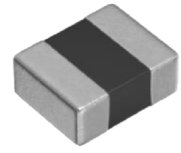


MLZ1608 Series Multilayer Chip Power Inductors

FEATURES

- High DC bias current due to developed material
- Low DC resistance
- Low profile and thin thickness
- Monolithic structure for high reliability
- Excellent solderability and high heat resistance
- No cross coupling due to magnetic shield
- Operating Temp. : -40℃~+85℃
- RoHS compliant



APPLICATIONS

- DC-DC converter circuits for mobile phones, DSCs, DVCs, HDDs, PDAs, etc.

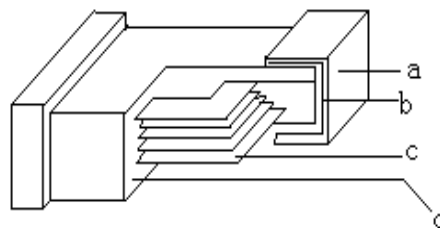
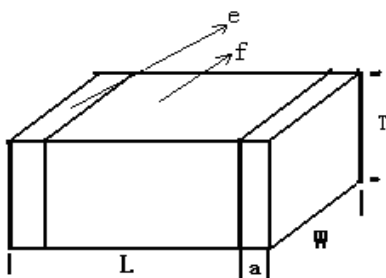
PRODUCT IDENTIFICATION

MLA 1608 A 1R0 M T

1 2 3 4 5 6

- 1:Product Series: Multilayer Chip Power Inductors
- 2:Dimensions:
- 3: Material Code:A,B
- 4:Inductance:1R0=1.0uH
- 5:Tolerance: K±20%
- 6:Packing:Tape Carrier Package

Dimension & Inner-configuration:



- a. 镀层 Ni/Sn plating
- b. 银层 Ag layer
- c. 内电极 Inner electrode
- d. 瓷体 Body
- e. 端电极 Terminal electrode
- f. 瓷体 ferrite or ceramic

Unit: mm (inch)

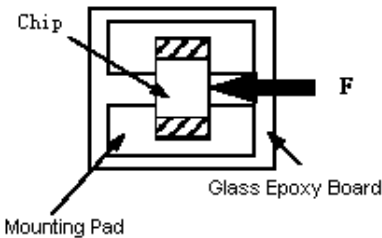
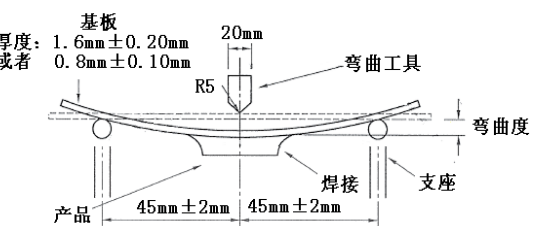
Size	L	W	T	a
160808	1.6±0.20 (0.063±0.008)	0.8±0.20 (0.031±0.008)	0.8±0.20 (0.031±0.008)	0.3±0.2 (0.01±0.008)

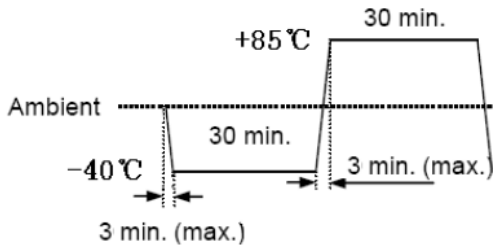
Electrical Characteristics List

Part NO.	Tolerance (%)	Inductance (μH)	RDC (Ω) max	Test frequency (MHz)	Test voltage (mV)	SRF (MHz) min	Rated current (mA)max
MLZ1608A47NMT	±20	0.047 0.12		1	50	260	150
MLZ1608A56NMT	±20	0.056	0.12	1	50	260	150
MLZ1608A68NMT	±20	0.068	0.12	1	50	250	150
MLZ1608A82NMT	±20	0.082	0.12	1	50	245	150
MLZ1608AR10MT	±20	0.10	0.15	1	50	240	150
MLZ1608AR12MT	±20	0.12	0.20	1	50	205	150
MLZ1608AR15MT	±20	0.15	0.20	1	50	180	150
MLZ1608AR18MT	±20	0.18	0.20	1	50	165	150
MLZ1608AR22MT	±20	0.22	0.25	1	50	150	150
MLZ1608AR27MT	±20	0.27	0.30	1	50	136	100
MLZ1608AR33MT	±20	0.33	0.30	1	50	125	100
MLZ1608AR39MT	±20	0.39	0.35	1	50	110	100
MLZ1608AR47MT	±20	0.47	0.45	1	50	105	100
MLZ1608AR56MT	±20	0.56	0.45	1	50	95	100
MLZ1608AR68MT	±20	0.68	0.55	1	50	90	100
MLZ1608AR82MT	±20	0.82	0.60	1	50	85	100
MLZ1608A1R0MT	±20	1.0	0.30	1	50	75	150
MLZ1608A1R2MT	±20	1.2	0.30	1	50	65	150
MLZ1608A1R5MT	±20	1.5	0.35	1	50	60	120
MLZ1608A1R8MT	±20	1.8	0.40	1	50	55	120
MLZ1608A2R2MT	±20	2.2	0.50	1	50	50	120
MLZ1608A2R7MT	±20	2.7	0.60	1	50	45	100
MLZ1608A3R3MT	±20	3.3	0.65	1	50	40	100
MLZ1608A3R9MT	±20	3.9	0.70	1	50	35	80
MLZ1608A4R7MT	±20	4.7	0.75	1	50	33	80
MLZ1608B5R6MT	±20	5.6	0.90	1	50	22	60
MLZ1608B6R8MT	±20	6.8	0.90	1	50	20	60
MLZ1608B8R2MT	±20	8.2	1.05	1	50	18	60
MLZ1608B100MT	±20	10	1.15	1	50	17	60
MLZ1608B120MT	±20	12	1.25	1	50	15	60

Reliability Testing Items

No.	Items	Requirements	Test Methods and Remarks
1	Operating Temperature Range	-40°C ~ +85°C	
2	Solder ability	At least 95% of terminal electrode should be covered with solder	<p>Preheating temperature: 120°C to 150°C Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 245 ± 5°C Immersion tin depth: 10mm Duration : 5 ± 1s Dip performance to a flux of about: 3 ~ 5 s</p>
3	Resistance to Soldering	<p>At least 95% of terminal electrode should be covered with solder. No mechanical damage. Inductance :</p> <p>A: change within ±20% B : change within ±30%</p>	<p>Preheating temperature: 120°C to 150°C Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 260°C ± 5°C Immersion tin depth: 10mm Duration : 10 ± 1s Dip performance to a flux of about: 3 ~ 5 s</p>

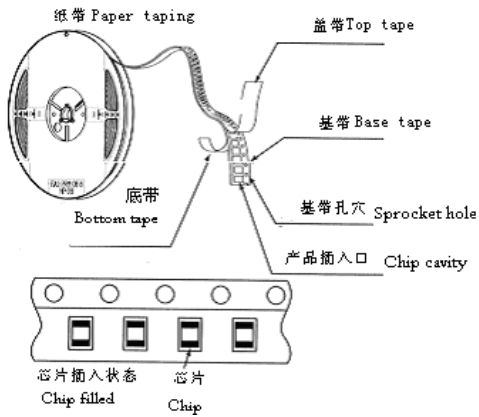
No.	Items	Requirements	Test Methods and Remarks
4	Adhesion of electrode	The termination and body should be no damage.	<p>Applied force: 5N force for 1005 series. Keep time : 10±1S</p>  <p>The diagram shows a cross-section of a chip mounted on a mounting pad on a glass epoxy board. A force 'F' is applied to the chip from the right side.</p>
5	Low temperature resistance	<p>No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30%</p>	<p>Temperature: $-40 \pm 2^{\circ}\text{C}$ $+24$ Testing time: 1000^{-0} h</p>
6	Bending strength	No mechanical damage	<p>Testing board: glass epoxy-resin substrate For 0.5 mm/s compression speed, curvature: 2mm, hold time $20\text{s} \pm 1\text{s}$.</p>  <p>The diagram shows a substrate being bent over a central tool with a radius of R5. The substrate thickness is specified as 1.6mm ± 0.20mm or 0.8mm ± 0.10mm. The product is supported by two stands, each 45mm ± 2mm wide. Labels include: 基板 (Substrate), 厚度 (Thickness), 或者 (or), 弯曲工具 (Bending tool), 弯曲度 (Curvature), 焊接 (Welding), 支座 (Support), and 产品 (Product).</p>
7	Vibration	<p>No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30%</p>	<p>Amplitude modulation: 1.5mm Test time: A period of 2h in each of 3 mutually perpendicular directions. Frequency range: 10Hz to 55Hz to 10Hz for 1min.</p>

No.	Items	Requirements	Test Methods and Remarks
8	High temperature resistance	No mechanical damage. Inductance change: within $\pm 10\%$ Q value change(ferrite): within $\pm 30\%$	Testing time: 1000^{+24}_{-0} h Temperature: $85 \pm 2^\circ\text{C}$
9	Static Humidity	No mechanical damage. Inductance change: within $\pm 10\%$ Q value change(ferrite): within $\pm 30\%$	Humidity: 90% to 95% RH Temperature: $60^\circ\text{C} \pm 2^\circ\text{C}$ Testing time: 1000^{+24}_{-0} h
10	High temperature load	No mechanical damage. Inductance change: within $\pm 10\%$ Q value change(ferrite): within $\pm 30\%$	impose current: at room Testing time: 1000^{+24}_{-0} h Temperature: $85 \pm 2^\circ\text{C}$
11	Temperature Shock	No mechanical damage. Inductance change: within $\pm 10\%$ Q value change(ferrite): within $\pm 30\%$	Temperature: -40°C for 30 ± 3 min $+85^\circ\text{C}$ for 30 ± 3 min Number of cycles: 32 

Note: When there are questions concerning, measurement shall be made after 24 ± 2 hrs of recovery under the standard condition.

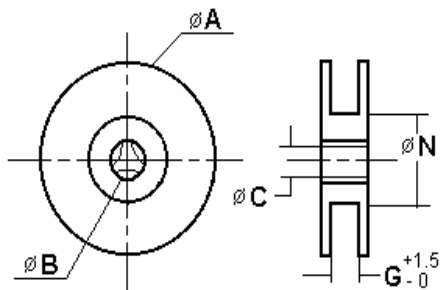
Packaging

Taping drawings

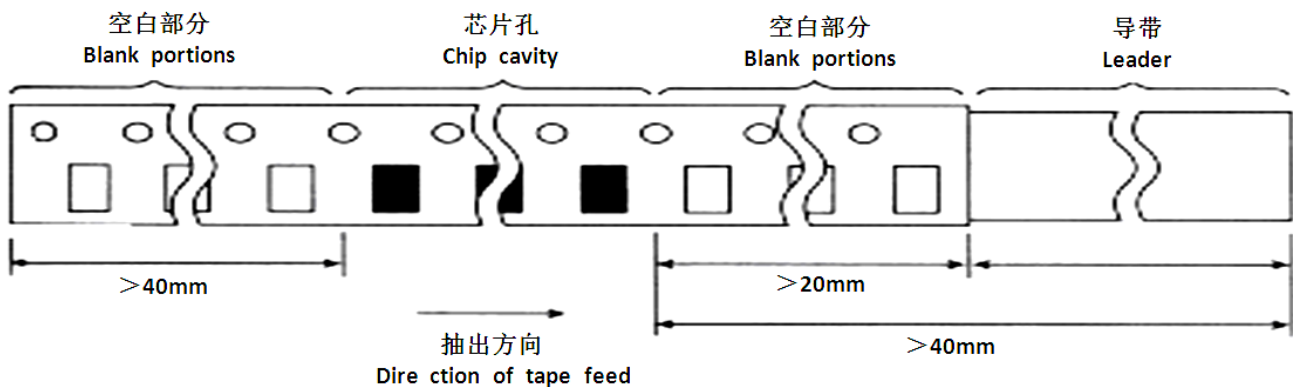


Reel dimensions (Unit: mm)

型号 Size	A		C	N	G
CF-8	178±2.0	22.0±2.0	12.5±1.5	57±2.0	8

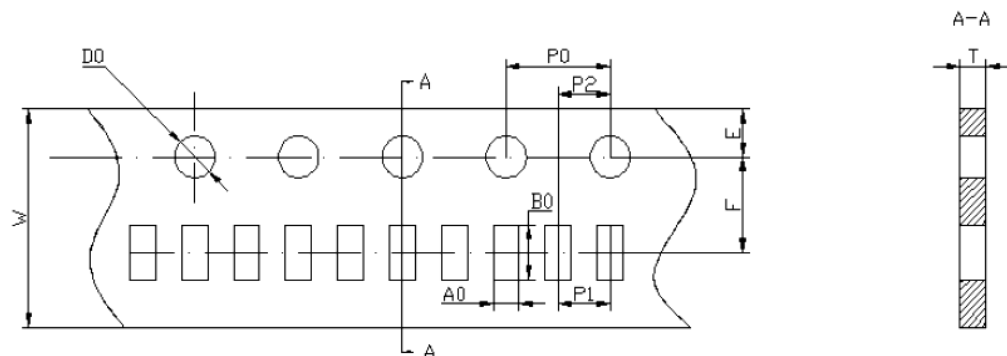


Leader and blank portion



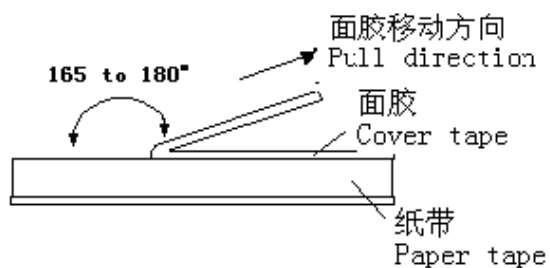
Taping dimensions (Unit: mm)

- Paper tape



Size	A0	B0	W	F	E	P1	P2	P0	D0	T
160808	1.10±0.2	1.90±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.1	4.0±0.2	1.55±0.1	0.95±0.1

Peeling off force



- ① Peeling force should be 0.1~0.7N pulling in the direction of arrow.
- ② Speed of peeling off: 300mm/min.
- ③ The cover bond should not be damaged and bond the tape when it peeled off.

Packaging number (Unit: Pcs)

Size	160808
REEL	4000
BOX	40000
CASE	240000

Recommend Soldering Conditions

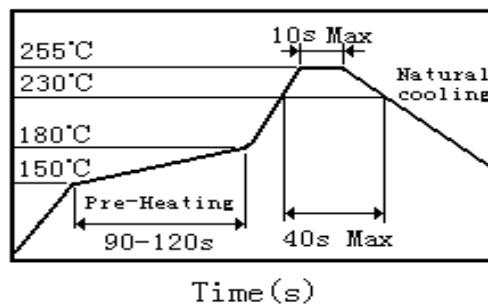
1) Soldering Conditions

Products can be applied to reflow soldering.

① Soldering conditions

- Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150°C max. Also cooling into solvent after soldering should be in such way that the temperature difference is limited to 100°C max. Un-enough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality.
- Products should be soldered within the following allowable range indicated by the slanted line. The excessive soldering conditions may cause the corrosion of the electrode. When soldering is repeated, allowable time is the accumulated time.

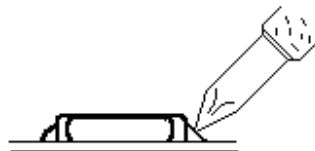
2) Reflow soldering profile



3) Iron soldering

Perform soldering at 350°C on 30W max.

Soldering Time: < 5S (Take care not to apply the tip of the soldering iron to the terminal electrodes)。



Cleaning

1) Cleaning Conditions

Cleaning temperature : 60°C max

Cleaning time: 1 minute min.

Ultrasonic output power: 200W max

Storage Requirements

1) Storage period

Products which inspected inductor company over 1 year ago should be examined and used, which can be Confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

2) Storage conditions

(1) Products should be storage in the warehouse on the following conditions:

Temperature : -10~+40°C Humidity: 30~70% relative humidity

(2) Don't keep products in corrosive gases such as sulfur, chlorine gas or acid , or it may case oxidization of Electrodes resulting in poor solder ability.

(3) Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.

(4) Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.

(5) Products should be stored under the airtight packaged condition.