



ISO9001 & ISO14001 & TS16949 **CHILISIN ELECTRONICS CORP.**

RoHS & Halogen Free & REACH Compliance.

SPECIFICATION FOR APPROVAL

Customer : 靈心

Customer P/N: _____

Drawing No : IE1-8C0231

Quantity : 0 **Pcs.** **Date :** 2018/12/12

Chilisin P/N : MHCD201610A-1R5M-A8L

SPECIFICATION ACCEPTED BY:	
COMPONENT ENGINEER	
ELECTRICAL ENGINEER	
MECHANICAL ENGINEER	
APPROVED	
REJECTED	

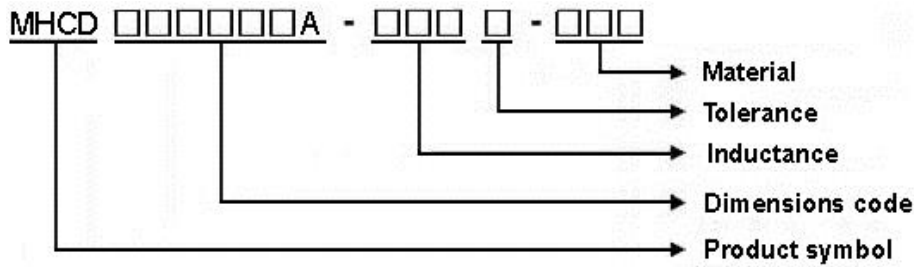
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Drawn by 張鈺雯 chang.yuwen	Checked by 張鈺雯 chang.yuwen	Approved by 鍾瑞民 jacky.chung
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MHCD201610A Series Specification

1 Scope: This specification applies to Alloy Molding power inductors

2 Part Numbering:



3 Rating:

Operating Temperature: - 4 0 °C ~ 1 2 5 °C(Including self - temperature rise)

Storage Temperature: - 4 0 °C ~ 1 2 5 °C(after PCB)

- 5 °C ~ 3 5 °C, Humidity 4 5 % ~ 8 5 %(before PCB)

4 Marking:

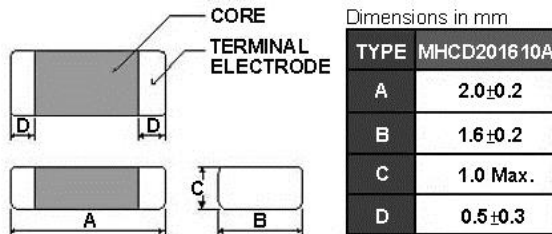


5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35°C)	20 to 30°C
Humidity	Ordinary Humidity(25 to 85% RH)	50 to 80 %RH

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6 Configuration and Dimensions:



7 Electrical Characteristics:

Part No.	Inductance (uH)	Tolerance (±%)	Test Freq.	I _{rms} (A) Max.(Typ)	I _{sat} (A) Max.(Typ)	RDC(mΩ) Max.(Typ)
MHCD201610A-1R5M-A8L	1.5	20	2MHz,0.2V	1.8(2.1)	2.2(2.8)	110(92)

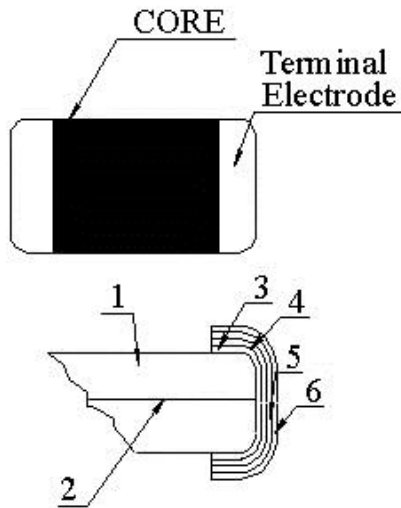
NOTE:

1. Operating temperature range - 40°C ~ 125°C (Including self - temperature rise)
2. I_{sat} for Inductance drop 30% from its value without current.
3. I_{rms} for a 40°C temperature rise from 25°C ambient.
4. All test data is referenced to 25°C ambient
5. Absolute maximum voltage 20VDC
6. Rated current: I_{sat} or I_{rms}, whichever is smaller

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8.1 Construction:



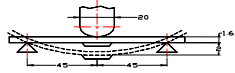
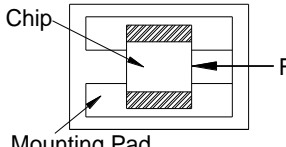
8.2 Material List:

No	Part	Material
1	Core	Metal Powder
2	Wire	Copper wire
3	Sputter/Plating	Cu
4	Silver Electrode	Ag
5	Plating	Ni
6	Plating	Sn

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9 Reliability Of Molding power inductors

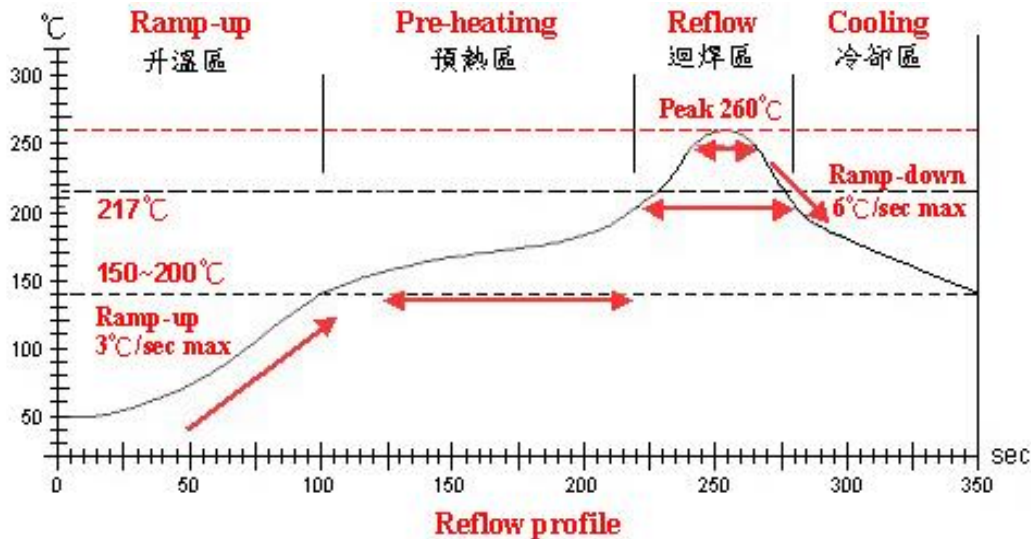
1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Flexure Strength	The forces applied on the right conditions must not damage the terminal electrode and the metal body	Test device shall be soldered on the substrate Substrate Dimension: 100x40x1.6mm Deflection: 2.0mm Keeping Time: 30sec 
1-1-2	Vibration	Appearance: No damage (for microscope of CASTOR MZ-45 20X) Inductance change shall be within $\pm 20\%$	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
1-1-3	Resistance to Soldering Heat	Appearance: No damage More than 75% of the terminal electrode should be covered with solder. Inductance: within $\pm 20\%$ of initial value	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec
1-1-4	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5(Pb-Free) Solder Temperature: 245 \pm 5°C Immersion Time: 4 \pm 1sec
1-1-5	Terminal Strength Test	No split termination  Chip Mounting Pad	Test device shall be soldered on the substrate, then apply a force in the direction of the arrow. Force : 5N Keeping Time: 10 \pm 1sec

1-2.Environmental Performance

No	Item	Specification	Test Method															
1-2-1	Temperature Cycle	Appearance: No damage Inductance: within $\pm 20\%$ of initial value	One cycle:															
			<table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40\pm3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25\pm2</td> <td>3</td> </tr> <tr> <td>3</td> <td>125\pm3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25\pm2</td> <td>3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Time (min)	1	-40 \pm 3	30	2	25 \pm 2	3	3	125 \pm 3	30	4	25 \pm 2	3
			Step	Temperature (°C)	Time (min)													
			1	-40 \pm 3	30													
2	25 \pm 2	3																
3	125 \pm 3	30																
4	25 \pm 2	3																
Total: 100cycles																		
Measured after exposure in the room condition for 24hrs																		
1-2-2	Humidity Resistance		Temperature: 60 \pm 2°C Relative Humidity: 90 ~ 95% / Time: 500hrs Measured after exposure in the room condition for 24hrs															
1-2-3	High Temperature Resistance		Temperature: 85 \pm 3°C Relative Humidity: 0% / Time: 500hrs Measured after exposure in the room condition for 24hrs															
1-2-4	Low Temperature Resistance		Temperature: -40 \pm 3°C Relative Humidity: 0% / Time: 500hrs Measured after exposure in the room condition for 24hrs															

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Lead-Free(LF) 標準溫度分析範圍

Refer to J-STD-020C

管制項目 Item.	升温區 Ramp-up	預熱區 Pre-heating	迴焊區 Reflow	Peak Temp	冷卻區 Cooling
溫度範圍 Temp.scope	R.T. ~ 150°C	150°C ~ 200°C	217°C	260±5°C	Peak Temp. ~ 150°C
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

NOTE :

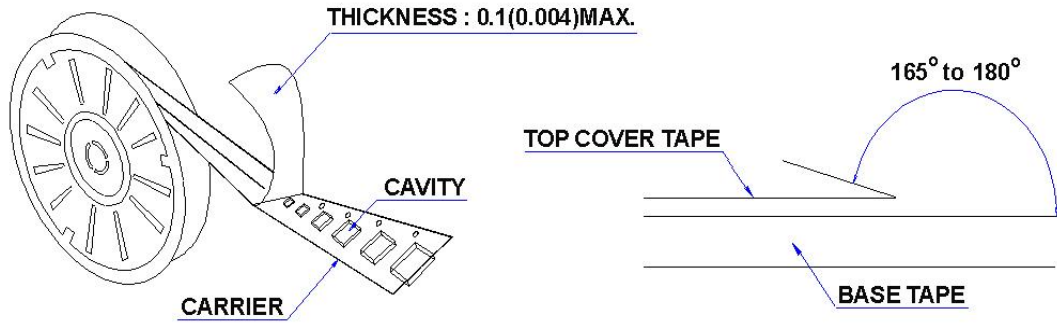
1. Re-flow possible times : within 2 times
2. Nitrogen adopted is recommended while in re-flow

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10 Packaging:

10.1 Packaging -Cover Tape

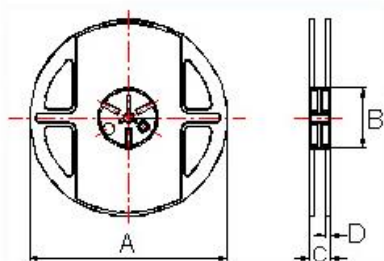
The force for tearing off cover tape is 10 to 100 grams in the arrow direction.



10.2 Packaging Quantity

TYPE	PCS/REEL
MHCD201610A	3000

10.3 Reel Dimensions



Dimensions in mm

TYPE	A	B	C	D
MHCD201610A	178	60	12	1.5

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13 Graph:

