



Mag Layers USA, INC

Specification Sheet

P/N : **MCM-0905C-102Y-E-RU**

Products:

[Molded Power Chokes](#)

[Multilayer Chip Inductors](#)

[Lan Transformer](#)

[RF Passive / Antennas](#)

[Automotive](#)

Certifications:

[ISO9001](#)

[IATF16949](#)

[ISO14001](#)

[QC080000](#)

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REVISIONS

REV.	Description	Date	Approved by	Checked by	Checked by	Prepared by
00	Issue	2016.05.06	Vincent	Marco	Sara	Stanley
01	P.3/8 TABLE 1 Updated P.4/8 - 5/8 Reliability Test Method Updated P.6/8 Teat Equipment Updated	2019.02.26	Vincent	Marco	Sara	Stanley



I. SCOPE :

This specification applies to the Pb Free high current type SMD Common mode filter
for MCM-0905C-SERIES-□-□□

PRODUCT IDENTIFICATION

MCM - 0905C - 102 Y - E - □□-RU

① ② ③ ④ ⑤

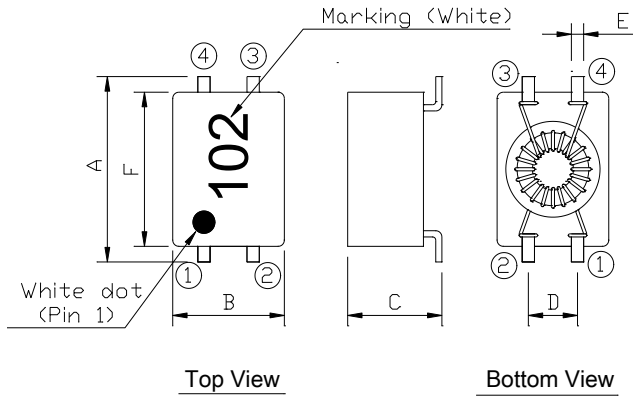
- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code
- ⑤ Inner Control Code

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
<p>Unless otherwise specified, test condition should be Temp. = 20±5℃, Humidity = 35~85%</p> <p>But if needed, then test condition should be Temp. = 20±2℃, Humidity = 65±5%</p> <p>9.SHELF LIFE</p> <p>Storage Condition: The temperature should be within -40℃ ~ 105℃ and humidity should be less than 75%RH. The product should be used within 12 months from the time of delivery.</p> <p>In addition, suggest to use product within 6 months from the time of delivery.</p>		



(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
E: 0.5 Typ.	mm
F: 7.3±0.3	mm

(2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

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

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

(3) CHARACTERISTICS

(3)-1 Operate temperature range -40°C ~ +125°C

(Including self temp. rise)

(3)-2 Storage temperature range -40°C ~ +125°C

MATERIALS

NO.	ITEM	DESCRIPTION & TYPE	UL NO.	MANUFACTURER
1	CORE	FERRITE		ENCORE ELECTRONICS TECHNOLOGY CO., LTD.
				ACME ELECTRONICS CORPORATION
2	BASE	PM9630		YUAN SHING ELECTRONIC INC.
3	WIRE	POLYURETHANE ENAMELLED COPPER WIRE	E84081 E258243 E255839	PACIFIC ELECTRICAL WIRE & CABLE CO., LTD.
				ELEKTRISOLA CO., LTD.
				SHING SHUN MAGNET WIRE (HUIZHOU) CO., LTD.
4	SOLDER	Sn99.3%/Cu0.7%		SHENMAO TECHNOLOGY INC.OR EQUIV.
				SOLNET METAL INDUSTRY CO., LTD.
				OR EQUIV.
5	INK	BON MARQUE INK		T&K TOKA.
				OR EQUIV.
6	ADHESIVE	EPOXY RESIN		NAGASE TRADING CO., LTD.
				OR EQUIV.

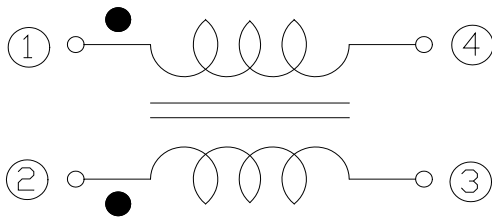


TABLE 1

MAGLAYERS PT/NO.	Inductance L(mH) (1-4),(2-3) at 10KHz/0.1V	Resistance RDC(Ω) Max. (1-4),(2-3)	Rated Current (A) Max.	Insulation Resistance (M Ω) Min.	Marking
MCM-0905C-102Y-E-□□-RU	1.0 \pm 50%	0.21	1.0	10	●102

Rated Current : Based on temperature rise (ΔT : 40°C Max.)

CIRCUIT DIAGRAM

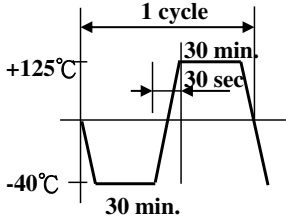


**(4) RELIABILITY TEST METHOD
MECHANICAL**

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 be 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 be 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 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 : +125±2°C</p> <p>Applied voltage : Rated voltage</p> <p>Applied current : Rated current</p> <p>Testing time : 500±12 hours</p>



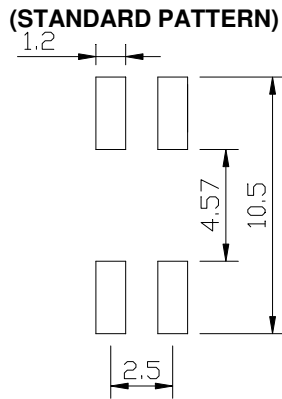
(4) RELIABILITY TEST METHOD
MECHANICAL

TEST ITEM	SPECIFICATION	TEST DETAILS
Humidity resistance	<p>Impedance: Within $\pm 20\%$ 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 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 : $+60 \pm 2^\circ\text{C}$, Humidity : 90 to 95 %RH</p> <p>Applied voltage : Rated voltage</p> <p>Applied current : Rated current</p> <p>Testing time : 500 ± 12 hours</p>
Thermal shock	<p>Impedance: Within $\pm 20\%$ 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 be damaged.</p>	
Low temperature storage	<p>Impedance: Within $\pm 20\%$ 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 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 : $-40 \pm 2^\circ\text{C}$</p> <p>Testing time : 500 ± 12 hours</p>
Vibration	<p>Impedance: Within $\pm 20\%$ 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 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 hard, the sample shall then be preheated for about 2 minutes in a temperature of $130 \sim 150^\circ\text{C}$ and after it has been immersed to a depth 0.5mm below for 3 ± 0.2 seconds fully in molten solder M705 with a temperature of $245 \pm 2^\circ\text{C}$. 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

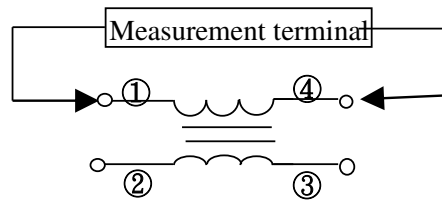
(5)-1 LAND PATTERN DIMENSIONS



(6) TEST EQUIPMENT

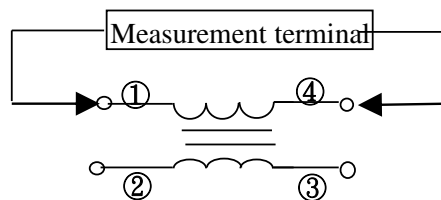
(6)-1 Inductance

Measured by using HP4284A precision LCR meter



(6)-2 DC Resistance

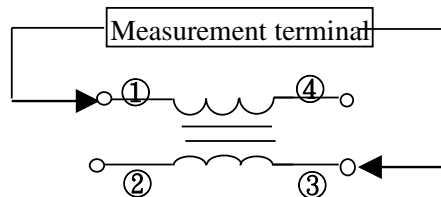
Measured by using Chroma 16502 milliohm meter.



(6)-3 Insulation Resistance

Measured by using Chroma 19073

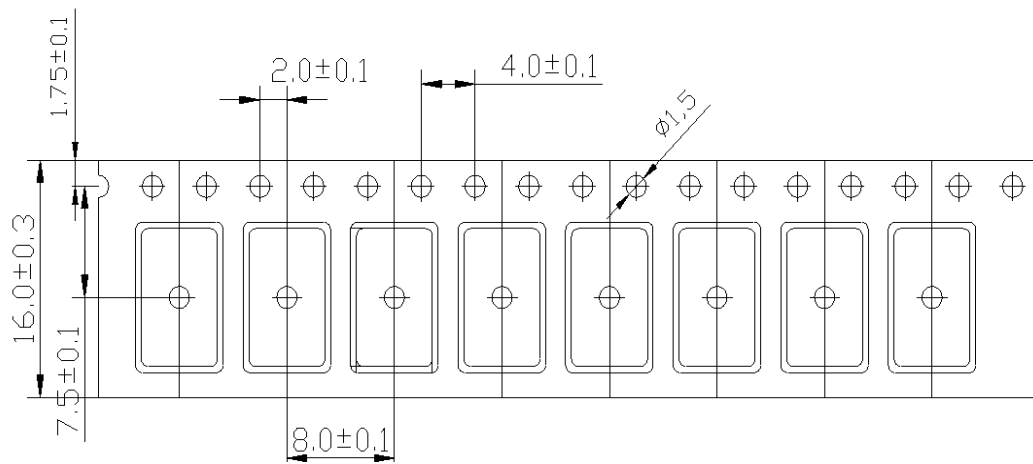
Measurement voltage : 50V ,Measurement time : 3 sec.



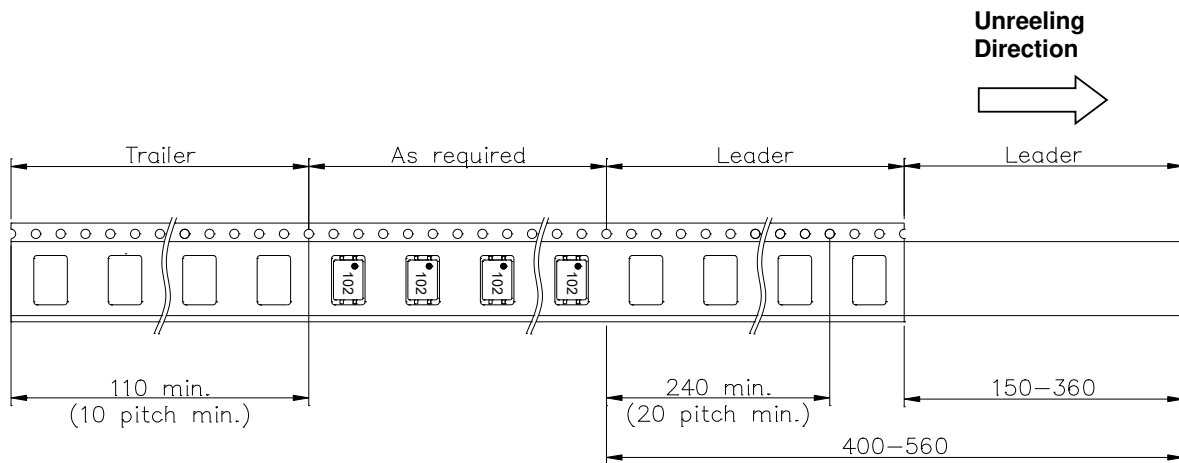
MAG.LAYERS

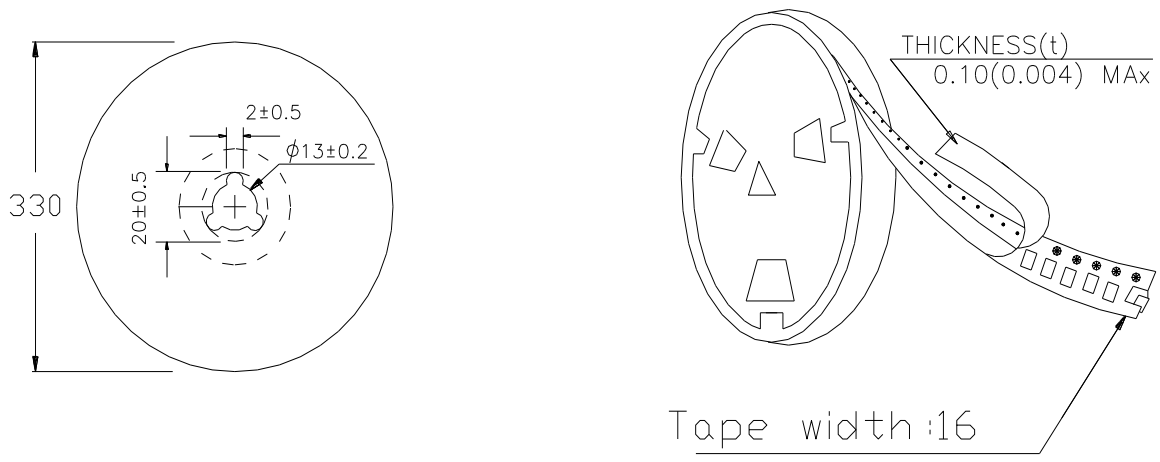
(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



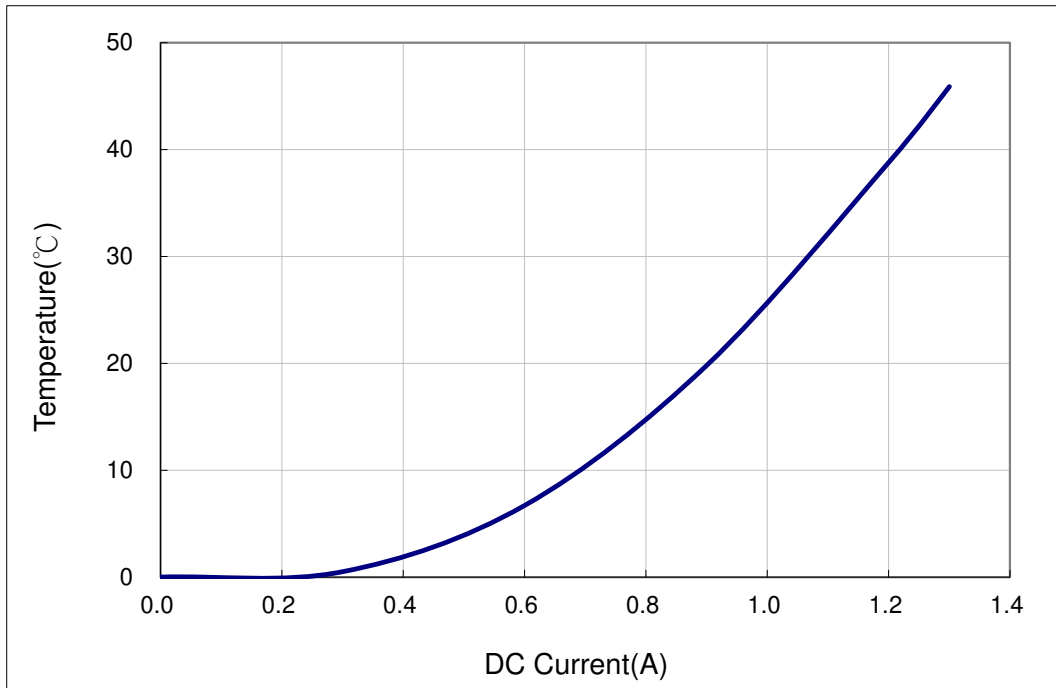


1500 pcs/Reel

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

TYPICAL ELECTRICAL CHARACTERISTICS

Temperature Rise vs. DC Current



Impedance VS. Frequency

