

# APPROVAL SHEET

## (RoHS)

CUSTOMER : \_\_\_\_\_  
CUSTOMER'S PART NO : \_\_\_\_\_  
DESCRIPTION : \_\_\_\_\_  
PART NO. : MCM-0905S-Series  
DATE : 2021/04/16  
AUTHORIZED BY : *SGT*

	FULLY APPROVED	PARTIALLY APPROVED	REJECTED
SIGN			
SUGGESTION			

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### REVISIONS

REV.	Description	Date	Approved by	Checked by	Checked by	Prepared by
00	Issue	2018.03.19	Vincent	Marco	Sara	Stanley



## I . SCOPE :

This specification applies to the Pb Free high current type SMD Common mode filter  
for MCM-0905S-102Y-H-□□

### PRODUCT IDENTIFICATION

MCM - 0905S - Serie

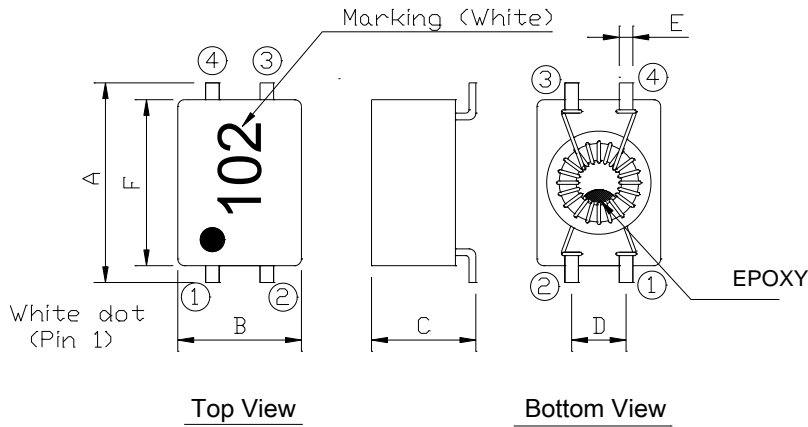
①            ②            ③ ④            ⑤

- ① Product Code
- ② Dimensions Code
- ③ Impedance Code
- ④ Tolerance
- ⑤ Inner Control Code

## II . INDEX :

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Unless otherwise specified, test condition should be Temp. = $20\pm 5^{\circ}\text{C}$ , Humidity = 35~85% But if needed, then test condition should be Temp. = $20\pm 2^{\circ}\text{C}$ , Humidity = $65\pm 5\%$		
8.SHELF LIFE Storage Condition: The temperature should be within $-40^{\circ}\text{C}$ ~ $105^{\circ}\text{C}$ 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(mm)



A:  $8.90 \pm 0.50$

B:  $5.40 \pm 0.30$

C: 5.00 Max.

D:  $2.54 \pm 0.30$

E: 0.50 Typ.

F:  $7.30 \pm 0.30$

## (2) ELECTRICAL SPECIFICATIONS

### SEE TABLE 1

#### TEST INSTRUMENTS

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

RDC : CHROMA MODEL 16502 MILLIOHM METER (or equivalent)

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

## (3) CHARACTERISTICS

(3)-1 Operate temperature range .....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$

(Including self temp. rise)

(3)-2 Storage temperature range .....  $-40^{\circ}\text{C} \sim +125^{\circ}\text{C}$



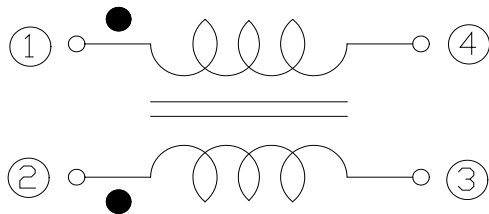
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**TABLE 1**

MAGLAYERS PT/NO.	L(1-4),(2-3) (uH) @100KHz/0.25V	Resistance RDC ( $\Omega$ ) Max. (1 line)	Rated Current (A) Max.	Insulation Resistance (M $\Omega$ ) Min.	Rated Voltage (V) Max.	Marking
MCM-0905S-102Y-H-□□	1000±50%	0.15	1.2	100	80	●102

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

**CIRCUIT DIAGRAM**

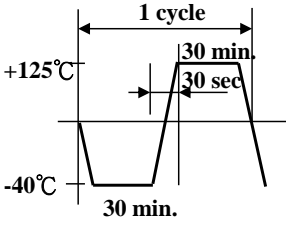


**(4) RELIABILITY TEST METHOD**  
**MECHANICAL**

TEST ITEM	SPECIFICATION	TEST DETAILS
Solder ability	The product shall be connected to the test circuit board by the fillet (the height is 0.2mm).	Apply cream solder to the printed circuit board . Refer to clause 8 for Reflow profile.
Resistance to Soldering heat (reflow soldering)	There shall be no damage or problems.	<p>Temperature profile of reflow soldering</p> <p>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 conditions for 1 hour, after which the measurement shall be made.</p>
Terminal strength	The terminal electrode and the ferrite must not damaged.	<p>Solder a chip to test substrate , and then laterally apply a load 9.8N in the arrow direction.</p>
Strength on PC board bending	The terminal electrode and the ferrite must not damaged.	<p>Solder a chip to test substrate and then apply a load.</p> <p>Test board:FR4 100×40×1mm Fall speed:1mm/sec. Dimensions in mm</p>
High temperature resistance	<p>Impedance:Within±20% of the initial value.</p> <p>Insulation resistance and DC resistance on the specification(refer to clause 2-1) shall be met.</p> <p>The terminal electrode and the ferrite must not damaged.</p>	<p>After the samples shall be soldered onto the test circuit board,the test shall be done.</p> <p>Measurement : After placing for 24 hours min.</p> <p>Temperature : +125±2°C</p> <p>Applied voltage : Rated voltage</p> <p>Applied current : Rated current</p> <p>Testing time : 500±12 hours</p>



**(4) RELIABILITY TEST METHOD**  
**MECHANICAL**

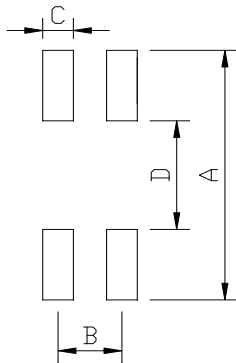
TEST ITEM	SPECIFICATION	TEST DETAILS
Humidity resistance	<p>Impedance: Within <math>\pm 20\%</math> of the initial value.</p> <p>Insulation resistance and DC resistance on the specification (refer to clause 2-1) shall be met.</p> <p>The terminal electrode and the ferrite must not be damaged.</p>	<p>After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

## (5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY t=1.6mm

### (5)-1 LAND PATTERN DIMENSIONS(mm)

(STANDARD PATTERN)

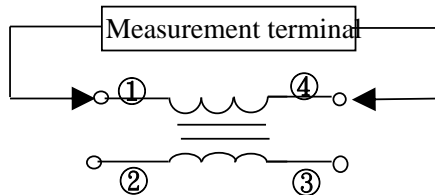


A: 10.50  
B: 2.54  
C: 1.20  
D: 4.50

## (6) TEST EQUIPMENT

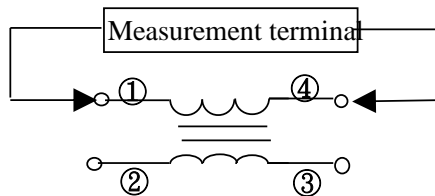
### (6)-1 Inductance

Measured by using HP4284A



### (6)-2 DC Resistance

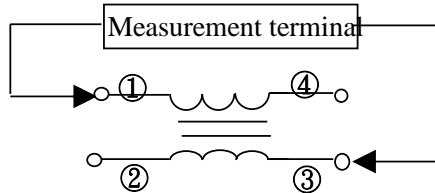
Measured by using Chroma 16502 milliohm meter.



### (6)-3 Insulation Resistance

Measured by using Chroma 19073

Measurement voltage : 50V ,Measurement time : 60 sec.

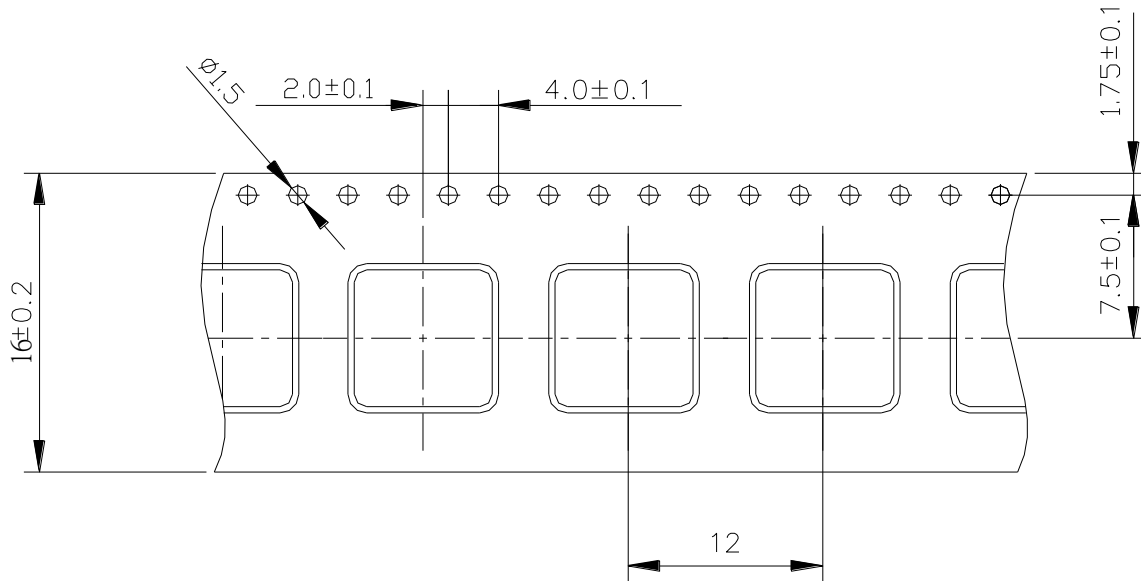


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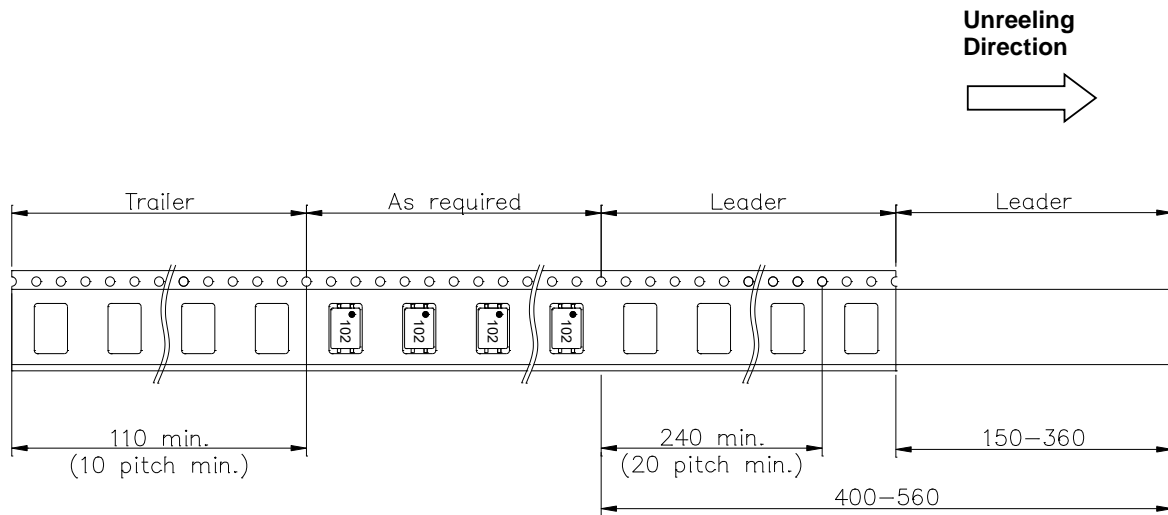


## (6) PACKAGING

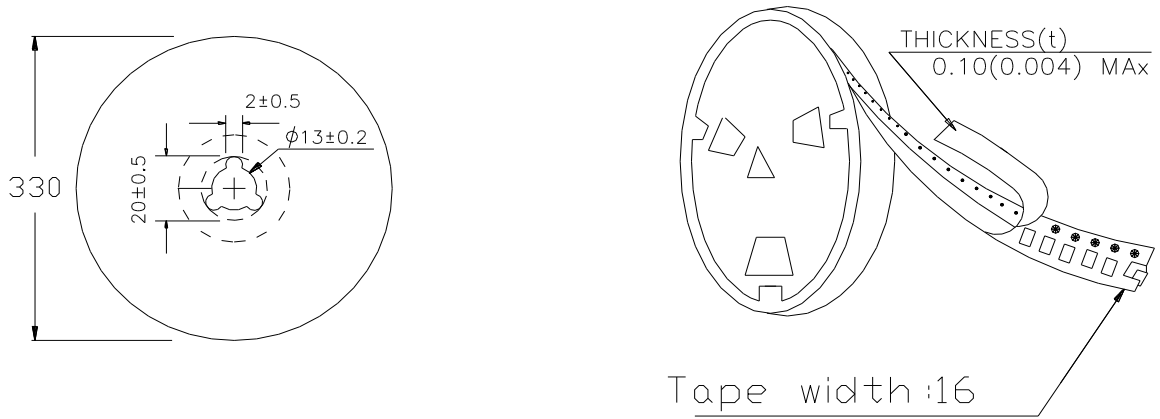
### (6)-1 CARRIER TAPE DIMENSIONS (mm)



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



### (6)-3 REEL DIMENSIONS (mm)



### (6)-4 QUANTITY

1000 pcs/Reel

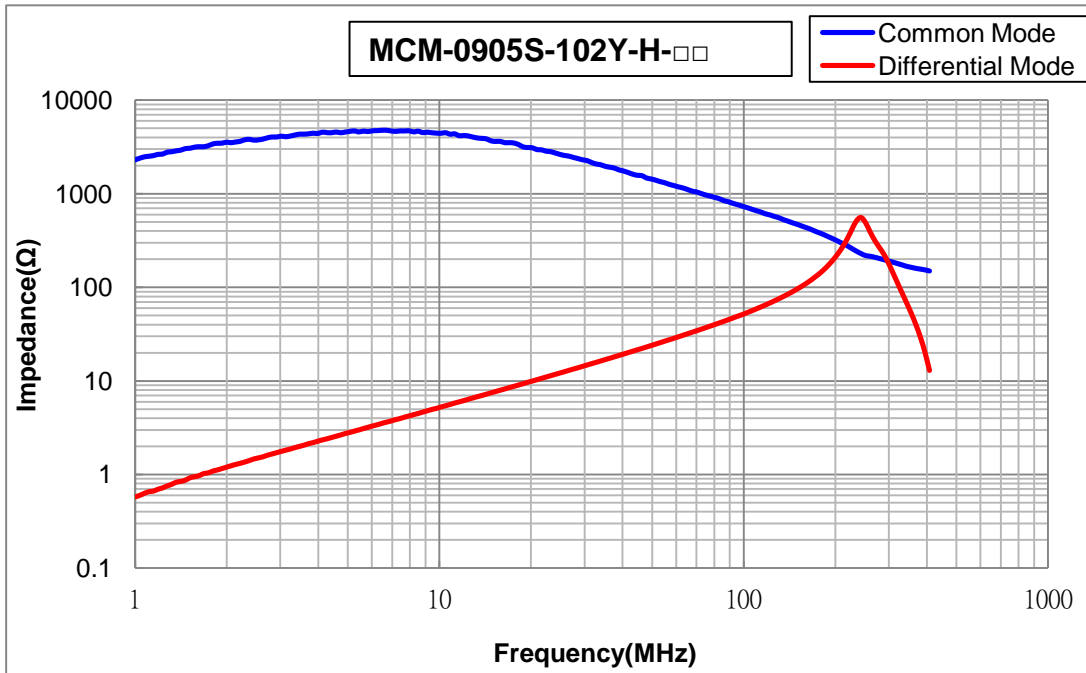
The products are packaged so that no damage will be sustained.



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# TYPICAL ELECTRICAL CHARACTERISTICS

## Impedance VS. Frequency



## Temperature VS. DC Current

