## SCOPE：

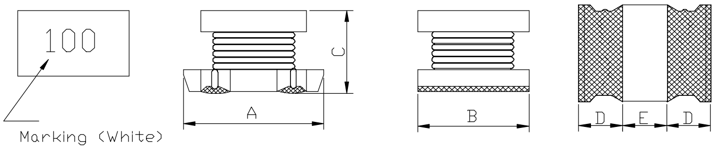
**This specification applies to the Pb Free high current type SMD inductors for MSCH-4532C-SERIES**

### PRODUCT INDENTIFICATION

**MSCH - 4532C - 100 K**
① ② ③ ④

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

## (1) SHAPES AND DIMENSIONS



**A: 4.5±0.3 mm**
**B: 3.2±0.2 mm**
**C: 2.6±0.3 mm**
**D: 1.5Typ. mm**
**E: 1.5Typ. 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 MILLIOHMMETER (or equivalent)**

## (3) CHARACTERISTICS

**(3)-1 Temperature rise ...................... ＋40℃ Max.**
**(3)-2 Ambient temperature …….......... ＋60℃ Max.**
**(3)-3 Operate temperature range ...... －40℃～＋125℃**
**(Including self temp. rise)**
**(3)-4 Storage temperature range ...... －40℃～＋125℃**

## TABLE 1

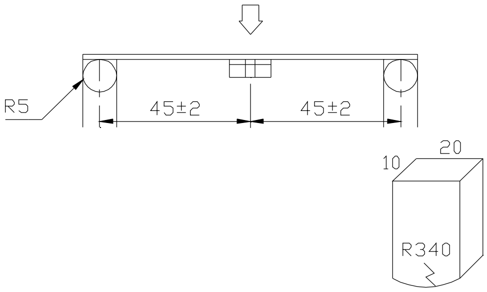
| MAGLAYERS PT/NO. | Inductance L(μH) | Percent Tolerance | Test Frequency | Resistance RDC(Ω)Max. | IDC (mA) Max. | SRF (MHz) Min. | Marking |
|---|---|---|---|---|---|---|---|
| MSCH-4532C-1R0□ | 1.0 | M,N | 1MHz/0.25V | 80m | 1080 | 100 | 1R0 |
| MSCH-4532C-1R5□ | 1.5 | M,N | 1MHz/0.25V | 90m | 1000 | 85 | 1R5 |
| MSCH-4532C-2R2□ | 2.2 | M,N | 1MHz/0.25V | 0.11 | 900 | 60 | 2R2 |
| MSCH-4532C-3R3□ | 3.3 | M,N | 1MHz/0.25V | 0.13 | 800 | 47 | 3R3 |
| MSCH-4532C-4R7□ | 4.7 | M,N | 1MHz/0.25V | 0.15 | 750 | 35 | 4R7 |
| MSCH-4532C-6R8□ | 6.8 | K,M,N | 1MHz/0.25V | 0.20 | 720 | 30 | 6R8 |
| MSCH-4532C-8R2□ | 8.2 | M,N | 1MHz/0.25V | 0.22 | 680 | 27 | 8R2 |
| MSCH-4532C-100□ | 10 | K,M | 1MHz/0.25V | 0.24 | 650 | 23 | 100 |
| MSCH-4532C-150□ | 15 | K,M | 1MHz/0.25V | 0.32 | 570 | 20 | 150 |
| MSCH-4532C-220□ | 22 | K,M | 1MHz/0.25V | 0.60 | 420 | 15 | 220 |
| MSCH-4532C-330□ | 33 | K,M | 1MHz/0.25V | 1.00 | 310 | 12 | 330 |
| MSCH-4532C-470□ | 47 | K,M | 1MHz/0.25V | 1.10 | 280 | 10 | 470 |
| MSCH-4532C-680□ | 68 | K,M | 1MHz/0.25V | 1.70 | 220 | 8.4 | 680 |
| MSCH-4532C-101□ | 100 | K,M | 1MHz/0.25V | 2.20 | 190 | 6.8 | 101 |
| MSCH-4532C-151□ | 150 | J,K,M | 1MHz/0.25V | 3.50 | 130 | 5.5 | 151 |
| MSCH-4532C-221□ | 220 | K,M | 1MHz/0.25V | 4.00 | 110 | 4.5 | 221 |
| MSCH-4532C-331□ | 330 | K,M | 1MHz/0.25V | 6.80 | 100 | 3.6 | 331 |
| MSCH-4532C-471□ | 470 | K,M | 1MHz/0.25V | 8.50 | 90 | 3.0 | 471 |
| MSCH-4532C-561□ | 560 | K,M | 1KHz/0.25V | 14.0 | 75 | 2.0 | 561 |
| MSCH-4532C-681□ | 680 | K,M | 1KHz/0.25V | 17.0 | 65 | 1.5 | 681 |
| MSCH-4532C-102□ | 1000 | K,M | 1KHz/0.25V | 25.0 | 50 | — | 152 |
| MSCH-4532C-152□ | 1500 | K,M | 1KHz/0.25V | 45.0 | 40 | — | 152 |
| MSCH-4532C-222□ | 2200 | K,M | 1KHz/0.25V | 55.0 | 30 | — | 222 |

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

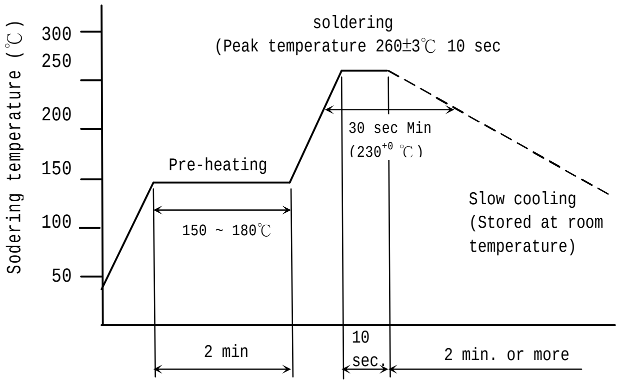
※ IDC： Based on inductance change （△L/Lo：drop 10% Max.) @ ambient temp. 25℃

# (4) RELIABILITY TEST METHOD

## MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|---|---|---|
| Substrate bending | △L/Lo≦±5%<br>There shall be no mechanical damage or electrical damege. | The sample shall be soldered onto the printed circuit board in figure 1 and a load applied unitil the figure in the arrow direction is made approximately 3mm.(keep time 30 seconds)<br>PCB dimension shall the page 7/9<br>F(Pressurization)<br> <br>PRESSURE ROD<br>figure-1 |
| Vibration | △L/Lo≦±5%<br>There shall be no mechanical damage. | 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.<br>(A total of 6 hours) |
| Solderability | New solder<br>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℃ 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℃.<br>More than 90% of the electrode sections shall be couered with new solder smoothly when the sample is taken out of the solder bath. |

## MECHANICAL

| TEST ITEM | SPECIFICATION | |
|---|---|---|
| Resistance to Soldering heat (reflow soldering) | There shall be no damage or problems. | **Temperature profile of reflow soldering**<br> <br>The specimen shall be passed through the reflow oven with the condition shown in the above profile for 1 time.<br>The specimen shall be stored at standard atmospheric conditions for 1 hour, after which the measurement shall be made. |

## 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.<br>The insulation resistance shall be more than 1 × $10^8$ Ω. |
| Dielectric withstand voltage | There shall be no other damage or problems. | AC 100V voltage shall be applied for 1 minute acrosset the top surface and the terminal of this sample |
| Temperature characteristics | △L/L20℃ ≦±10%<br>0～2000 ppm/℃ | The test shall be performed after the sample has stabilized in an ambient temperature of -20 to +85℃ ,and the value calculated based on the value applicable in a normal temperature and narmal humidity shall be △L/L20℃ ≦±10%. |

## ENVIROMENT CHARACTERISTICS

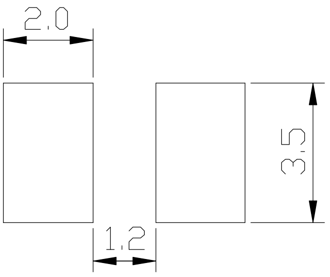
<table>
<tr><th>TEST ITEM</th><th colspan="2">SPECIFICATION</th></tr>
<tr><td>High temperature storage</td><td>△L/Lo≦±5%<br>There shall be no mechanical damage.</td><td>The sample shall be left for 96±4 hours in an atmospere with a temperature of 85±2℃ and a normal humidity.<br>Upon completion of the measurement shall be made after the sample has been left in a normal temperature and normal humidity for 1 hour.</td></tr>
<tr><td>Low temperature storage</td><td>△L/Lo≦±5%<br>There shall be no mechanical damage.</td><td>The sample shall be left for 96±4 hours in an atmosphere with a temperature of -25±3℃.<br>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.</td></tr>
<tr><td>Change of temperature</td><td>△L/Lo≦±5%<br>There shall be no other damage of problems</td><td>The sample shall be subject to 5 continuos 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.<br>table 2
<table>
<tr><th></th><th>Temperature</th><th>Duration</th></tr>
<tr><td>1</td><td>－25±3℃ (Themostat No.1)</td><td>30 min.</td></tr>
<tr><td>2</td><td>Standard atmospheric</td><td>No.1→No.2</td></tr>
<tr><td>3</td><td>85±2℃ (Themostat No.2)</td><td>30 min.</td></tr>
<tr><td>4</td><td>Standard atmospheric</td><td>No.2→No.1</td></tr>
</table></td></tr>
<tr><td>Moisture storage</td><td>△L/Lo≦±5%<br>There shall be no mechanical damage.</td><td>The sample shall be left for 96±4 hours in a temperature of 40±2℃ and a humidity(RH) of 90～95%.<br>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.</td></tr>
<tr><td colspan="3">Test conditions：<br>The sample shall be reflow soldered onto the printed circuit board in every test.</td></tr>
</table>

## (5) LAND DIMENSION (Ref.)

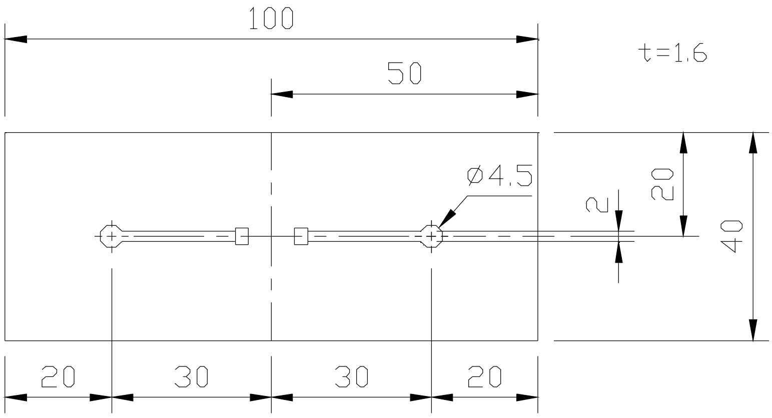
**PCB: GLASS EPOXY t＝1.6mm**

### (5)-1 LAND PATTERN DIMENSIONS

**(STANDARD PATTERN)** **unit：mm**

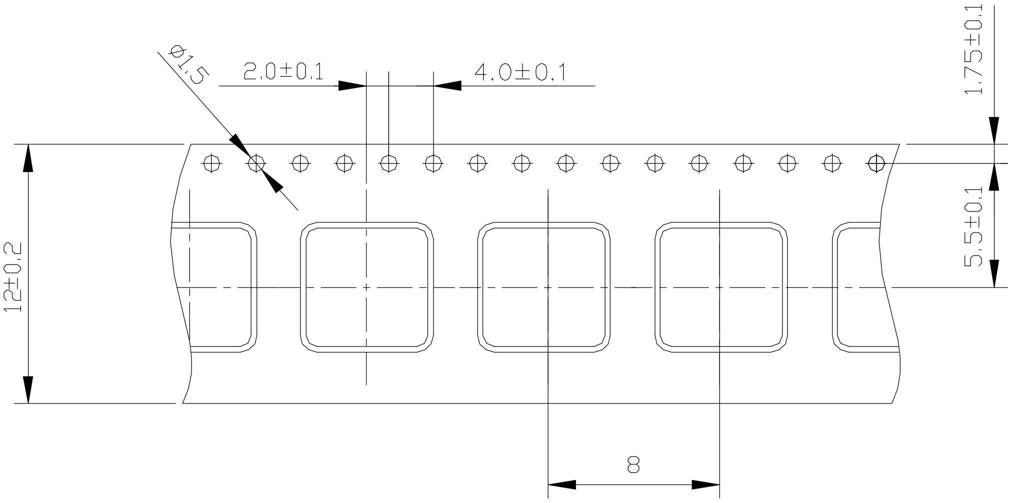


### (5)-2 SUBSTRATE BENDING TEST BENDING TEST BOARD

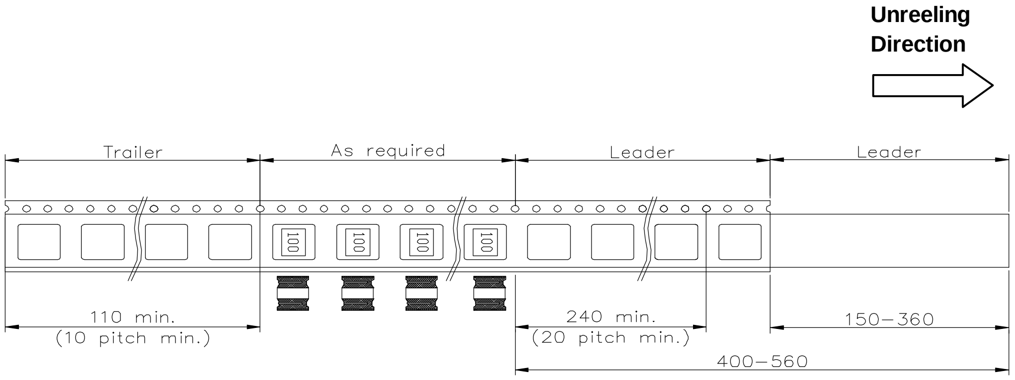


# (6) PACKAGING

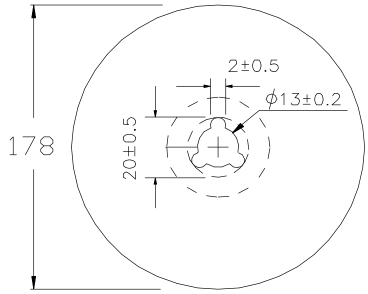
## (6)-1 CARRIER TAPE DIMENSIONS (mm)

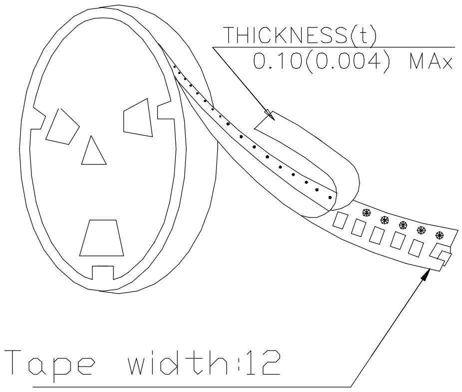


## (6)-2 TAPING DIMENSIONS (mm)



## (6)-3 REEL DIMENSIONS (mm)





## (6)-4 QUANTITY

**500pcs/Reel**

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