

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCDRI-127AH0-SERIES

Warn : This product series can't be used in synchronous rectification circuit that is over 24V.

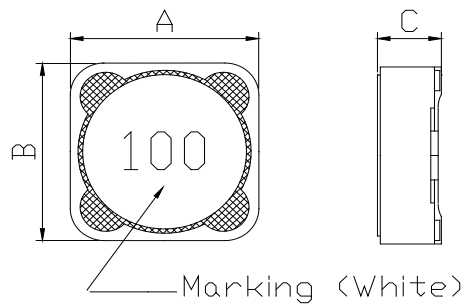
PRODUCT IDENTIFICATION

MSCDRI - 127A H0 - 100 M

① ② ③ ④ ⑤

- ① Product Code
- ② Dimensions Code
- ③ AEC-Q200 Code
- ④ Inductance Code
- ⑤ Tolerance Code

(1) SHAPES AND DIMENSIONS



A: 12.0±0.5 mm
B: 12.0±0.5 mm
C: 8.0 Max. 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 ~ +155°C

(Including self temp. rise)

TABLE 1

| MAGLAYERS PT/NO. | Inductance L(μ H) | Percent Tolerance | Test Frequency | Resistance RDC(Ω)Max. | Rated DC Current | | Marking |
|---------------------|---------------------------|----------------------|-------------------|-----------------------------------|------------------|---------|---------|
| | | | | | Isat(A) | Irms(A) | |
| MSCDRI-127AH0-100□ | 10 | M,N | 100kHz/0.25V | 21.6m | 7.8 | 5.4 | 100 |
| MSCDRI-127AH0-120□ | 12 | M,N | 100kHz/0.25V | 24.3m | 7.3 | 4.9 | 120 |
| MSCDRI-127AH0-150□ | 15 | M,N | 100kHz/0.25V | 27.0m | 6.5 | 4.5 | 150 |
| MSCDRI-127AH0-180□ | 18 | M,N | 100kHz/0.25V | 39.2m | 6.0 | 3.9 | 180 |
| MSCDRI-127AH0-220□ | 22 | M,N | 100kHz/0.25V | 43.2m | 5.3 | 3.6 | 220 |
| MSCDRI-127AH0-270□ | 27 | M,N | 100kHz/0.25V | 53.1m | 4.8 | 3.3 | 270 |
| MSCDRI-127AH0-330□ | 33 | M,N | 100kHz/0.25V | 64.8m | 4.3 | 3.0 | 330 |
| MSCDRI-127AH0-470□ | 47 | M,N | 100kHz/0.25V | 0.10 | 3.8 | 2.5 | 470 |
| MSCDRI-127AH0-560□ | 56 | M,N | 100kHz/0.25V | 0.11 | 3.4 | 2.35 | 560 |
| MSCDRI-127AH0-680□ | 68 | M,N | 100kHz/0.25V | 0.14 | 3.1 | 2.10 | 680 |
| MSCDRI-127AH0-820□ | 82 | M,N | 100kHz/0.25V | 0.16 | 2.7 | 1.95 | 820 |
| MSCDRI-127AH0-101□ | 100 | M,N | 100kHz/0.25V | 0.22 | 2.5 | 1.70 | 101 |
| MSCDRI-127AH0-121□ | 120 | M,N | 100kHz/0.25V | 0.25 | 2.3 | 1.60 | 121 |
| MSCDRI-127AH0-151□ | 150 | M,N | 100kHz/0.25V | 0.28 | 2.0 | 1.42 | 151 |
| MSCDRI-127AH0-181□ | 180 | M,N | 100kHz/0.25V | 0.35 | 1.9 | 1.30 | 181 |
| MSCDRI-127AH0-221□ | 220 | M,N | 100kHz/0.25V | 0.39 | 1.7 | 1.16 | 221 |
| MSCDRI-127AH0-271□ | 270 | M,N | 100kHz/0.25V | 0.51 | 1.6 | 1.06 | 271 |
| MSCDRI-127AH0-281□ | 280 | M,N | 100kHz/0.25V | 0.51 | 1.6 | 1.06 | 281 |
| MSCDRI-127AH0-331□ | 330 | M,N | 100kHz/0.25V | 0.64 | 1.4 | 0.95 | 331 |
| MSCDRI-127AH0-391□ | 390 | M,N | 100kHz/0.25V | 0.70 | 1.3 | 0.88 | 391 |
| MSCDRI-127AH0-471□ | 470 | M,N | 100kHz/0.25V | 0.98 | 1.1 | 0.79 | 471 |

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

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

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

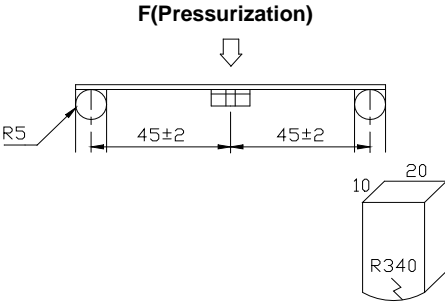
Rated DC Current : The less value which is Isat or Irms.



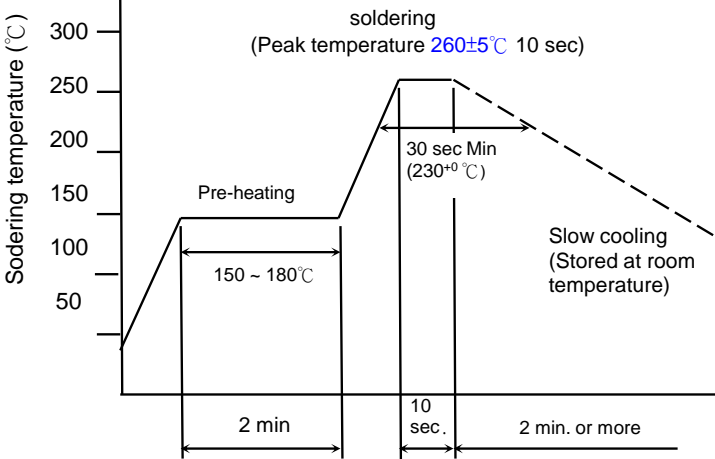
(4) RELIABILITY TEST METHOD ELECTRICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|-----------------------------|---|---|
| Temperature characteristics | $\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$ 0~2000 ppm/°C | The test shall be performed after the sample has stabilized in an ambient temperature of -20 to +85°C, and the value calculated based on the value applicable in a normal temperature and normal humidity shall be $\Delta L/L20^{\circ}\text{C} \leq \pm 10\%$. |

MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|-------------------|--|--|
| Substrate bending | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage or electrical damage. | 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. 60 sec minimum holding time. PCB dimension shall the page 7/9 <div style="text-align: center;">  <p style="text-align: center;">PRESSURE ROD figure-1</p> </div> |
| Flammability | There shall be no other damage or problems. | Burning stops within 10 seconds on a vertical specimen; drips of particles allowed as long as they are not inflamed. |
| Terminal Strength | There shall be no other damage or problems. | With the component mounted on a PCB obtained from the Supplier with the device to be tested, apply a 17.7 N (1.8 Kg) force to the side of a device being tested. This force shall be applied for 60 +1 seconds. |
| Mechanical Shock | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | 100g's/6ms/Half-sine/12.3ft/sec |

MECHANICAL

| TEST ITEM | SPECIFICATION | |
|---|---|--|
| Vibration | $\Delta L/L_0 \leq \pm 5\%$ There shall be no mechanical damage. | 5g's for 20 minutes, 12 cycles each of 3 orientations. Test from 10-2000 Hz. |
| Solderability | New solder More than 90% | 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±1 seconds fully in molten solder M705 with a temperature of 245±5°C. More than 90% of the electrode sections shall be covered with new solder smoothly when the sample is taken out of the solder bath. |
| 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 style="text-align: center;">Soldering temperature (°C)</p> <p style="text-align: center;">300 250 200 150 100 50</p> <p style="text-align: center;">Pre-heating 150 ~ 180°C 2 min</p> <p style="text-align: center;">soldering (Peak temperature 260±5°C 10 sec) 30 sec Min (230±0°C) 10 sec</p> <p style="text-align: center;">Slow cooling (Stored at room temperature) 2 min. or more</p> <p>Solder temperature : 260 ±5°C Dip time: 10 ±1 seconds The chip shall not crack. More than 75% of the terminal electrode shall be covered with solder.</p> |

ENVIROMENT CHARACTERISTICS

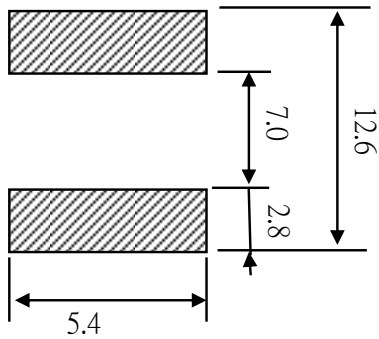
| TEST ITEM | SPECIFICATION | |
|--|--|--|
| High temperature storage | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | 1000hrs.at rated operating temperature (e.g. 155°C part can be stored for 1000hrs.@ 155°C.Same applies for 125°C and 105°C. Unpowered. Measurement at 24±4 hours after test conclusion. |
| Temperature Cycling | $\Delta L/Lo \leq \pm 5\%$ There shall be no other damage of problems | 1000cycles (-40°C to +155°C).Note: If 105°C part or 125°C part the 1000cycles will be at that temperature. Measurement at 24±4hours after test conclusion. 30min maximum dwell time at each temperature extreme.1min. maximum transition time. |
| Operational Life | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | 1000hrs. @155°C. If 105°C or 125°C part will be Tested at that temperature. Measurement at 24±4 hours after test conclusion |
| Biased Humidity | $\Delta L/Lo \leq \pm 5\%$ There shall be no mechanical damage. | 1000hours 85°C/85%RH. Unpowered.Measurement at 24±4hours after test conclusion. |
| 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.)

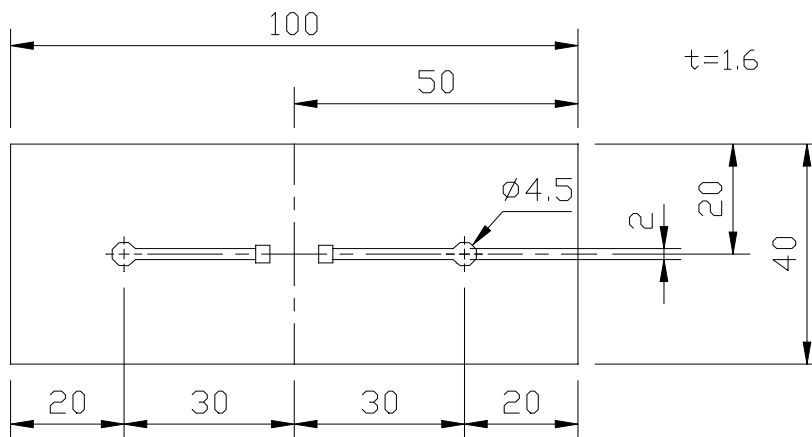
PCB: GLASS EPOXY t=1.6mm

(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN) Unit:mm

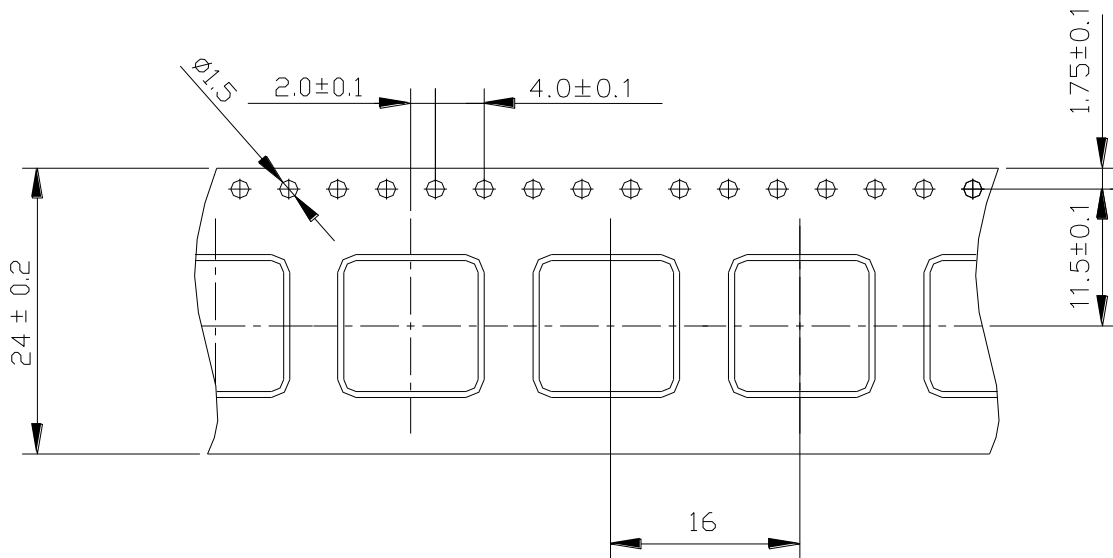


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

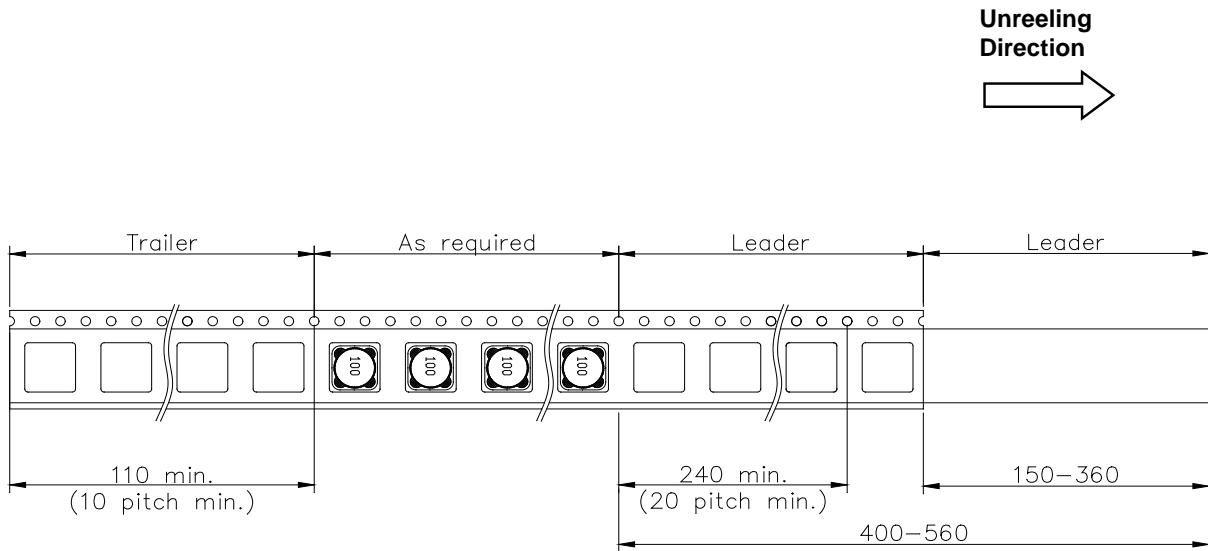


(6) PACKAGING

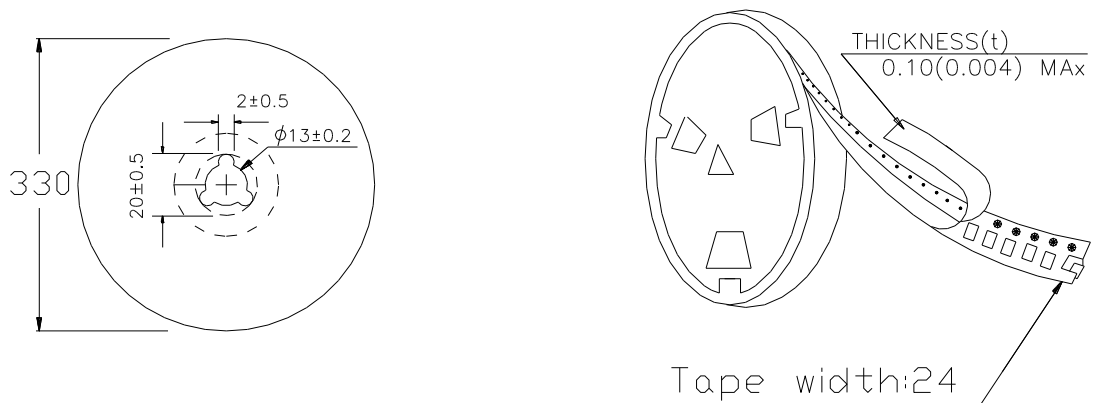
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

500 pcs/Reel

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

Please note that the contents may change without any prior notice due to reasons such as upgrading.



MAG.LAYERS