



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

RoHS & Halogen Free & REACH Compliance.

SPECIFICATION FOR APPROVAL

Customer : _____ **各廠家**

Customer P/N: _____

Drawing No : _____

Quantity : 0 **Pcs.** **Date :** 2017/09/19

Chilisin P/N : _____ **MHCI05030-4R7M-R8**

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

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Drawn by
林天從

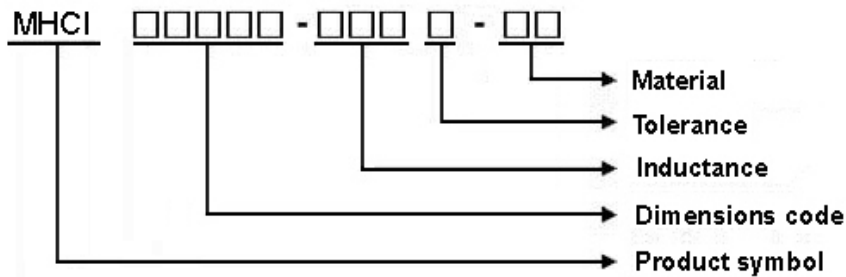
Checked by
溫美玲 ling

Approved by
陳瑞揚 ryan.chen

MHCI05030 Series Specification

1 Scope: This specification applies to large current and low loss SMD shielding power inductor.

2 Part Numbering:

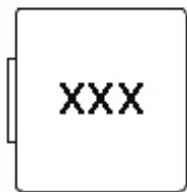


3 Rating:

Operating Temperature: $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ (Including self - temperature rise)

Storage Temperature: (on tape & reel): -20°C to $+40^{\circ}\text{C}$; 75% RH max.

4 Marking:



Ex : MHC105030-2R2M-R8

Marking : 2R2

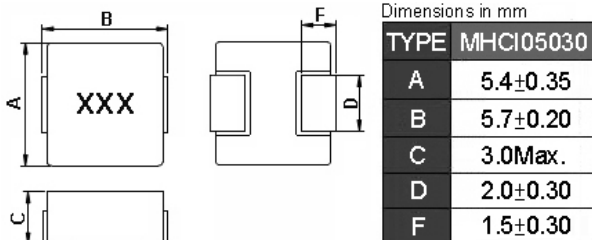
Marking color : Black

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

MHCI05030 Series Specification

6 Configuration and Dimensions:



7 Electrical Characteristics:

Part No.	Inductance (uH)	Tolerance (±%)	Test Freq.	I _{rms} (A) Typ.	I _{sat} (A) Typ.	RDC(mΩ) Max.	Marking
MHCI05030-R20M-R8	0.2	20	100kHz,0.5V	17	14.5	3.9(3.5typ)	R20
MHCI05030-R47M-R8	0.47	20	100kHz,0.5V	10	14	8.0(7.3typ)	R47
MHCI05030-R68M-R8	0.68	20	100kHz,0.5V	8	14	12(11typ)	R68
MHCI05030-1R0M-R8	1	20	100kHz,0.5V	7	11	15(14typ)	1R0
MHCI05030-1R2M-R8	1.2	20	100kHz,0.5V	6.5	11	16(15typ)	1R2
MHCI05030-1R5M-R8	1.5	20	100kHz,0.5V	6	10	25(20typ)	1R5
MHCI05030-2R2M-R8	2.2	20	100kHz,0.5V	5	8	35(29typ)	2R2
MHCI05030-3R3M-R8	3.3	20	100kHz,0.5V	4.5	7	46(38typ)	3R3
MHCI05030-4R7M-R8	4.7	20	100kHz,0.5V	4	6	60(50typ)	4R7
MHCI05030-6R8M-R8	6.8	20	100kHz,0.5V	3	5	110(96typ)	6R8
MHCI05030-100M-R8	10	20	100kHz,0.5V	2.5	4.5	126(105typ)	100

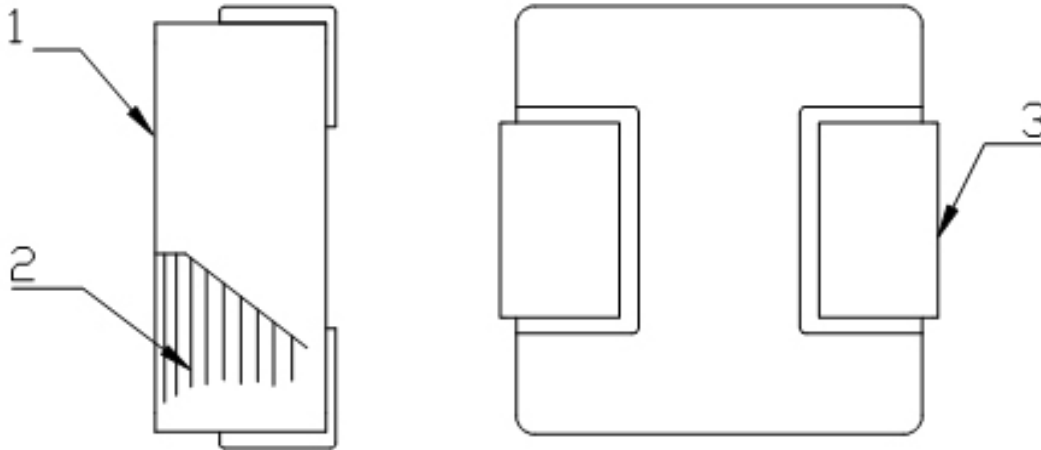
Note:

1. Operating temperature range -55°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. The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions.
Circuit design 125°C under worst case operating conditions. 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.
5. Absolute maximum voltage 30VDC

MHCI05030 Series Specification

8 MHCI05030 Series

8.1 Construction:



8.2 Material List:

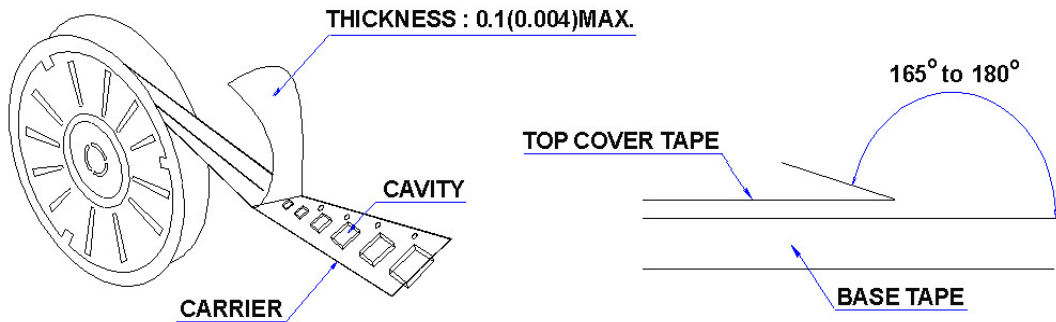
No	Part	Material
1	CORE	Alloy powder
2	WIRE	Copper wire
3	TERMINAL	TERMINAL COPPER

MHCI05030 Series Specification

9 Packaging:

9.1 Packaging -Cover Tape

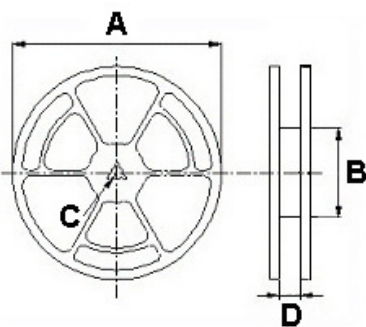
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



9.2 Packaging Quantity

TYPE	PCS/REEL
MHCI05030	1000

9.3 Reel Dimensions



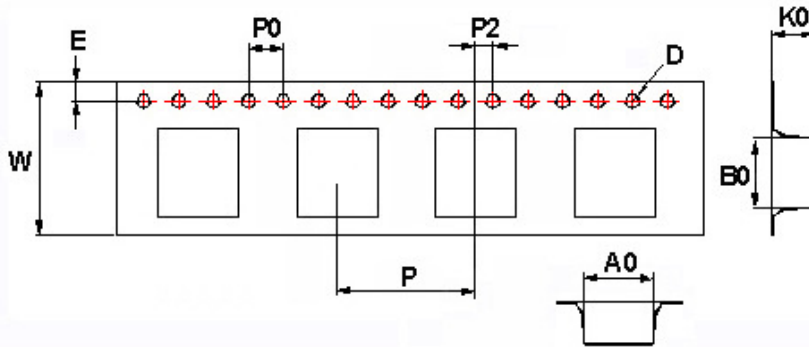
Reel Dimensions : mm

TYPE	A	B	C	D
MHCI05030	330	100	13	16

MHCI05030 Series Specification

9 Packaging:

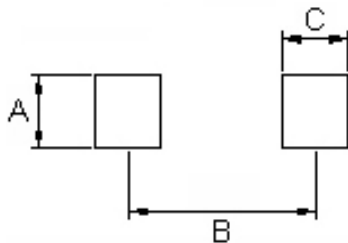
9.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
MHCI05030	5.9	6.2	3.4	1.55	1.75	16	12	4	2

10 Recommended Land Pattern:

PAD LAYOUT



Dimensions in mm

TYPE	A(in/mm)	B(in/mm)	C(in/mm)
MHCI05030	0.098/2.5	0.161/4.1	0.075/1.9

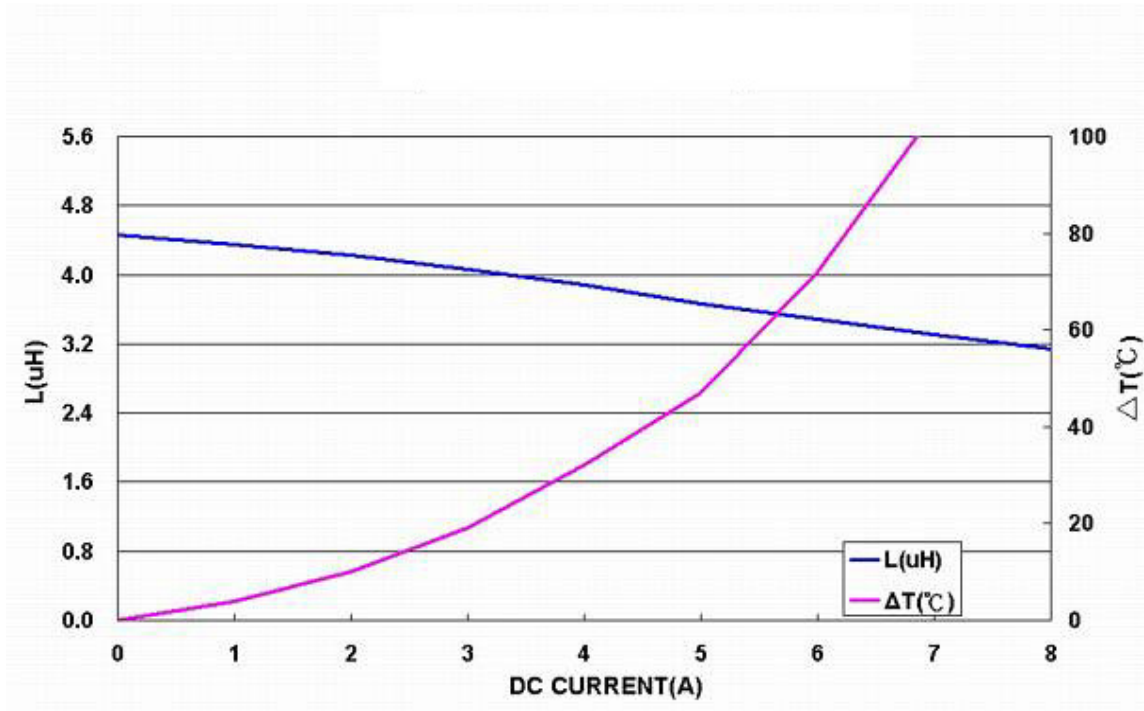
11 Note:

1. Please make sure that your product has been evaluated and confirmed against your specifications when our product is mounted to your product.
2. Do not knock nor drop.
3. All the items and parameters in this product specification have been prescribed on the premise that our product is used for the purpose, under the condition and in the environment agreed upon between you and us. You are requested not to use our product deviating from such agreement.
4. Please keep the distance between transformer/coil and other components (refer to the standard IEC 950)
5. The moisture sensitivity level (MSL) of products is classified as level 1.



MHCI05030 Series Specification

12 Graph: MHCI05030-4R7M-R8



A SB/PB/GB/NB
 B CLH
 C CL
 D LCN
 E NLC
 F NL
 G MHCC
 H LP

Reliability Of Ferrite Multilayer Chip Bead
Reliability Of Ceramic Multilayer Chip Inductor For High Freq.
Reliability Of Ferrite Multilayer Chip Inductor
Reliability Of Ceramic Wire Wound Chip Inductor
Reliability Of Ferrite Wire Wound Chip Inductor For High Current
Reliability Of Ferrite Wire Wound Chip Inductor
Reliability Of Large Current and Low Loss SMD Power Inductor
Reliability Of Ferrite Wire Wound Power Inductor

A 11 開始 每一頁 46

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value	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
1-1-2	Resistance to Soldering Heat	Appearance: No damage	Pre-heating: 150°C, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260 \pm 5°C Immersion Time: 10 \pm 1sec
1-1-3	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 Solder Temperature: 245 \pm 5°C Immersion Time: 4 \pm 1sec
1-1-4	Resistance to solvent	There must be no change in appearance or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.

1-2.Environmental Performance

No	Item	Specification	Test Method														
1-2-1	Temperature Shock	Appearance: No damage Inductance: within $\pm 10\%$ of initial value	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to -55 °C 30 minutes exposure to 125 °C 15 seconds maximum transition between temperatures														
1-2-2	Temperature Cycle		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>-55\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> Total: 100cycles Measured after exposure in the room condition for 24hrs	Step	Temperature (°C)	Time (min)	1	-55 \pm 3	30	2	25 \pm 2	3	3	125 \pm 3	30	4	25 \pm 2
Step	Temperature (°C)	Time (min)															
1	-55 \pm 3	30															
2	25 \pm 2	3															
3	125 \pm 3	30															
4	25 \pm 2	3															
1-2-3	Humidity Resistance		Temperature: 40 \pm 2°C Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs														
1-2-4	Heat Life		Temperature: 85 \pm 3°C Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs														
1-2-5	Cold Resistance		Temperature: -55 \pm 3°C Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs														

