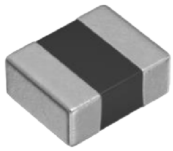
MetalLions

MLZ3216 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.

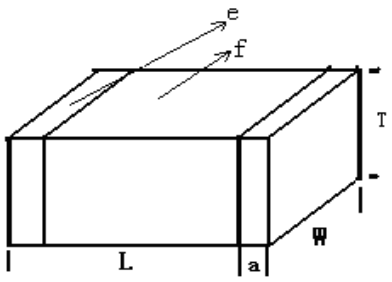
PRODUCT IDENTIFICATION

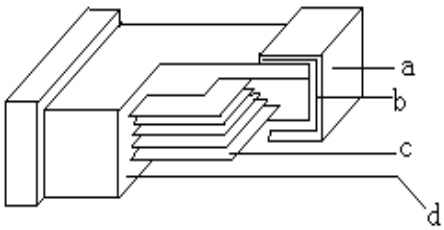
MLZ 3216 A 1R0 M T

1 2 3 4 5 6

- 1:Product Series: Multilayer Chip Power Inductors
- 2:Dimensions:
- 3: Material Code:A,B,C
- 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）

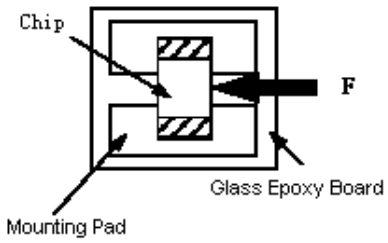
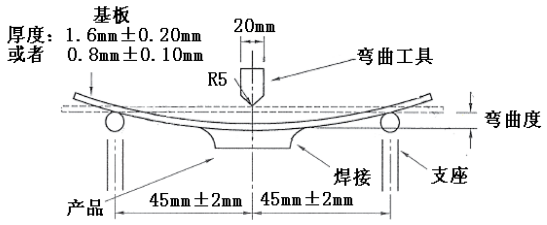
Size	L	W	T	a
321609	3.2±0.20（0.126±0.008）	1.6±0.20（0.063±0.008）	0.9±0.20（0.035±0.008）	0.5±0.3（0.020±0.012）

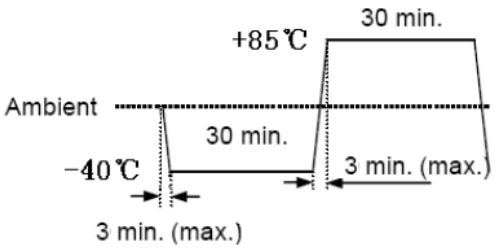
Electrical Characteristics List

Part NO.	Tolerance （%）	Inductance (μH)	RDC （Ω） max	Test frequency (MHz)	Test voltage （mV）	SRF (MHz) min	Rated current (mA)max
MLZ3216A1R0MT	±20	1.0	0.15	1	50	60	1200
MLZ3216A1R2MT	±20	1.2	0.15	1	50	65	1200
MLZ3216A1R5MT	±20	1.5	0.17	1	50	60	1000
MLZ3216A1R8MT	±20	1.8	0.24	1	50	55	900
MLZ3216A2R2MT	±20	2.2	0.24	1	50	50	900
MLZ3216A2R7MT	±20	2.7	0.30	1	50	45	800
MLZ3216A3R3MT	±20	3.3	0.30	1	50	41	800
MLZ3216A3R9MT	±20	3.9	0.38	1	50	38	700
MLZ3216A4R7MT	±20	4.7	0.38	1	50	35	700
MLZ3216A5R6MT	±20	5.6	0.45	1	50	32	500
MLZ3216B6R8MT	±20	6.8	0.45	1	50	29	500
MLZ3216B8R2MT	±20	8.2	0.55	1	50	26	300
MLZ3216B100MT	±20	10	0.55	1	50	24	300
MLZ3216B120MT	±20	12	0.55	1	50	22	300
MLZ3216C150MT	±20	15	0.65	1	50	19	100
MLZ3216C180MT	±20	18	0.65	1	50	18	100

Reliability Testing Items

No.	Items	Requirements	Test Methods and Remarks
1	Operating Temperature Range	-40℃～+85℃	
2	Solder ability	At least 95% of terminal electrode should be covered with solder	Preheating temperature:120℃ to 150℃ Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 245±5℃ Immersion tin depth:10mm Duration : 5±1s Dip performance to a flux of about:3 ~ 5 s
3	Resistance to Soldering	At least 95% of terminal electrode should be covered with solder. No mechanical damage. Inductance ： A ： change within ±20% B ： change within ±25% C： change within ±30%	Preheating temperature: 120℃ to 150℃ Preheating time: 60s Solder 96.5%Sn/3.0%Ag/0.5%Cu of the Sn solder. Solder temperature: 260℃±5℃ Immersion tin depth:10mm Duration : 10±1s Dip performance to a flux of about:3 ~ 5 s

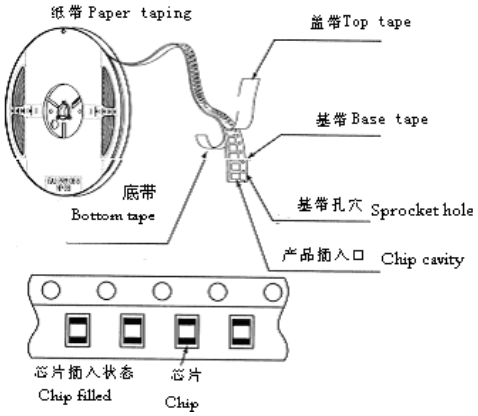
No.	Items	Requirements	Test Methods and Remarks
4	Adhesion of electrode	The termination and body should be no damage.	Applied force: 5N force for 1005 series. Keep time ： 10±1S 
5	Low temperature resistance	No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30%	Temperature：-40±2℃ Testing time：1000^{+24}_{-0} h
6	Bending strength	No mechanical damage	Testing board: glass epoxy-resin substrate For 0.5 mm/s compression speed, curvature: 2mm, hold time20s±1s 。 
7	Vibration	No mechanical damage. Inductance change: within ±10% Q value change(ferrite): within ±30%	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.

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

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

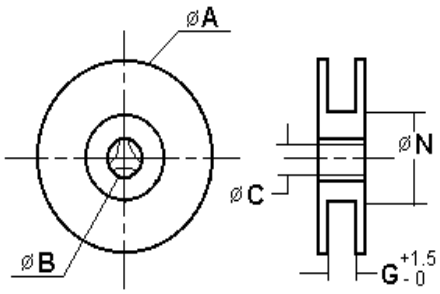
Packaging

Taping drawings

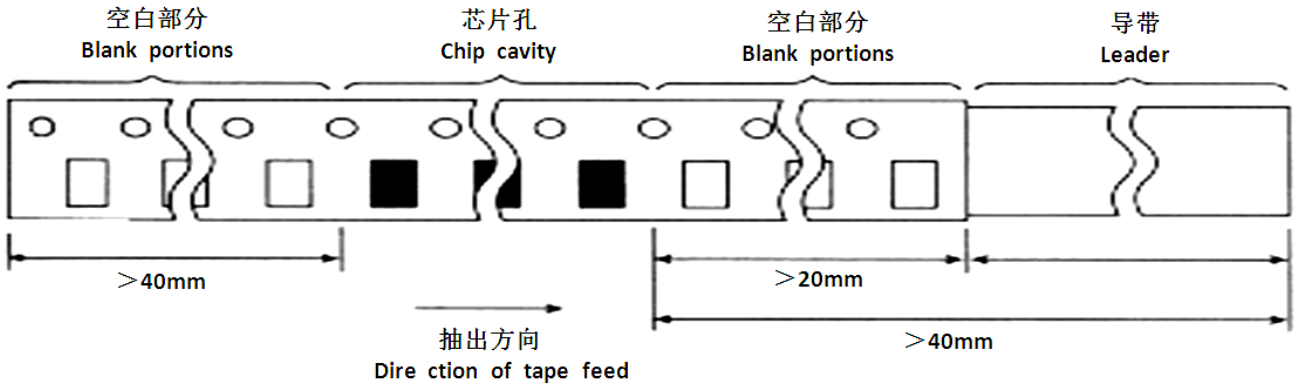


Reel dimensions (Unit: mm)

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

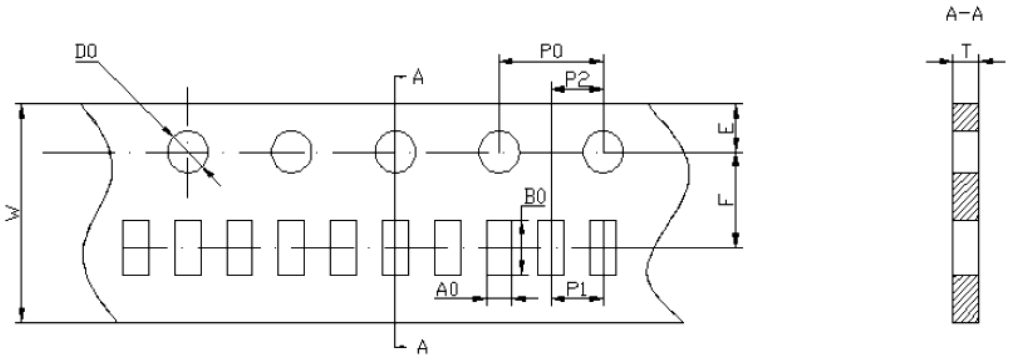


Leader and blank portion



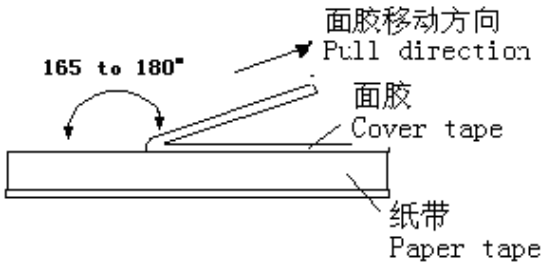
Taping dimensions (Unit: mm)

- **Paper tape**



Size	A0	B0	W	F	E	P1	P	P0	D0	T
321609	1.90±0.2	3.50±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	321609
REEL	4000
BOX	40000
CASE	240000

Recommend Soldering Conditions

1）Soldering Conditions

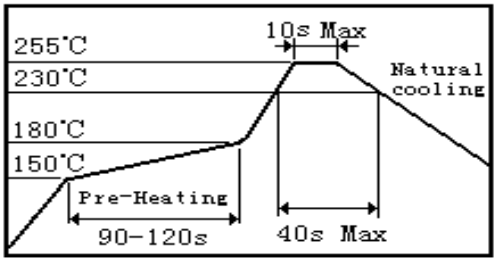
Products can be applied to reflow soldering.

① Soldering conditions

- Pre-heating should be in such a way that the temperature difference between solder and ferrite surface is limited to 150℃ max. Also cooling into solvent after soldering should be in such way that the temperature difference is limited to 100℃ 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.

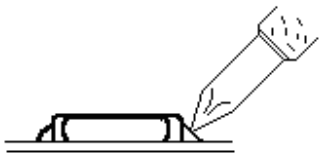
2） Reflow soldering profile



3）Iron soldering

Perform soldering at 350℃ 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℃ max

Cleaning time: 1 minute min.

Ultrasonic output power: 200W max

Storage Requirements

1）**Storage period**

Products which inspected inductor company over 1 yeah 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℃ 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 storaged on the palette for the prevention of the influence from humidity, dust and so on.

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

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