

Mag Layers USA, INC

# **Specification Sheet**

# P/N: MCM-0905-102Y-E-RU

# Products:

**Certifications:** 

Molded Power Chokes

Multilayer Chip Inductors

Lan Transformer

RF Passive / Antennas

<u>Automotive</u>

<u>ISO9001</u>

IATF16949

ISO14001

QC080000

# **US Office**

5406 Bolsa Ave., Huntington Beach, CA 92649 (714) 898-8377

# **Contact Us**

www.maglayersusa.com info@maglayersusa.com

REV.	Description	Date	Approvaled by	Checked by	Checked by	Prepared by
00	Issue	2014.05.14	Vincent	Marco	Sara	Brian

## REVISIONS



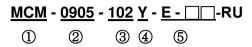
**MAG.LAYERS** 

## I. SCOPE :

This specification applies to the Pb Free high current type SMD Common mode filter

for MCM-0905-SERIES-

### **PRODUCT INDENTIFICATION**



- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code
- **(5)** Inner Control Code

### **Ⅱ**. INDEX:

LISTED ITEM	ATTACHEMENT & TABLES	PAGE
1. SHAPES AND DIMENSIONS	Please see (1)	2/8
2. MATERIALS	Please see (3)	2/8
3. ELECTRICAL SPECIFICATIONS	Please see (2)	2/8,3/8
4. CHARACTERISTICS	Please see (3)	2/8,3/8
5. RELIABILITY TEST METHOD	Please see (4)	4/8,5/8
6. LAND DIMENSION (Ref.)	Please see (5)	6/8
7. TEST EQUIPMENT	Please see (6)	6/8
8. PACKAGING	Please see (7)	7/8,8/8

Unless otherwise specified, test condition should be Temp.=20±5°C,

Humidity=35~85%

But if needed, then test condition should be Temp.=20±2°C,

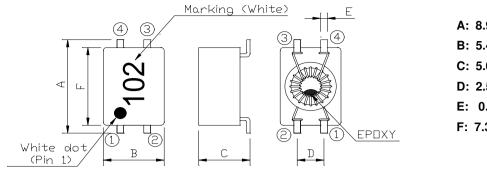
Humidity=65±5%

9.SHELF LIFE

Storage Condition:The temperature should be within-40 $^{\circ}$ C ~105 $^{\circ}$ C and humidity should be less than 75%RH. The product should be used within 12 months from the time of delivery. In addition, suggest to use product within 6 months from the time of delivery.



## (1) SHAPES AND DIMENSIONS



A: 8.9±0.5	mm
B: 5.4±0.3	mm
C: 5.0 Max.	mm
D: 2.54±0.3	mm
Е: 0.5 Тур.	mm
F: 7.3±0.3	mm

Top View

Bottom View

## (2) ELECTRICAL SPECIFICATIONS SEE TABLE 1

#### TEST INSTRUMENTS

L : HP 4284A PRECISION LCR METER (or equivalent)

- RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)
- I.R : CHROMA MODEL 19073 AC/DC/IR HIPOT TESTER (or equivalent)

### (3) CHARACTERISTICS

- (3)-1 Operate temperature range ......  $-40^{\circ}C \sim +125^{\circ}C$ (Including self temp. rise)
- (3)-2 Storage temperature range ......  $-40^{\circ}C \sim +125^{\circ}C$

### MATERIALS

NO.	ITEM	DESCRIPTION & TYPE	UL NO.	MANUFACTURER		
1	CORE	FERRITE		ACME ELECTRONICS CORPORATION		
				ENCORE ELECTRONICS TECHNOLOGY CO., LTD.		
2	BASE	РМ9630		YUAN SHING ELECTRONIC INC.		
				SHUO CHENG ELECTRONICS CO., LTD.		
3	WIRE	POLYURETHANE ENAMELLED	E84081	PACIFIC ELECTRICAL WIRE & CABLE CO., LTD.		
		COPPER WIRE	E258243	ELEKTRISOLA CO., LTD.		
4	SOLDER	Sn99.3%/Cu0.7%		SHENMAO TECHNOLOGY INC.OR EQUIV.		
				OR EQUIV.		
5	INK	BON MARQUE INK		T&K TOKA.		
				OR EQUIV.		

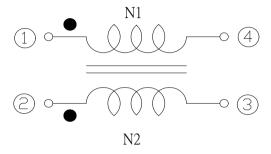


## TABLE 1

MAGLAYERS PT/NO.	Inductance L(uH) (1-4),(2-3) at 100KHz/0.1V	Resistance RDC(Ω) Max. (1-4),(2-3)	Rated Current (A) Max.	Insulation Resistance (MΩ) Min.
MCM-0905-102Y-E-	1000 +50%/-30%	0.3	0.7	100

Rated Current : Based on temperature rise ( $\triangle T$ : 40°C Typ.)

### **CIRCUIT DIAGRAM**





## (4) RELIABILITY TEST METHOD

### MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Solder ability	The product shall be connected to the test	Apply cream solder to the printed circuit board .
	circuit board by the fillet (the height is 0.2mm).	Refer to clause 8 for Reflow profile.
Resistance to	There shall be no damage or problems.	Temperature profile of reflow soldering
Soldering heat		seldering
(reflow soldering)		The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time. The specimen shall be stored at standard atmospheric eric conditions for 1 hour, after which the measurement shall be made.
Terminal strength	The terminal electrode and the ferrite must	Solder a chip to test substrate , and then laterally apply
_	not damaged.	a load 9.8N in the arrow direction.
		Printed circuit board
Strength on PC board	The terminal electrode and the ferrite must	Solder a chip to test substrate and then apply a load.
bending	not damaged.	Test board:FR4 100×40×1mm R10 45 45 Dimensions in mm
High	Impedance:Within±20% of the initial value.	After the samples shall be soldered onto the test circuit
temperature	Insulation resistance and DC resistance on the	board,the test shall be done.
resistance	specification(refer to clause 2-1) shall be met.	Measurement : After placing for 24 hours min.
	The terminal electrode and the ferrite must not	Temperature : +85±2℃
	damaged.	Applied voltage : Rated voltage
		Applied current : Rated current
		Testing time : 500±12 hours



## (4) RELIABILITY TEST METHOD

#### **MECHANICAL**

TEST ITEM	SPECIFICATION	TEST DETAILS
Humidity	Impedance:Within±20% of the initial value.	After the samples shall be soldered onto the test circuit
resistance	Insulation resistance and DC resistance on the	board,the test shall be done.
	specification(refer to clause 2-1) shall be met.	Measurement : After placing for 24 hours min.
	The terminal electrode and the ferrite must not	Temperature:+60 $\pm 2^\circ\!\!\mathbb{C}$ ,Humidity:90 to 95 %RH
	damaged.	Applied voltage : Rated voltage
		Applied current : Rated current
		Testing time : 500±12 hours
Thermal shock	Impedance:Within±20% of the initial value.	1 cycle
	Insulation resistance and DC resistance on the	+85°C
	specification(refer to clause 2-1) shall be met.	
	The terminal electrode and the ferrite must	- 40°C Testing time : 100 cycle
	not damaged.	30min.
Low	Impedance:Within±20% of the initial value.	After the samples shall be soldered onto the test
temperature	Insulation resistance and DC resistance on the	circuit board,the test shall be done.
storage	specification(refer to clause 2-1) shall be met.	Measurement : After placing for 24 hours min.
Storuge	The terminal electrode and the ferrite must	Temperature : -40±2°C
	not damaged.	Testing time : 500±12 hours
Vibration	Impedance:Within±20% of the initial value.	After the samples shall be soldered onto the test circuit
	Insulation resistance and DC resistance on	board,the test shall be done.
	the specification(refer to clause 2-1)	Frequency : 10 to 55 Hz
	shall be met.	Amplitude : 1.52 mm
	The terminal electrode and the ferrite must	Dimension and times : X ,Y and Z directions
	not damaged.	for 2 hours each.
Solderability	New solder More than 75%	Flux (rosin, isopropyl alcohol{JIS-K-1522}) shall be coated
		over the whole of the sample before hard, the sample shall
		then be preheated for about 2 minutes in a temperature
		of 130 $\sim$ 150 $^\circ\!$
		0.5mm below for 3±0.2 seconds fully in molten solder
		M705 with a temperature of $245\pm 2^{\circ}$ C. More than 75% of the
		electrode sections shall be couered
		with new solder smoothly when the sample is taken out
		of the solder bath.

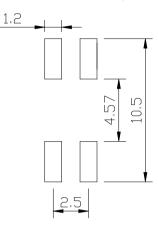


## (5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY t=1.6mm

### (5)-1 LAND PATTERN DIMENSIONS

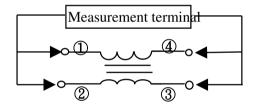
(STANDARD PATTERN)



## (6) TEST EQUIPMENT

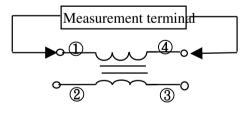
#### (6)-1 Inductance

Measured by using HP4291B RF Impedance Analyzer.



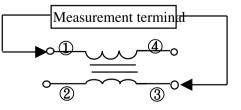
#### (6)-2 DC Resistance

Measured by using Chroma 16502 milliohm meter.



#### (6)-3 Insulation Resistance

Measured by using Chroma 19073

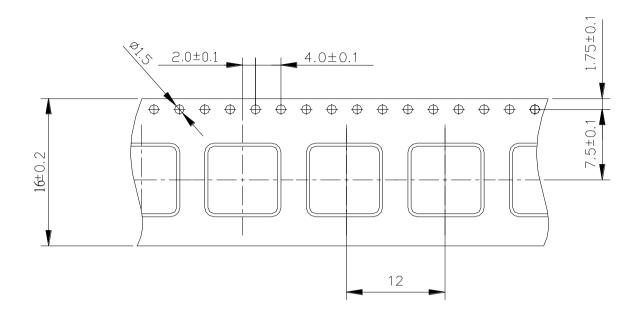




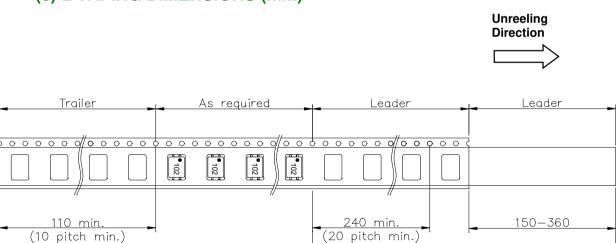
MCM-0905-SERIES----RU

C-0906-063-(00)

## (6) PACKAGING (6)-1 CARRIER TAPE DIMENSIONS (mm)

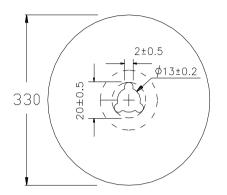


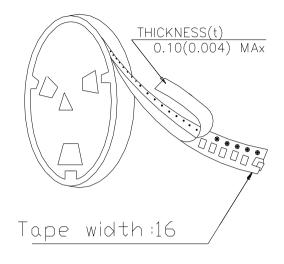
## (6)-2 TAPING DIMENSIONS (mm)





400-560



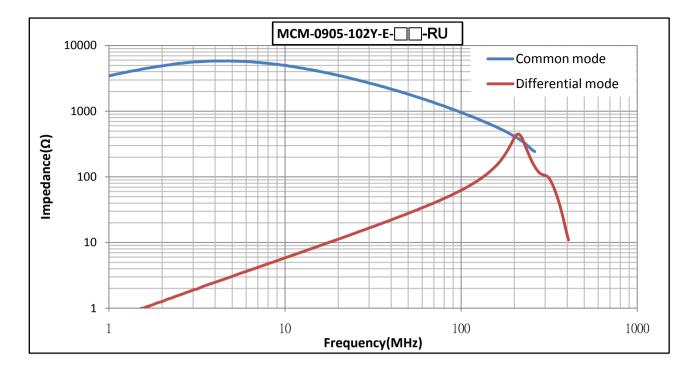


IUUU pcs/Reel

The products are packaged so that no damage will be sustained.



C-0906-063-(00)



## **TYPICAL ELECTRICAL CHARACTERISTICS**



**ATTACHMENT-1**