 10Hz in a period of one minute) for 1 h in each of 3(X,Y,Z) axes.</p>	<p>Change from an initial value L : within±10%</p>
<p>耐冲击性 Mechanical shock</p>	<p>利用橡胶块式落下冲击试验机，分别在3 个互相垂直的方向以981m/S² 的冲击加速度落下。</p> <p>Peak acceleration: 981 m/S² Duration of pulse: 6ms 3 times in each of 3(X,Y,Z)axes. The specimen must be fixed on test board. Three successive shock shall be applied in the perpendicular direction of each surface of the specimen.</p>	<p>Change from an initial value L : within±10%</p>
<p>自然落下试验 Free fall test</p>	<p>试件安装在基板上，并固定在重500 克的盒中，由1 米高自由落体，3 个互相垂直的方向各3 次。</p> <p>The specimen must be fixed on test board. It must be equipped with instruments of which weight is 500g. Then it shall be fallen freely from 1m height to rigid wood 3 times in each of three axes.</p>	<p>Change from an initial value L : within±10%</p>
<p>焊锡附着性 Solder ability</p>	<p>试验品的电极深布松香后，在5 ~ 10 秒内焊锡，焊锡槽温度245±5℃，时间：3±0.5 秒。</p> <p>Terminals shall be immersed for 5 to 10 seconds in flux at room temperature. Dip sample into solder bath containing molten solder at 245±5℃ for 3±0.5 seconds.</p>	<p>90%以上的面积要被覆盖。 New solder shall cover 90% minimum of the surface immersed.</p>
<p>耐电压 Dielectric strength</p>	<p>在电极与磁材之间加入直流电压100V 通电时间1 分钟。</p> <p>100V DC shall be applied for 60s between the terminal and the core.</p>	<p>没有损害。 Without damage.</p>

<p>焊锡耐热性 Resistance to soldering heat</p>	<p>试验方法Test method 热风炉焊接Reflow soldering method 预热Preheat 150~180°C 90±30s 峰值温度Peak temp 250(+ 5,-0)°C (230°Cmin, 30±10s) 试验板的厚度0.8mm 上按上面条件通过两次热风炉。 The specimen shall be subjected to the reflow process under the above condition 2 times.Test board shall be 0.8mm thick. Base material shall be glass epoxy resin. 测定Measurement 常温常湿中放置于1 小时以上测试。 The specimen shall be stored at standard atmospheric conditions for 1 h in prior to the measurement.</p>	<p>Change from an initial value L : within±10%</p>
<p>绝缘抵抗 Insulation resistance</p>	<p>在电极与磁材之间加入直流电压100V。 100V DC shall be applied between the terminal and the core.</p>	<p>100mΩ 以上 100mΩ or more.</p>
<p>耐寒性 Low temperature</p>	<p>在温度-40±3°C中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。 The specimen shall be stored at a temperature of -40±3°C for 500 ±12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement Measurement shall be made within 1h.</p>	<p>Change from an initial value L : within±10%</p>
<p>耐热性 Dry heat</p>	<p>在温度85±2°C中放置500±12 小时后，常温常湿中放置1 小时以上2 小时以内测试。 The specimen shall be stored at a temperature of 85 ± 2°C for 500± 12h. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	<p>Change from an initial value L : within±10%</p>

<p>耐湿性 Dump heat</p>	<p>在温度$60\pm 2^{\circ}\text{C}$·湿度90~95%中放置500 ± 12小时后·常温常湿中放置1小时以上2小时以内测试。 The specimen shall be stored at a temperature of $60\pm 2^{\circ}\text{C}$ with relative humidity of 90 ~ 95% for $500 \pm 2\text{h}$. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	<p>Change from an initial value L : within$\pm 10\%$</p>
<p>温度循环 Temperature cycle</p>	<p>以温度-40°C中放置30分钟·在85°C放置30分钟·中间转换时间不超过2分钟为一个循环。完成500个循环后·常温常湿中放置1小时以上2小时以内测试。 The specimen shall be subjected to 500 continuous cycles of temperature change of -40°C for 30 min and 85°C for 30 min with the transit period of 2min or less. Then it shall be stabilized under standard atmospheric conditions for 1 h before measurement. Measurement shall be made within 1h.</p>	<p>Change from an initial value L : within$\pm 10\%$</p>

标准状态Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions in making measurements and test as follows;

Ambient temperature : 5°C to 35°C , Relative humidity: 45% to 85%, Air pressure: 86kPa to 106kPa

If more strict measurement is required, measurement shall be made within following limits;

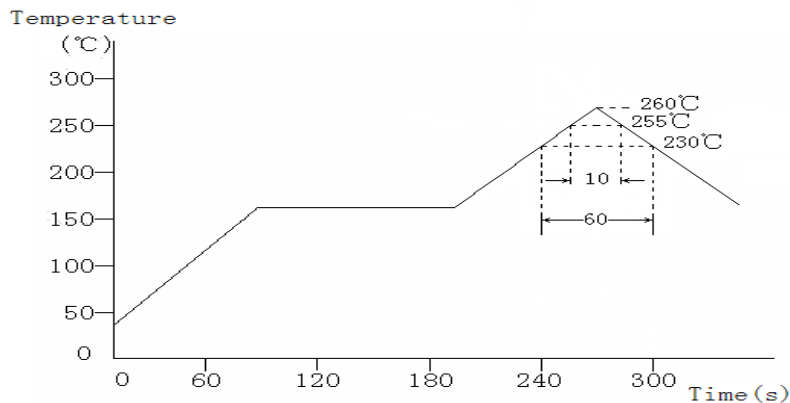
Ambient temperature : $20\pm 2^{\circ}\text{C}$, Relative humidity: $65\pm 5\%$, Air pressure: 86kPa to 106kPa

禁用物质Prohibited Substances

我公司保证我司的产品和生产过程符合“RoHS 规则”，所有产品中使用的材料均是化学物质生产规则中登记的材料。

We confirm that our products and our production process accord with "rule of RoHS". All materials used in this product are registered material under the law concerning the examination and Regulation of Manufacture of Chemical Substances.

⊕ Reflow Soldering Heat Endurance

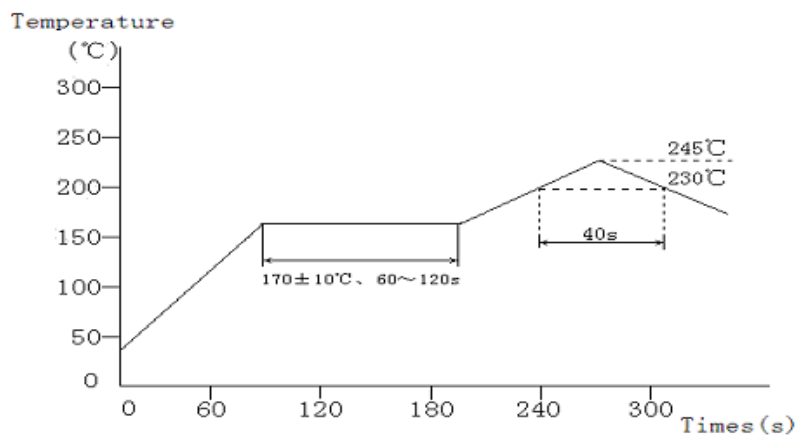


No mechanical and electrical defects are found after testing based on the above profile and keeping under the conditions of room temperature and humidity for 2 hours.

Twice reflow test is acceptable with the test interval remaining 1 hour under the normal conditions.

The reflow test profile may vary with the testing instruments.

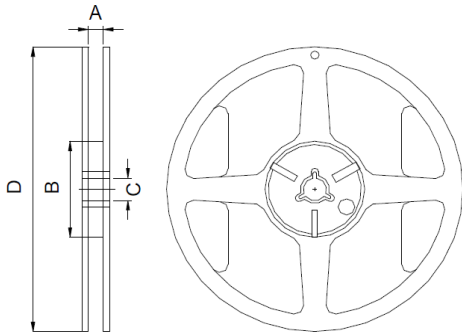
⊕ Recommended Reflow Conditions



The recommended reflow profile is based on the testing instruments used. Solder ability will depend on the testing equipments, reflow conditions, testing method, etc. So it is necessary to make a confirmation of them when the reflow conditions are set up.

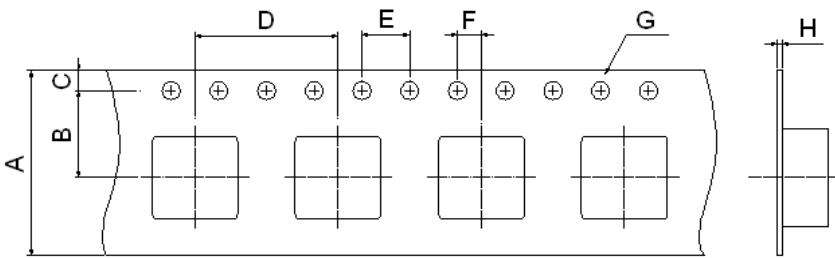
However halogen lamp shall be used, side heat will be beyond range of resistance heat, so we can't recommend it.

⊕ Reel Dimension(m/m)



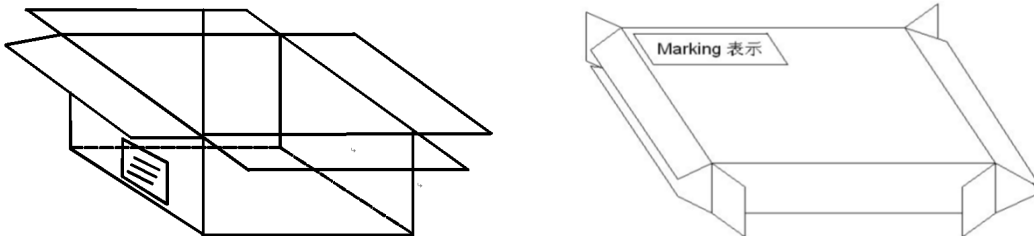
Item	A(mm)	B(mm)	C(mm)	D(mm)
AMP201610S	8	60	13	178
AMP252010S	8	60	13	178
AMP252012S	8	60	13	178

⊕2. Taping Dimension(m/m)



Item	A(mm)	B(mm)	C(mm)	D(mm)	E(mm)	F(mm)	G(mm)	H(mm)
AMP201610S	8	3.5	1.75	8	4	2	1.5	0.25
AMP252010S	8	3.5	1.75	8	4	2	1.5	0.25
AMP252012S	8	3.5	1.75	8	4	2	1.5	0.25

⊕ Packaging Carton



Item	Reel Packing Unit	Inner Box Packing Unit	Carton Packing Unit
AMP201610S	3000 PCS / Reel	15000 PCS / Box	150000 PCS / Box
AMP252010S	3000 PCS / Reel	15000 PCS / Box	150000 PCS / Box
AMP252012S	3000 PCS / Reel	15000 PCS / Box	150000 PCS / Box