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

Lead-Free & RoHs Compliance!!

SPECIFICATION FOR APPROVAL

CUSTOMER：	**佳世達**
CUSTOMER P/N：	**6H.4R711.108**
OUR DWG No：	**CE1-2A1025**
QUANTITY：	**X Pcs. DATE： 2012/11/06**
ITEM：	**MHCI10040-4R7M-R8**

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

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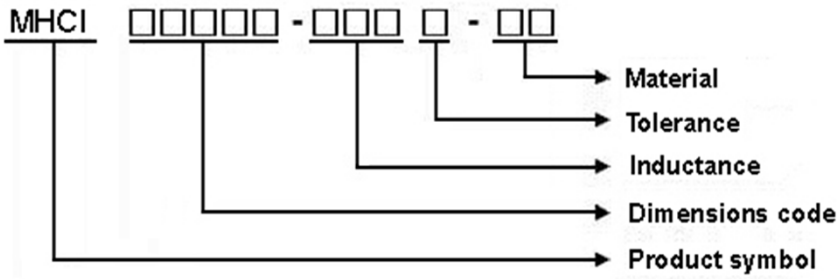
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DRAWN BY	CHECKED BY	APPROVED BY
張鈺雯 chang.yuwen	**張鈺雯 chang.yuwen**	**JACKY鍾 jacky.chung**

MHCI10040 Series Specification

1 Scope: This specification applies to Large current and Low Loss SMD Power INDUCTOR

2 Part Numbering: Product Identification

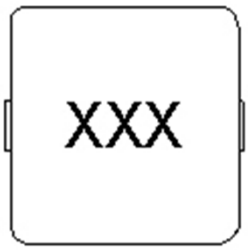


3 Rating:

Operating Temperature: **—40°C~125°C(Including self-temperature rise)**

Storage Temperature: **—40°C~85°C**

4 Marking:



Ex : MHCI10040-4R7M-R8

Marking : 4R7

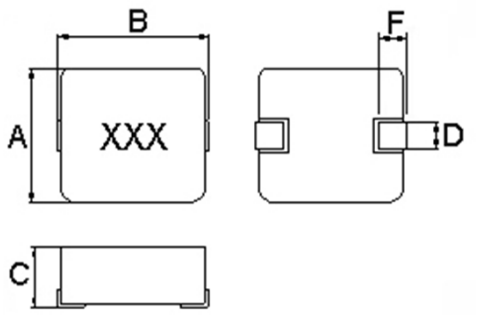
Marking color : Black

5 Standard Testing Condition

	Unless otherwise specified	In case of doubt
Temperature	Ordinary Temperature(15 to 35℃)	20±2℃
Humidity	Ordinary Humidity(25 to 85% RH)	60 to 70 % RH

MHCI10040 Series Specification

6 Configuration and Dimensions:



Dimensions in mm

TYPE	MHCI10040
A	10.1±0.3
B	11.15±0.35
C	3.8±0.2
D	3.0±0.5
F	2.5±0.5

7 ELECTRICAL CHARACTERISTICS：

Part No.	Inductance (uH)	Test Freq.	Irms (A)Typ.	Isat (A)Typ.	RDC (mΩ)Max.	Tolerance (±%)	Marking
MHCI10040-4R7M-R8	4.7	100kHz,0.5V	10	13	16.5	20	4R7

NOTE:

1.**Irms** DC current (A) that will cause an approximate ΔT of 40°C.

2.**Isat** DC current (A) that will cause Lo to drop approximately 30%

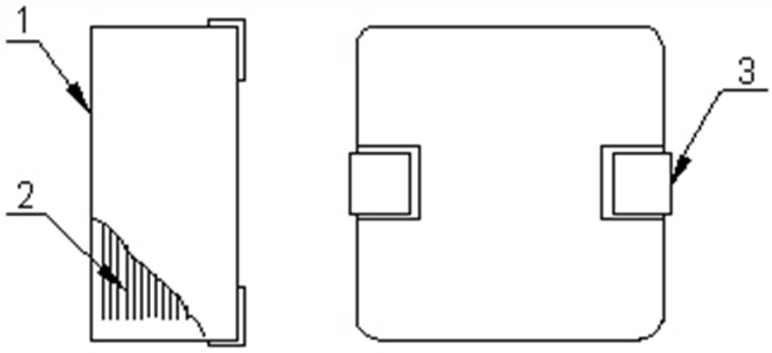
3.Operating Temperature Range －40℃ 125℃(Including self - temperature rise)

4.The part temperature (ambient + temp rise) should not exceed 125°C under worst case operatin
Circuit design 125°C under worst case operating conditions. component placement, PWB trace
and thickness, airflow and other cooling provisions all affect the part temperature. Part temper
should be verified in the end application.

MHCI10040 Series Specification

8 MHCI10040 Series

8.1 Construction:



8.2 Material List:

ITEM	PART	DESCRIPTION
1	CORE	Alloy powder
2	WIRE	COPPER WIRE AILKN5(220°C)
3	TERMINAL	TERMINAL COPPER

MHCI10040 Series Specification

9 Reliability Of Large Current and Low Loss SMD Power Inductor

1-1.Mechanical Performance

No	Item	Specification	Test Method
1-1-1	Vibration	Appearance: No damage Inductance:within±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℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 260±5℃ Immersion Time: 10±1sec
1-1-3	Solder ability	The electrodes shall be at least 95% covered with new solder coating	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245±5℃ Immersion Time: 4±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.

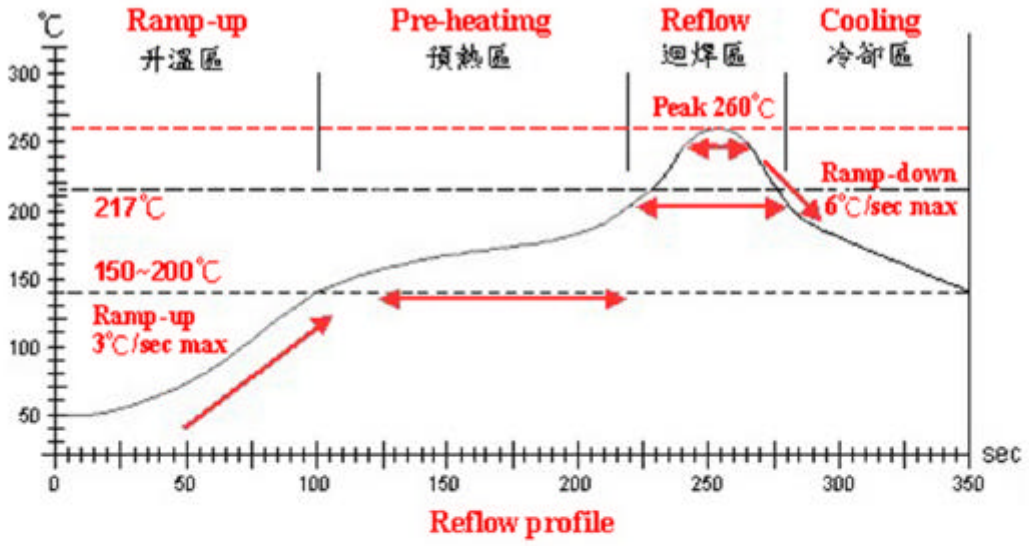
1-2.Environmental Performance

No	Item	Specification	Test Method
1-2-1	Temperature Shock	Appearance: No damage Inductance:within±10% of initial value	10 cycles (Air to Air) 1 cycles shall consist of: 30 minutes exposure to –55 ℃ 30 minutes exposure to 125 ℃ 15 seconds maximum transition between temperatures
1-2-2	Temperature Cycle		One cycle:

Step	Temperature (℃)	Time (min)
1	-55±3	30
2	25±2	3
3	125±3	30
4	25±2	3

1-2-2	Total: 100cycles Measured after exposure in the room condition for 24hrs
1-2-3	Humidity Resistance	Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs
1-2-4	Heat Life	Temperature: 85±3℃ 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±3℃ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs

MHCI10040 Series Specification



Reflow profile

Lead-Free(LF) 標準溫度分析範圍 Refer to J-STD-020C

管制項目 Item.	升溫區 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℃	150℃~200℃	217℃	260±5℃	Peak Temp.~150℃
標準時間 Time spec.	—	60 ~ 180 sec	60 ~ 150 sec	20 ~ 40 sec	—
實際時間 Time result	—	75 ~ 100 sec	90 ~ 120 sec	20 ~ 35 sec	—

MHCI10040 Series Specification

10 TEST DATA FOR PREPRODUCTION SAMPLES

QF-1419

DESCRIPTION: MHCI10040-4R7M-R8

MEAS. Item		L0 (uH)	L1 (uH)Typ.	RDC (mΩ)Max.	A m/m	B m/m	C m/m				
Spec	Customer	4.70±20%									
	Suggest		L0*0.7	16.5	10.1±0.3	11.15±0.35	3.8±0.2				
Test Freq.		Isat=0A 100kHz 0.5V	Isat=13A 100kHz 0.5V								
1		4.60	3.36	15.95	10.24	11.30	3.80				
2		4.81	3.44	16.07	10.22	11.20	3.82				
3		4.62	3.35	15.99	10.22	11.26	3.78				
4		4.63	3.31	15.76	10.22	11.24	3.82				
5		4.71	3.40	16.19	10.22	11.22	3.80				
6		4.65	3.35	16.0	10.24	11.24	3.82				
7		4.72	3.39	16.05	10.22	11.26	3.78				
8		4.68	3.37	16.20	10.24	11.28	3.80				
9		4.70	3.38	16.90	10.22	11.24	3.82				
10		4.69	3.37	16.95	10.24	11.22	3.80				
11											
12											
13											
14											
15											
$\overline{X}$		4.681	3.372	16.206	10.228	11.246	3.804				
R		0.21	0.13	1.19	0.02	0.1	0.04				
CUSTOMER											
SAMPLE											

TEST INSTRUMENT:

L0:WK 3260B

L1:WK3260B+WK3265B

RDC:CHEN HWA 502

Irms:chroma 1810

APPEARANCE AND DIMENSIONS :

SPEC : MEET ITEM 6.

TEST METHOD : VISUAL INSPECTION AND MEASURED WITH SILDE CALIPERS.

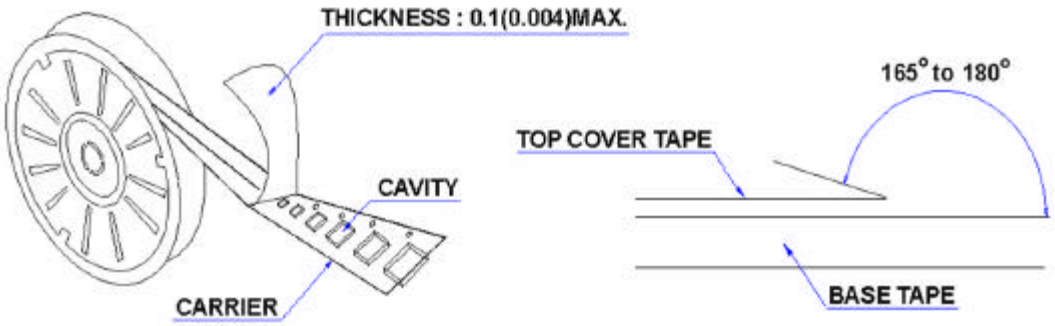
TESTING CONDITIONS :

	Unless otherwise specified
Temperature	Ordinary Temperature (15 to 35℃)
Humidity	Ordinary Humidity (25 to 85 %RH)

11 PACKAGING

11.1 Packaging -Cover tape

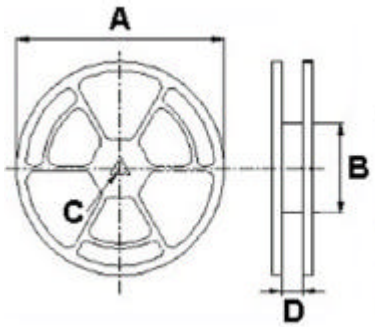
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



11.2 Packaging Quantity

TYPE	BULK	PCS/REEL
MHCI10040	✓	500

11.3 Reel Dimensions



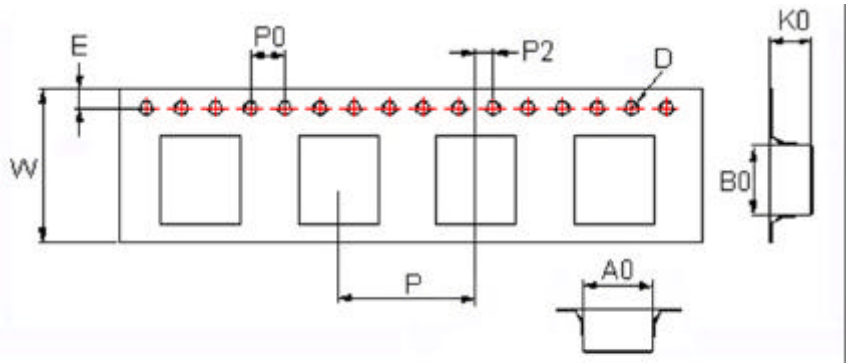
Reel Dimensions : mm

TYPE	A	B	C	D
MHCI10040	330	100	13	24.4

MHCI10040 Series Specification

11 PACKAGING

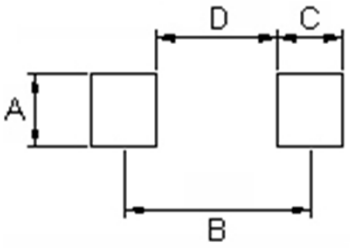
11.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
MHCI10040	10.6	11.7	4.25	1.55	1.75	24	16	4	2

12 Recommended Pattern

PAD LAYOUT



Dimensions in mm

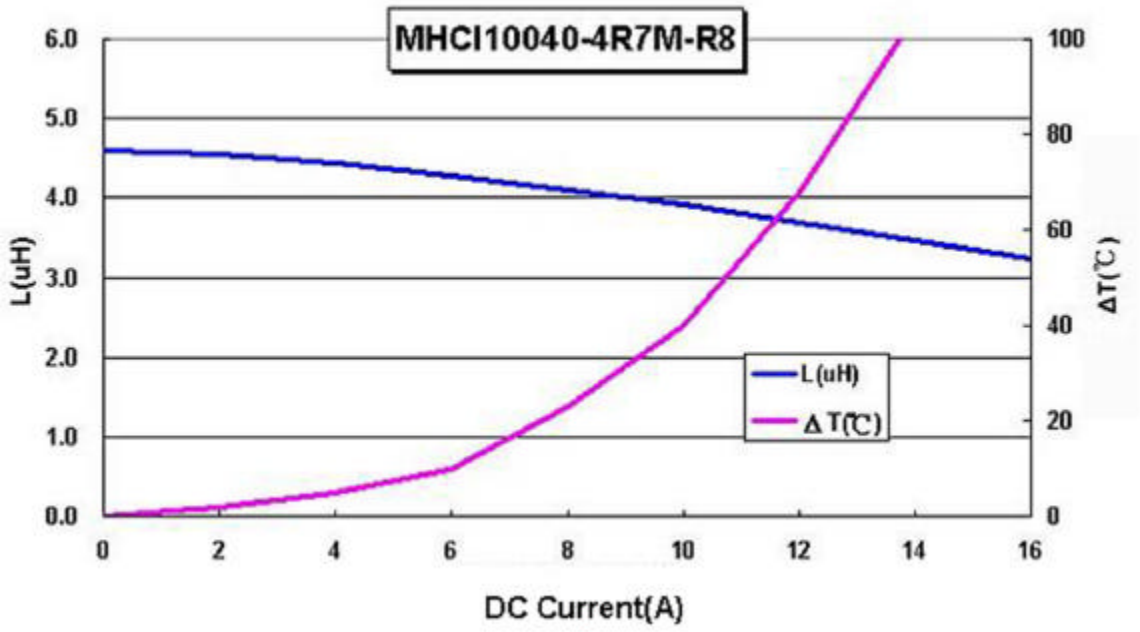
TYPE	A(in/mm)	B(in/mm)	C(in/mm)	D(in/mm)
MHCI10040	0.157/4.0	0.374/9.5	0.138/3.5	0.236/6.0

13 Note:

1. Please make sure that your product is 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)

MHCI10040 Series Specification

14 Curve:



MHCI10040-4R7M-R8

CEC:推力試驗

單位:Kg

1)18

2)20

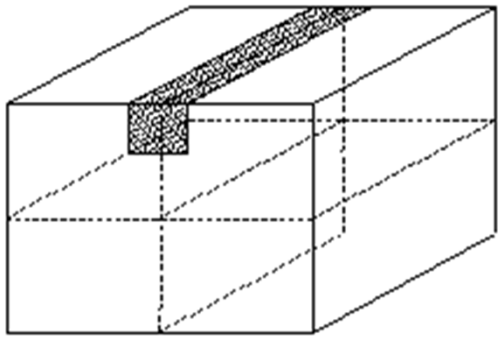
3)19

4)21

5)22

ISO9001 & ISO14001 & TS16949 CHILISIN ELECTRONICS CORP.

MHCI10040 Series Specification



外箱 LABEL:

CEC C/NO.: MADE IN CHINA	P/N: DESCRIPON: P/O: QTY: N.G: G.W: 順號: