



Mag Layers USA, INC

Specification Sheet

P/N : **MCM-0905-501-E-RU**

Products:

[Molded Power Chokes](#)

[Multilayer Chip Inductors](#)

[Lan Transformer](#)

[RF Passive / Antennas](#)

[Automotive](#)

Certifications:

[ISO9001](#)

[IATF16949](#)

[ISO14001](#)

[QC080000](#)

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I . SCOPE :

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

PRODUCT IDENTIFICATION

MCM - 0905 - 501 - E-RU

① ② ③ ④

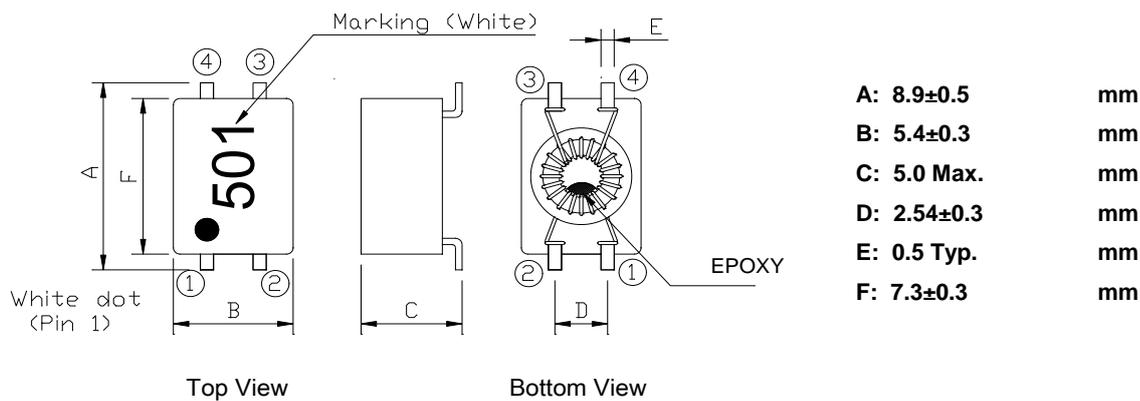
- ① Product Code
- ② Dimensions Code
- ③ Impedance Code
- ④ Inner Control Code

II . INDEX :

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Unless otherwise specified, test condition should be Temp. = 20±5℃, Humidity = 35~85% But if needed, then test condition should be Temp. = 20±2℃, Humidity = 65±5%		
9.SHELF LIFE 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. In addition, suggest to use product within 6 months from the time of delivery.		



(1) SHAPES AND DIMENSIONS



(2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

Z : HP 4285A PRECISION LCR METER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMETER (or equivalent)

I.R : CHROMA MODEL 19073 AC/DC/IR HIPOT TESTER (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. OR EQUIV.
2	BASE	DAP AM113		SHUO CHENG ELECTRONICS CO., LTD. OR EQUIV.
3	WIRE	POLYURETHANE ENAMELLED COPPER WIRE	E258243 E84081	ELEKTRISOLA CO., LTD. PACIFIC ELECTRICAL WIRE & CABLE CO., LTD.
4	SOLDER	Sn99.3%/Cu0.7%		SHENMAO TECHNOLOGY INC.OR EQUIV. SOLENT METAL INDUSTRY CO., LTD. OR EQUIV.
5	ADHESIVE	EPOXY RESIN		NAGASE TRADING CO., LTD. OR EQUIV.
6	INK	BON MARQUE INK		T&K TOKA. OR EQUIV.



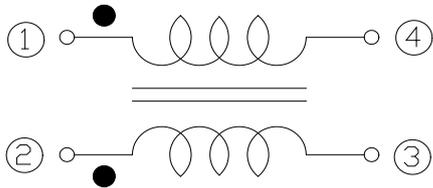
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TABLE 1

MAGLAYERS PT/NO.	Impedance(Ω) at 10MHz		Resistance RDC (Ω) Max. (1 line)	Rated Current (A) Max.	Insulation Resistance (M Ω) Min.	Rated Voltage (V) Max.	Marking
	Min.	Typ.					
MCM-0905-501-E-RU	200	1000	0.12	2.0	100	50	●501

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

CIRCUIT DIAGRAM

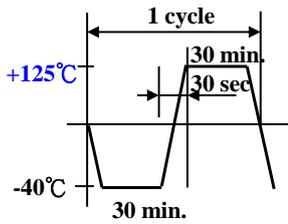


(4) RELIABILITY TEST METHOD
MECHANICAL

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>
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

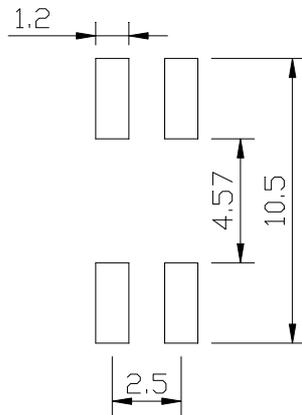
TEST ITEM	SPECIFICATION	TEST DETAILS
Humidity resistance	<p>Impedance: Within $\pm 20\%$ of the initial value.</p> <p>Insulation resistance and DC resistance on the specification (refer to clause 2-1) shall be met.</p> <p>The terminal electrode and the ferrite must not be damaged.</p>	<p>After the samples 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>	 <p>The diagram illustrates a thermal shock cycle. It shows a temperature profile that starts at a baseline, drops to -40°C for 30 minutes, then rises to $+125^\circ\text{C}$ for 30 minutes, and then returns to the baseline. The entire cycle is labeled '1 cycle'.</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

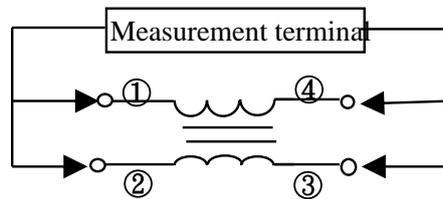
(STANDARD PATTERN)



(6) TEST EQUIPMENT

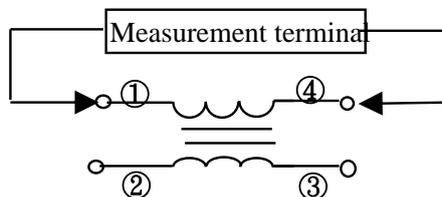
(6)-1 Impedance

Measured by using HP4291B RF Impedance Analyzer.



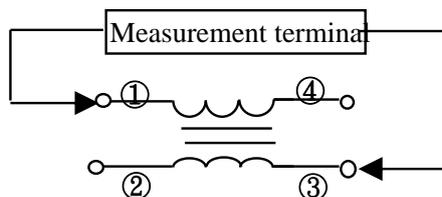
(6)-2 DC Resistance

Measured by using Chroma 16502 milliohm meter.



(6)-3 Insulation Resistance

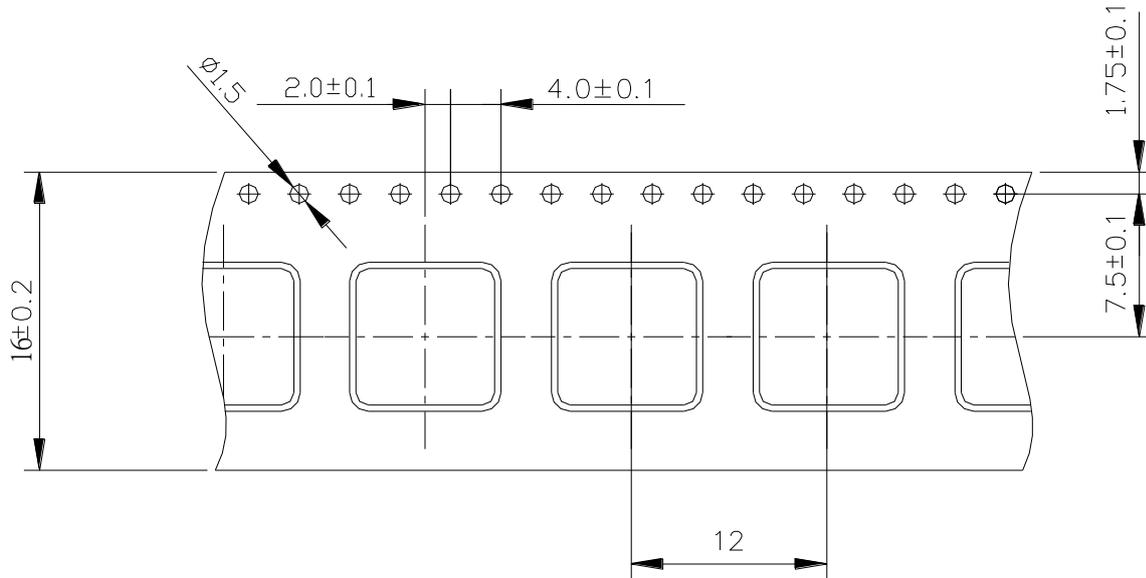
Measured by using Chroma 19073



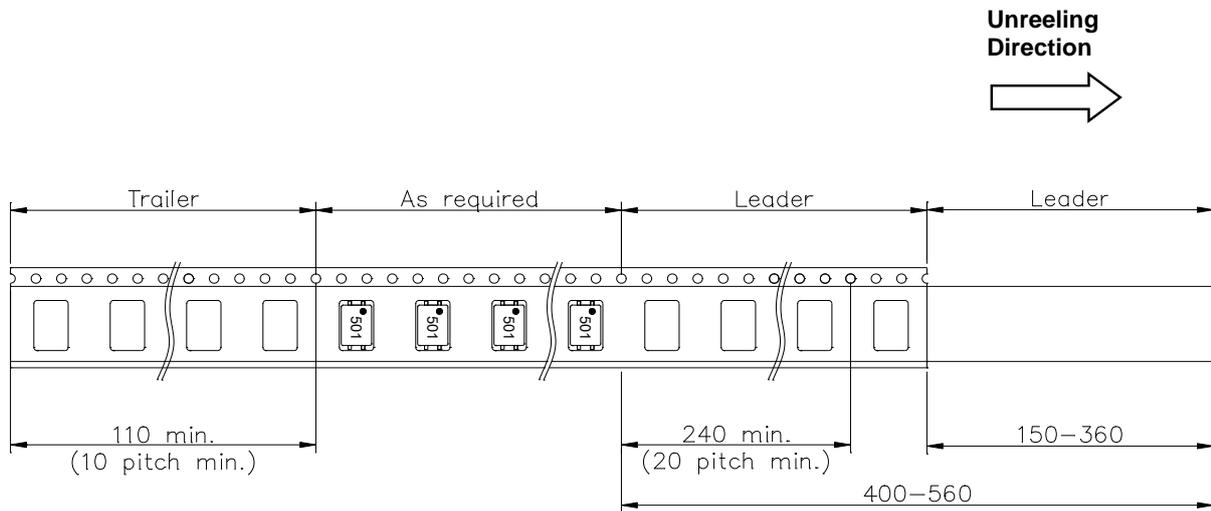
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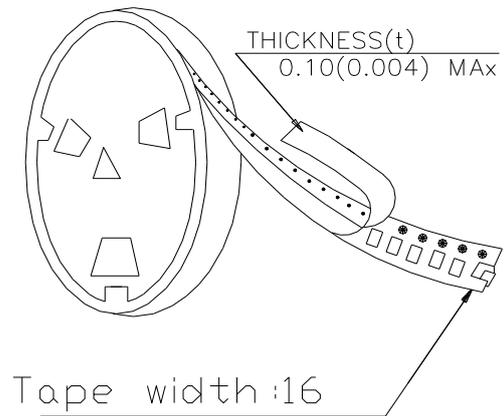
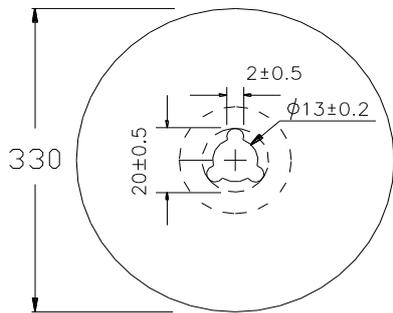
(6) PACKAGING

(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)





(b)-4 QUANTITY

1000 pcs/Reel

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

TYPICAL ELECTRICAL CHARACTERISTICS

