

設計驗證
工程課
2025 -04- 15
發行

承 認 書

SPECIFICATION FOR APPROVAL

客戶(Customer)：	鈺緯科技開發股份有限公司
客戶料號(Customer P/N)：	3LCH47A411Y (L0199)
供應商 (Supplier Audit)：	拓銳電子實業限公司
產品型號(Model No.)：	MHCC10040-4R7M-R7
品名(Description)：	貼片電感
規格(Specification)：	一體成型電感 10040 4.7UH

客戶承認欄 (Customer Authorization Signature)	供應商 (Supplier Audit)		
設計驗證 工程課 2025 -04- 15 發行 鈺緯科技開發股份有限公司	Approver	Checker	Author
	JACK	RACY	YOYO
	日期： 2025 年4 月12 日		

Revision History

Version	Date	Description	Author
A0	2021.2.23		

拓 銳 電 子 有 限 公 司

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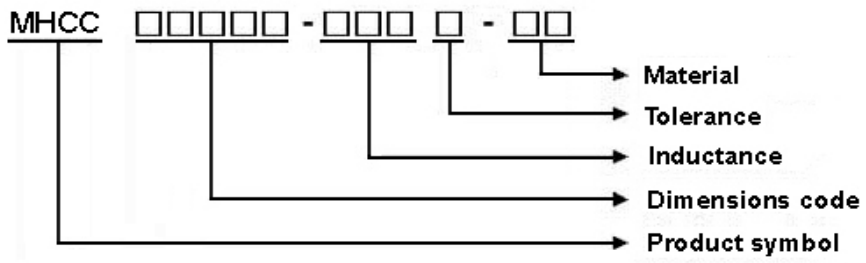
ISO9001 ISO14001 IATF16949 CHILISIN ELECTRONICS CORP.

MHCC10040 Series Specification

1 Scope:

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

2 Part Numbering:

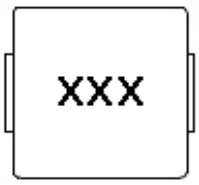


3 Rating:

Operating Temperature: －５５℃～１２５℃(Including self - temperature rise)

Storage Temperature: (on tape & reel): -20°C to +40°C; 75% RH max.

4 Marking:



Marking : XXX

Marking color : Black

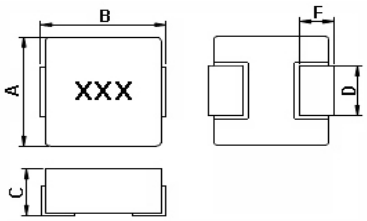
5 Standard Testing Condition

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

ISO9001 ISO14001 IATF16949 CHILISIN ELECTRONICS CORP.

MHCC10040 Series Specification

6 Configuration and Dimensions:



Dimensions in mm

TYPE	MHCC10040
A	10.1±0.3
B	11.6 Max.
C	4.0 Max.
D	3.0±0.5
F	2.5±0.5

FIG1

Dimensions in mm

TYPE	MHCC10040
A	10.1±0.3
B	11.6 Max.
C	4.0 Max.
D	2.5±0.5
F	2.5±0.5

FIG2

7 Electrical Characteristics:

Part No.	Inductance (uH)	Tolerance (±%)	Test Freq.	Irms(A) Typ.	Isat(A) Typ.	RDC(mΩ) Max.	Marking	FIG
MHCC10040-R22M-R7	0.22	20	100kHz,0.5V	35	45	0.6	R22	1
MHCC10040-R36M-R7	0.36	20	100kHz,0.5V	34	42	1.2	R36	1
MHCC10040-R45M-R7	0.45	20	100kHz,0.5V	33	38	1.2	R45	1
MHCC10040-R47M-R7	0.47	20	100kHz,0.5V	33	38	1.2	R47	1
MHCC10040-R56M-R7	0.56	20	100kHz,0.5V	27	32	1.55	R56	1
MHCC10040-R68M-R7	0.68	20	100kHz,0.5V	27	30	1.55	R68	1
MHCC10040-R90M-R7	0.9	20	100kHz,0.5V	22	20	3	R90	2
MHCC10040-1R0M-R7	1	20	100kHz,0.5V	20	26	3.1	1R0	2
MHCC10040-1R5M-R7	1.5	20	100kHz,0.5V	16	22	4.2	1R5	2
MHCC10040-1R8M-R7	1.8	20	100kHz,0.5V	15.3	16	5	1R8	2
MHCC10040-3R3M-R7	3.3	20	100kHz,0.5V	11	12	13.2	3R3	1
MHCC10040-4R7M-R7	4.7	20	100kHz,0.5V	9	12	16.5	4R7	1
MHCC10040-6R8M-R7	6.8	20	100kHz,0.5V	6	10	25	6R8	1
MHCC10040-8R2M-R7	8.2	20	100kHz,0.5V	6	9	30	8R2	1
MHCC10040-100M-R7	10	20	100kHz,0.5V	6.5	7	30	100	1
MHCC10040-150M-R7	15	20	100kHz,0.5V	6.25	6	45	150	1
MHCC10040-220M-R7	22	20	100kHz,0.5V	4.5	4.5	64	220	1

Note:

1.Operating temperature range -55℃~125℃(Including self - temperature rise)

2.Isat for Inductance drop 30% from its value without current.

3.Irms for a 40℃ temperature rise from 25℃ ambient.

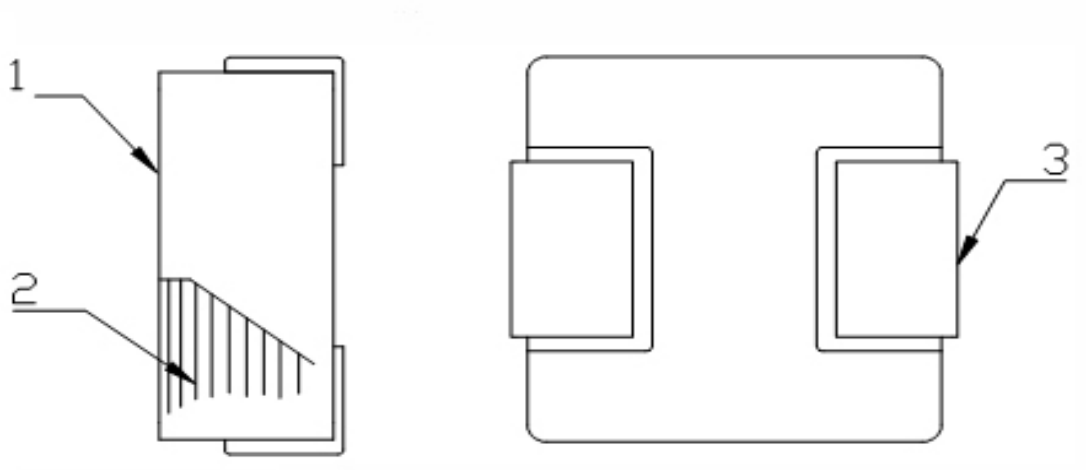
4.The part temperature (ambient + temp rise) should not exceed 125°C under worst case operating conditions. Circuit design 125°C under worst case operating conditions. Component placement, PWB trace size and thickness, airflow and other cooling provisions all affect the part temperature. Part temperature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

5.Absolute maximum voltage 30VDC

MHCC10040 Series Specification

8 MHCC10040 Series

8.1 Construction:



8.2 Material List:

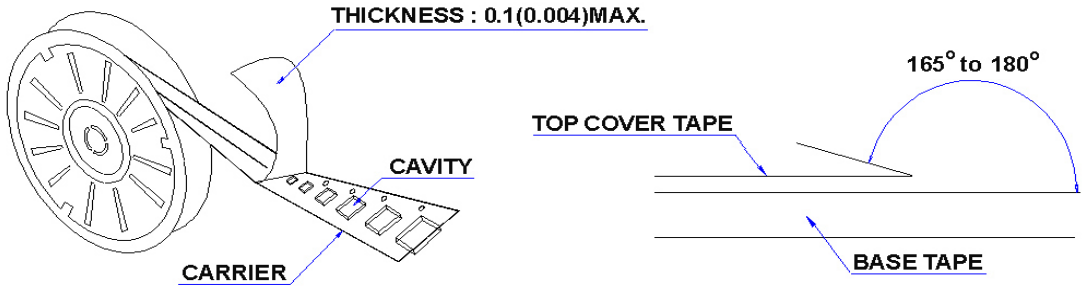
No	Part	Material
1	Core	Magnetic Metal Powder
2	Wire	Copper Wire
3	Terminal	Terminal Copper

MHCC10040 Series Specification

9 Packaging:

9.1 Packaging -Cover Tape

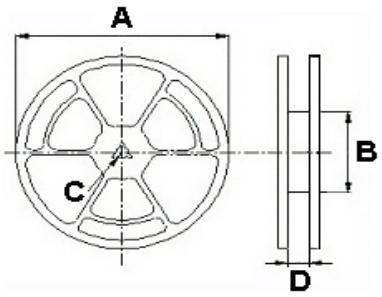
The force for tearing off cover tape is 10 to 130 grams in the arrow direction.



9.2 Packaging Quantity

TYPE	PCS/REEL
MHCC10040	500

9.3 Reel Dimensions



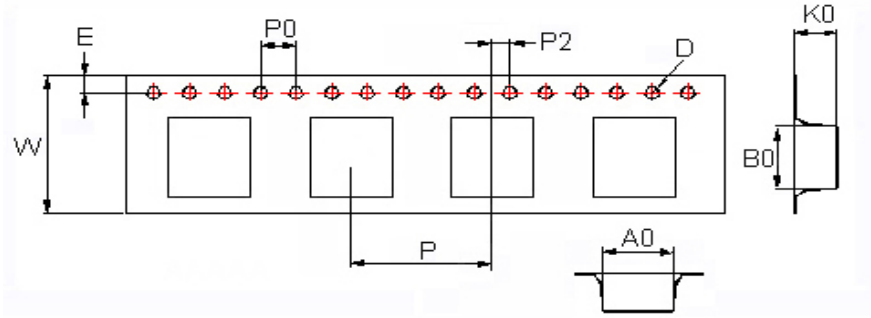
Dimensions in mm

TYPE	A	B	C	D
MHCC10040	330	100	13	24.4

MHCC10040 Series Specification

9 Packaging:

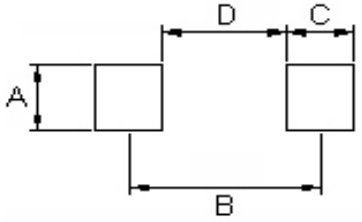
9.4 Tape Dimensions in mm



TYPE	A0	B0	K0	D	E	W	P	P0	P2
MHCC10040	10.6	11.7	4.25	1.55	1.75	24	16	4	2

10 Recommended Land Pattern:

PAD LAYOUT



Dimensions in mm

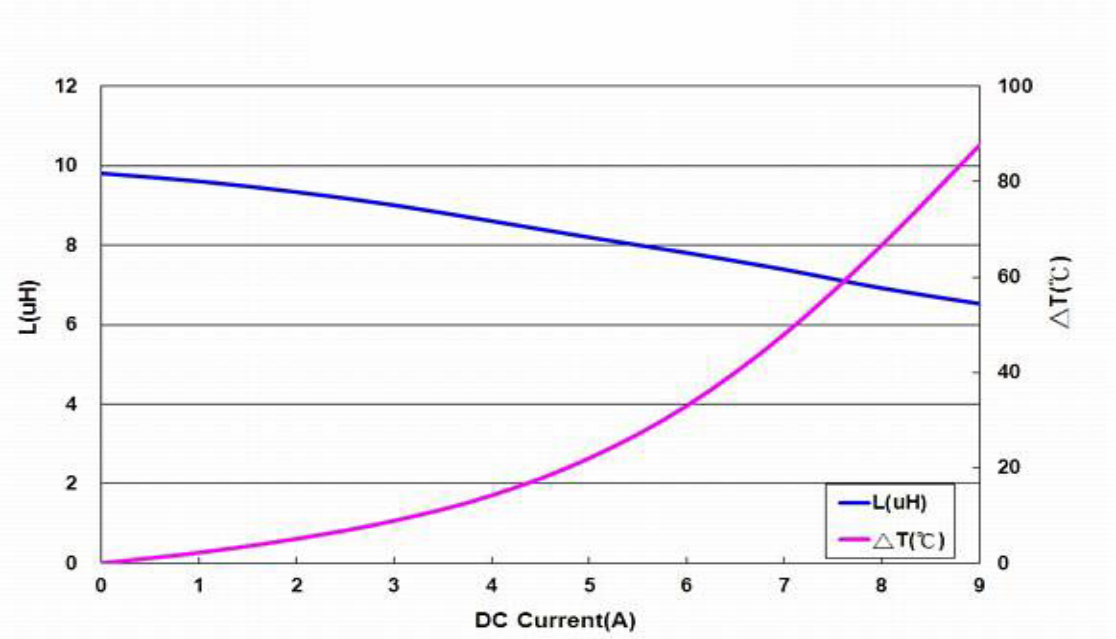
TYPE	A(in/mm)	B(in/mm)	C(in/mm)	D(in/mm)
MHCC10040	0.157/4.0	0.374/9.5	0.138/3.5	0.236/6.0

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.

MHCC10040 Series Specification

12 Graph: MHCC10040-100M-R7



A	**SB/PB/GB/NB**	**Reliability Of Ferrite Multilayer Chip Bead**
B	**CLH**	**Reliability Of Ceramic Multilayer Chip Inductor For High Freq.**
C	**CL**	**Reliability Of Ferrite Multilayer Chip Inductor**
D	**LCN**	**Reliability Of Ceramic Wire Wound Chip Inductor**
E	**NLC**	**Reliability Of Ferrite Wire Wound Chip Inductor For High Current**
F	**NL**	**Reliability Of Ferrite Wire Wound Chip Inductor**
G	**MHCC**	**Reliability Of Large Current and Low Loss SMD Power Inductor**
H	**LP**	**Reliability Of Ferrite Wire Wound Power Inductor**

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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

	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