

SCOPE :

This specification applies to the Pb Free high current type SMD inductors for
MSCH-3225C-SERIES

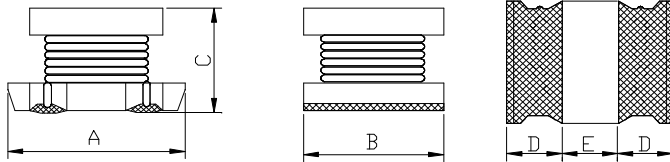
PRODUCT IDENTIFICATION

MSCH - 3225C - 100 K

① ② ③ ④

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

(1) SHAPES AND DIMENSIONS



| | |
|------------|----|
| A: 3.2±0.3 | mm |
| B: 2.5±0.2 | mm |
| C: 2.0±0.3 | mm |
| D: 1.0Typ. | mm |
| E: 1.2Typ. | mm |

(2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

- L : HP 4284A PRECISION LCR METER (or equivalent)
HP 4285A PRECISION LCR METER (or equivalent)
- SRF : HP 4291B IMPEDANCE ANALYZER (or equivalent)
- RDC : CHROMA MODEL 16502 MILLIOHM METER (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



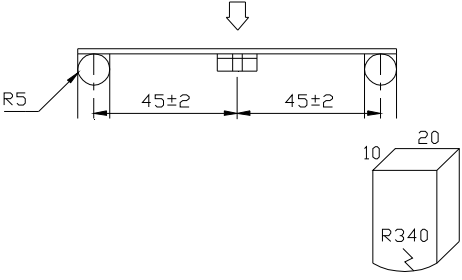
TABLE 1

| MAGLAYERS PT/NO. | Inductance L(μ H) | Percent Tolerance | Test Frequency | Resistance RDC(Ω)Max. | IDC (mA) Max. | SRF (MHz) Typ. | Wire Tuns(Ref.) |
|---------------------|---------------------------|----------------------|-------------------|-----------------------------------|------------------|-------------------|-----------------------|
| MSCH-3225C-R50□ | 0.5 | M,N | 1MHz/0.25V | 60m | 1000 | 150 | |
| MSCH-3225C-1R0□ | 1.0 | M,N | 1MHz/0.25V | 78m | 800 | 96 | |
| MSCH-3225C-2R2□ | 2.2 | M,N | 1MHz/0.25V | 0.1261 | 600 | 64 | |
| MSCH-3225C-2R7□ | 2.7 | M,N | 1MHz/0.25V | 0.150 | 550 | 60 | |
| MSCH-3225C-3R3□ | 3.3 | K,M,N | 1MHz/0.25V | 0.160 | 500 | 54 | ϕ 0.14 14.5Ts |
| MSCH-3225C-4R7□ | 4.7 | M,N | 1MHz/0.25V | 0.195 | 450 | 43 | |
| MSCH-3225C-6R8□ | 6.8 | M,N | 1MHz/0.25V | 0.320 | 350 | 35 | ϕ 0.12 21.5Ts |
| MSCH-3225C-100□ | 10 | K,M | 1MHz/0.25V | 0.390 | 300 | 26 | |
| MSCH-3225C-150□ | 15 | K,M | 1MHz/0.25V | 0.600 | 270 | 22 | ϕ 0.09 29.5Ts |
| MSCH-3225C-220□ | 22 | K,M | 1MHz/0.25V | 0.923 | 250 | 19 | |
| MSCH-3225C-330□ | 33 | K,M | 1MHz/0.25V | 1.20 | 220 | 17 | |
| MSCH-3225C-470□ | 47 | K,M | 1MHz/0.25V | 1.69 | 170 | 15 | |
| MSCH-3225C-560□ | 56 | K,M | 1MHz/0.25V | 2.50 | 160 | 13 | |
| MSCH-3225C-680□ | 68 | K,M | 1MHz/0.25V | 3.20 | 140 | 11 | |
| MSCH-3225C-101□ | 100 | K,M | 1MHz/0.25V | 4.55 | 100 | 10 | |
| MSCH-3225C-151□ | 150 | K,M | 1MHz/0.25V | 6.50 | 90 | 8.5 | |
| MSCH-3225C-181□ | 180 | K,M | 1MHz/0.25V | 10.5 | 80 | 7.2 | |
| MSCH-3225C-221□ | 220 | K,M | 1MHz/0.25V | 12 | 70 | 6.8 | |
| MSCH-3225C-331□ | 330 | K,M | 1MHz/0.25V | 14 | 60 | 5.6 | |
| MSCH-3225C-391□ | 390 | J,K,M | 1MHz/0.25V | 23 | 60 | 5.0 | |
| MSCH-3225C-471□ | 470 | K,M | 1MHz/0.25V | 26 | 60 | 5.0 | |
| MSCH-3225C-561□ | 560 | J,K,M | 1KHz/0.25V | 30 | 60 | 5.0 | |

※ □ specify the inductance tolerance, J(\pm 5%), K(\pm 10%), M(\pm 20%), N(\pm 30%)

※ IDC : Based on inductance change (Δ L/Lo : \leq drop 10%)@ ambient temp. 25°C

(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 style="text-align: center;">F(Pressurization)</p>  <p style="text-align: center;">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-left: auto; margin-right: 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 : The sample shall be reflow soldered onto the printed circuit board in every test. | | | | | | | | | | | | | | | | | |



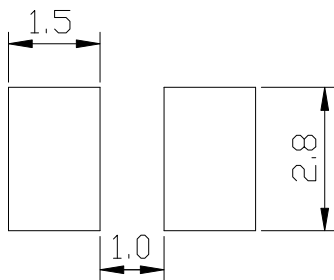
(5) LAND DIMENSION (Ref.)

PCB: GLASS EPOXY t=1.6mm

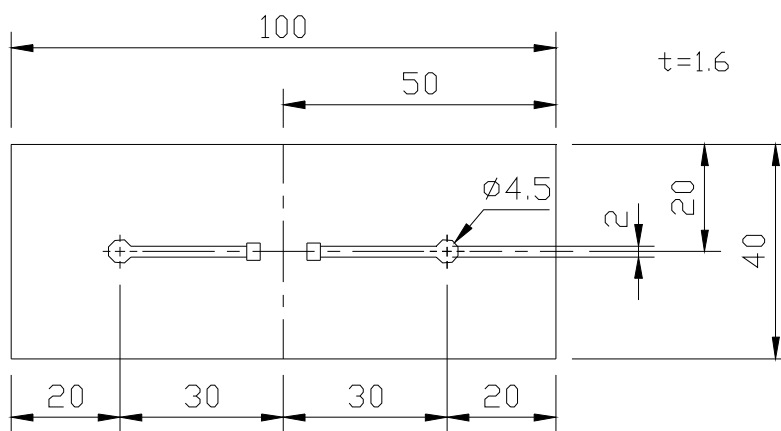
(5)-1 LAND PATTERN DIMENSIONS

(STANDARD PATTERN)

Unit:mm

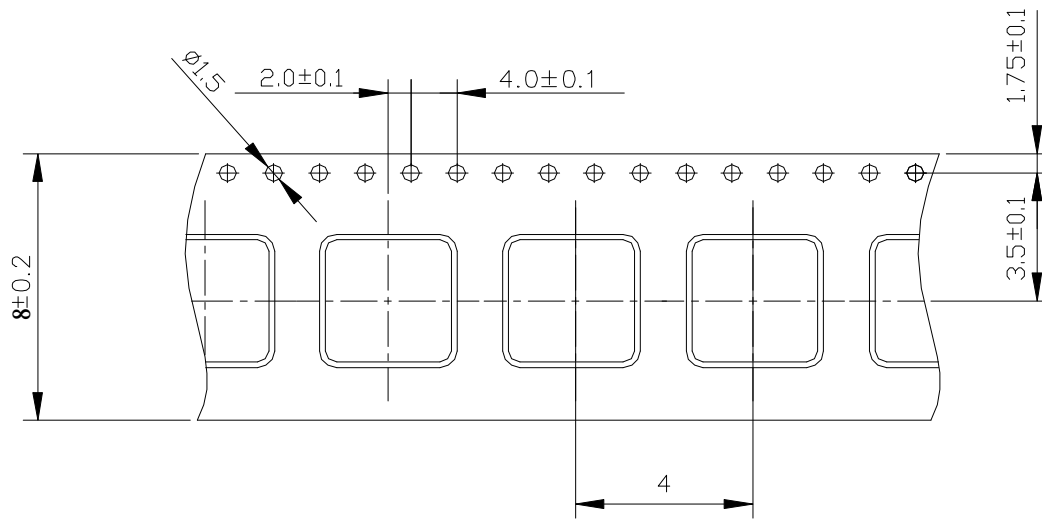


(5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

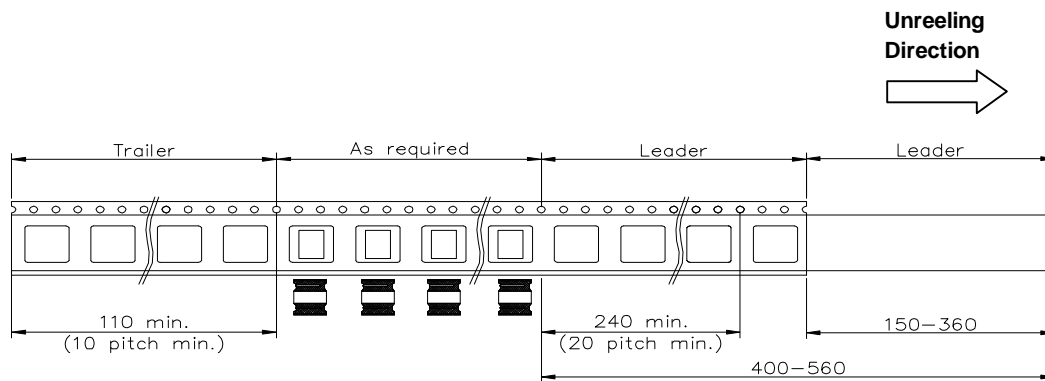


(6) PACKAGING

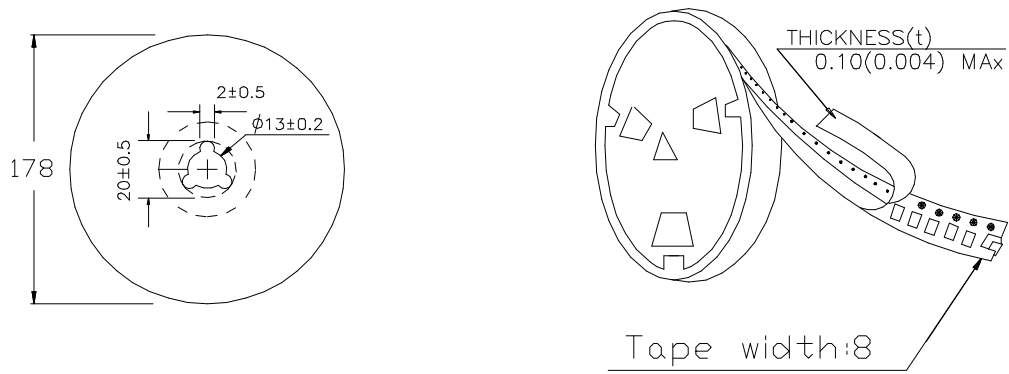
(6)-1 CARRIER TAPE DIMENSIONS (mm)



(6)-2 TAPING DIMENSIONS (mm)



(6)-3 REEL DIMENSIONS (mm)



(6)-4 QUANTITY

2000pcs/Reel

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