



Mag Layers USA, INC

Specification Sheet

P/N : **MSCDRI-74-Series-RU**

Products:

[Molded Power Chokes](#)

[Multilayer Chip Inductors](#)

[Lan Transformer](#)

[RF Passive / Antennas](#)

[Automotive](#)

Certifications:

[ISO9001](#)

[IATF16949](#)

[ISO14001](#)

[QC080000](#)

US Office

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

Contact Us

www.maglayersusa.com
info@maglayersusa.com

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDRI-74-SERIES

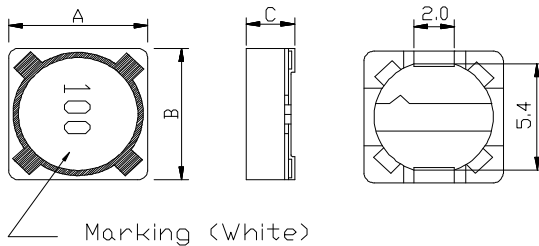
PRODUCT IDENTIFICATION

MSCDRI - 74 - 100 M-RU

① ② ③ ④

- ① Product Code
- ② Dimensions Code
- ③ Inductance Code
- ④ Tolerance Code

(1) SHAPES AND DIMENSIONS



A: 7.30 ± 0.5 mm
B: 7.30 ± 0.5 mm
C: 4.60Max. 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 Ambient temperature +60°C Max.
- (3)-2 Operate temperature range -40°C ~ +125°C
(Including self temp. rise)
- (3)-3 Storage temperature range -40°C ~ +125°C



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TABLE 1

| MAGLAYERS PT/NO. | Inductance L(μ H) | Percent Tolerance | Test Frequency | Resistance RDC(Ω) Max. | Rated DC Current IDC(A) | Marking |
|---------------------|---------------------------|----------------------|-------------------|------------------------------------|----------------------------|---------|
| MSCDRI-74-R33□-RU | 0.33 | N | 100kHz/0.25V | 8.7m | 8.5 | R33 |
| MSCDRI-74-1R0□-RU | 1.0 | N | 100kHz/0.25V | 11.1m | 6.8 | 1R0 |
| MSCDRI-74-1R2□-RU | 1.2 | M,N | 100kHz/0.25V | 11.1m | 6.8 | 1R2 |
| MSCDRI-74-1R5□-RU | 1.5 | N | 100kHz/0.25V | 13.4m | 5.7 | 1R5 |
| MSCDRI-74-1R8□-RU | 1.8 | M,N | 100kHz/0.25V | 14.7m | 5.0 | 1R8 |
| MSCDRI-74-2R2□-RU | 2.2 | N | 100kHz/0.25V | 14.7m | 5.0 | 2R2 |
| MSCDRI-74-3R3□-RU | 3.3 | M,N | 100kHz/0.25V | 21.4m | 4.0 | 3R3 |
| MSCDRI-74-4R7□-RU | 4.7 | M,N | 100kHz/0.25V | 31.0m | 3.4 | 4R7 |
| MSCDRI-74-5R6□-RU | 5.6 | M,N | 100kHz/0.25V | 33.5m | 3.0 | 5R6 |
| MSCDRI-74-6R8□-RU | 6.8 | M,N | 100kHz/0.25V | 35m | 2.3 | 6R8 |
| MSCDRI-74-8R2□-RU | 8.2 | M,N | 100kHz/0.25V | 42m | 2.1 | 8R2 |
| MSCDRI-74-100□-RU | 10 | M | 100kHz/0.25V | 49m | 1.84 | 100 |
| MSCDRI-74-120□-RU | 12 | M | 100kHz/0.25V | 58m | 1.71 | 120 |
| MSCDRI-74-150□-RU | 15 | M | 100kHz/0.25V | 81m | 1.47 | 150 |
| MSCDRI-74-180□-RU | 18 | M | 100kHz/0.25V | 91m | 1.31 | 180 |
| MSCDRI-74-220□-RU | 22 | M | 100kHz/0.25V | 0.11 | 1.23 | 220 |
| MSCDRI-74-270□-RU | 27 | M | 100kHz/0.25V | 0.15 | 1.12 | 270 |
| MSCDRI-74-330□-RU | 33 | M | 100kHz/0.25V | 0.20 | 0.96 | 330 |
| MSCDRI-74-390□-RU | 39 | M | 100kHz/0.25V | 0.23 | 0.91 | 390 |
| MSCDRI-74-470□-RU | 47 | M | 100kHz/0.25V | 0.26 | 0.88 | 470 |
| MSCDRI-74-560□-RU | 56 | M | 100kHz/0.25V | 0.35 | 0.75 | 560 |
| MSCDRI-74-680□-RU | 68 | M | 100kHz/0.25V | 0.38 | 0.69 | 680 |
| MSCDRI-74-820□-RU | 82 | M | 100kHz/0.25V | 0.43 | 0.61 | 820 |
| MSCDRI-74-101□-RU | 100 | M | 100kHz/0.25V | 0.61 | 0.60 | 101 |
| MSCDRI-74-121□-RU | 120 | M | 100kHz/0.25V | 0.66 | 0.52 | 121 |
| MSCDRI-74-151□-RU | 150 | M | 100kHz/0.25V | 0.88 | 0.46 | 151 |
| MSCDRI-74-181□-RU | 180 | M | 100kHz/0.25V | 0.98 | 0.42 | 181 |
| MSCDRI-74-221□-RU | 220 | M | 100kHz/0.25V | 1.17 | 0.36 | 221 |
| MSCDRI-74-271□-RU | 270 | M | 100kHz/0.25V | 1.64 | 0.34 | 271 |
| MSCDRI-74-331□-RU | 330 | M | 100kHz/0.25V | 1.86 | 0.32 | 331 |
| MSCDRI-74-391□-RU | 390 | M | 100kHz/0.25V | 2.85 | 0.29 | 391 |
| MSCDRI-74-471□-RU | 470 | M | 100kHz/0.25V | 3.01 | 0.26 | 471 |
| MSCDRI-74-561□-RU | 560 | M | 100kHz/0.25V | 3.62 | 0.23 | 561 |
| MSCDRI-74-681□-RU | 680 | M | 100kHz/0.25V | 4.63 | 0.22 | 681 |
| MSCDRI-74-821□-RU | 820 | M | 100kHz/0.25V | 5.20 | 0.20 | 821 |
| MSCDRI-74-102□-RU | 1000 | M | 100kHz/0.25V | 6.00 | 0.18 | 102 |

※ □ specify the inductance tolerance, M(\pm 20%), N(\pm 30%)

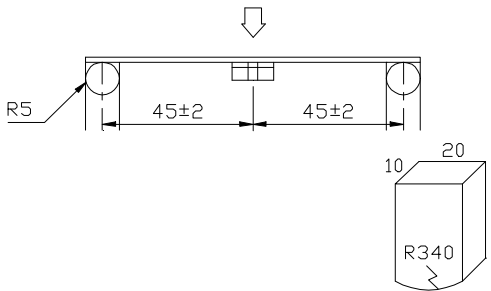
※ IDC : Based on inductance change (Δ L/Lo: drop 25% Max.) @ambient temperature 25°C and

Based on temperature rise (Δ T : 40°C Typ.)



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(4) RELIABILITY TEST METHOD MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|-------------------|--|--|
| Substrate bending | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage or electrical damage. | <p>The sample shall be soldered onto the printed circuit board in figure 1 and a load applied until the figure in the arrow direction is made approximately 3mm.(keep time 30 seconds) PCB dimension shall the page 7/9</p> <p>F(Pressurization)</p>  <p>PRESSURE ROD figure-1</p> |
| Vibration | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | <p>The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated should be applied to the 3 directions (X,Y,Z) for 2 hours each. (A total of 6 hours)</p> |
| Solderability | New solder More than 90% | <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 130~150°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±5°C.</p> <p>More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath.</p> |



MECHANICAL

| TEST ITEM | SPECIFICATION | |
|---|---------------------------------------|---|
| Resistance to Soldering heat (reflow soldering) | There shall be no damage or problems. | <p style="text-align: center;">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.</p> <p>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made.</p> |

ELECTRICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|------------------------------|--|--|
| Insulation resistance | There shall be no other damage or problems. | DC 100V voltage shall be applied across this sample of top surface and the terminal. The insulation resistance shall be more than $1 \times 10^8 \Omega$. |
| Dielectric withstand voltage | There shall be no other damage or problems. | AC 100V voltage shall be applied for 1 minute across the top surface and the terminal of this sample |
| Temperature characteristics | $\Delta L/L20^\circ\text{C} \leq \pm 10\%$ $0 \sim 2000 \text{ ppm}/^\circ\text{C}$ | The test shall be performed after the sample has stabilized in an ambient temperature of -20 to $+85^\circ\text{C}$, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L/L20^\circ\text{C} \leq \pm 10\%$. |



ENVIROMENT CHARACTERISTICS

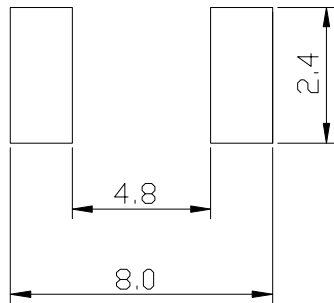
| TEST ITEM | SPECIFICATION | | | | | | | | | | | | | | | | |
|---|--|---|--|-------------|----------|---|--|---------|---|----------------------|-----------|---|---|---------|---|----------------------|-----------|
| High temperature storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in an atmosphere with a temperature of $85 \pm 2^\circ\text{C}$ and a normal humidity. Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Low temperature storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in an atmosphere with a temperature of $-25 \pm 3^\circ\text{C}$. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour. | | | | | | | | | | | | | | | |
| Change of temperature | $\Delta L/Lo \leq \pm 5\%$ There shall be no other damage of problems | The sample shall be subject to 5 continuous cycles, such as shown in the table 2 below and then it shall be subjected to standard atmospheric conditions for 1 hour, after which measurement shall be made. <div style="text-align: center;"> table 2 <table border="1" style="margin: auto;"> <thead> <tr> <th></th> <th style="text-align: center;">Temperature</th> <th style="text-align: center;">Duration</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">$-25 \pm 3^\circ\text{C}$ (Thermostat No.1)</td> <td style="text-align: center;">30 min.</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Standard atmospheric</td> <td style="text-align: center;">No.1→No.2</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">$85 \pm 2^\circ\text{C}$ (Thermostat No.2)</td> <td style="text-align: center;">30 min.</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Standard atmospheric</td> <td style="text-align: center;">No.2→No.1</td> </tr> </tbody> </table> </div> | | Temperature | Duration | 1 | $-25 \pm 3^\circ\text{C}$ (Thermostat No.1) | 30 min. | 2 | Standard atmospheric | No.1→No.2 | 3 | $85 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | 4 | Standard atmospheric | No.2→No.1 |
| | Temperature | Duration | | | | | | | | | | | | | | | |
| 1 | $-25 \pm 3^\circ\text{C}$ (Thermostat No.1) | 30 min. | | | | | | | | | | | | | | | |
| 2 | Standard atmospheric | No.1→No.2 | | | | | | | | | | | | | | | |
| 3 | $85 \pm 2^\circ\text{C}$ (Thermostat No.2) | 30 min. | | | | | | | | | | | | | | | |
| 4 | Standard atmospheric | No.2→No.1 | | | | | | | | | | | | | | | |
| Moisture storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | The sample shall be left for 96 ± 4 hours in a temperature of $40 \pm 2^\circ\text{C}$ and a humidity(RH) of 90~95%. Upon completion of the test, the measurement shall be made after the sample has been left in a normal temperature and normal humidity more than 1 hour. | | | | | | | | | | | | | | | |
| Test conditions : <p style="text-align: center;">The sample shall be reflow soldered onto the printed circuit board in every test.</p> | | | | | | | | | | | | | | | | | |

(5) LAND DIMENSION (Ref.)

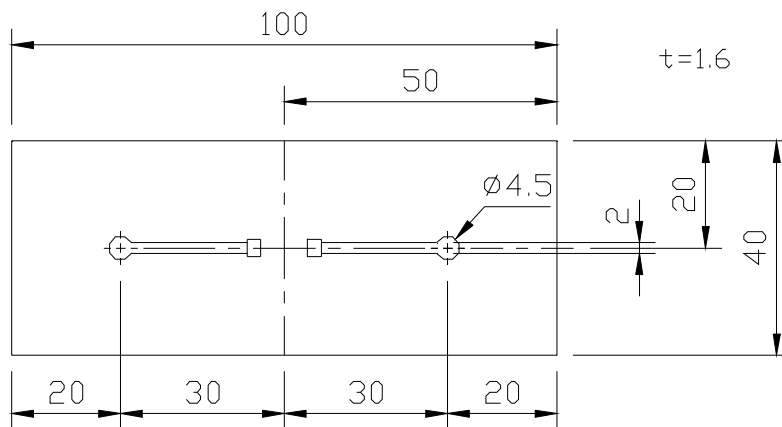
PCB: GLASS EPOXY $t=1.6\text{mm}$

(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) Unit : mm

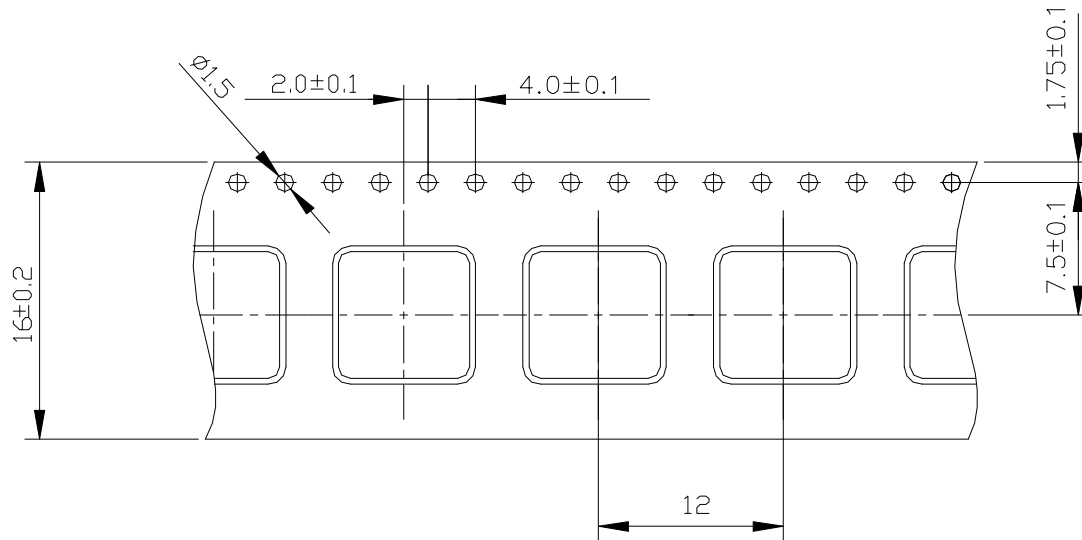


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

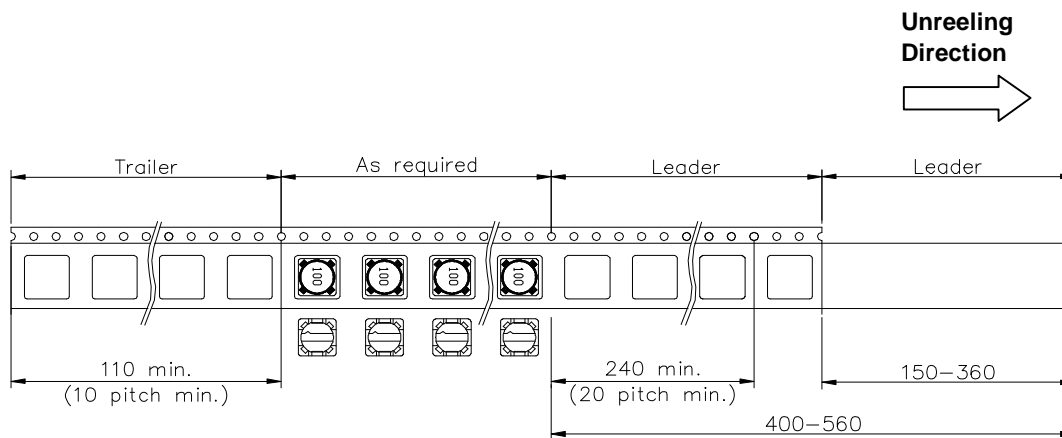


(6) PACKAGING

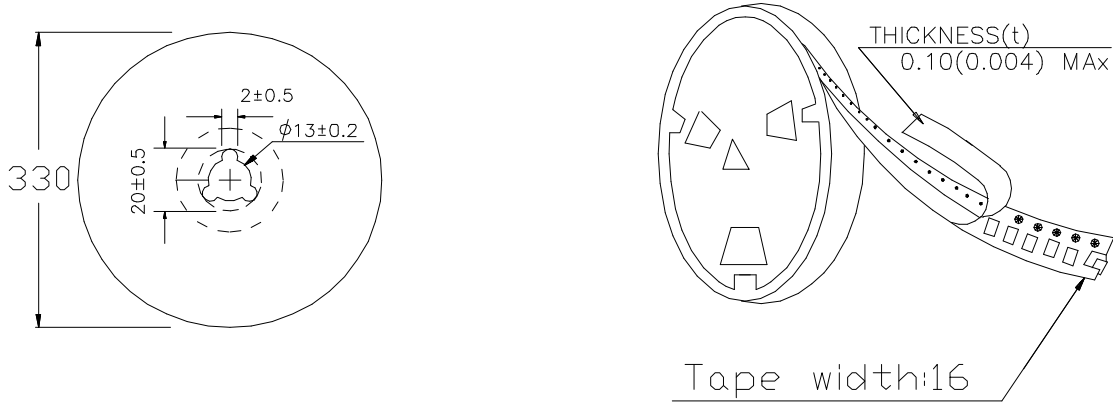
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

1000pcs/Reel

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