## SCOPE：

This specification applies to the Pb Free high current type SMD inductors for

MSI-600607-SERIES-□

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

### PRODUCT INDENTIFICATION

MSI - 600607 - 70N M - E-□□

① ② ③ ④ ⑤

① Product Code

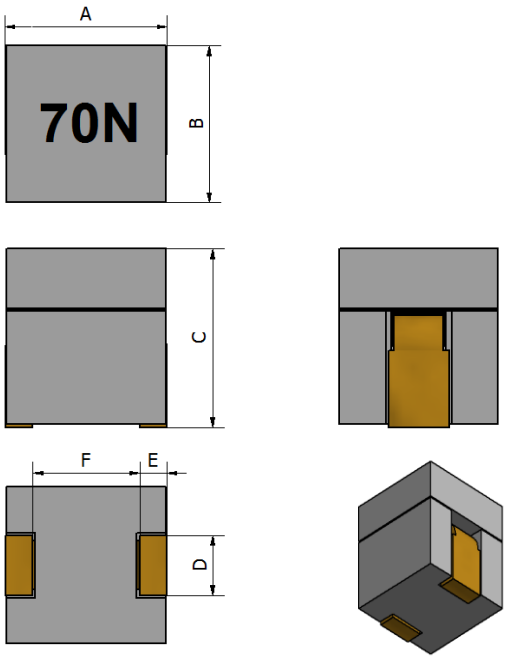
② Dimensions Code

③ Inductance Code

④ Tolerance Code

⑤ Inner Control Code

## (1) SHAPES AND DIMENSIONS(mm)




| | | |
|---|---|---|
| A: | 6.1 Max. | mm |
| B: | 6.0 Max. | mm |
| C: | 7.0 Max. | mm |
| D: | 2.2±0.2 | mm |
| E: | 1.0±0.2 | mm |
| F: | 3.9±0.3 | mm |

## (2) ELECTRICAL SPECIFICATIONS

SEE TABLE 1

TEST INSTRUMENTS

L : HP 4284A PRECISION LCR METER (or equivalent)

RDC : CHROMA MODEL 16502 MILLIOHMMETER (or equivalent)

Isat :WK3255BQ+ WK3265B (or equivalent)

## (3) CHARACTERISTICS

(3)-1 Operate temperature range ..... －40℃～＋125℃

(Including self temp. rise)

(3)-2 Storage temperature range ..... －40℃～＋125℃

## TABLE 1

| MAGLAYERS PT/NO. | Inductance L(nH) | Percent Tolerance | Test Frequency | Resistance RDC(mΩ) | Rated DC Current | | | Marking |
|---|---|---|---|---|---|---|---|---|
| | | | | | Isat1(A) | Isat2(A) | Irms(A) | |
| MSI-600607-70N□-E | 70.0 | L,M,N | 100kHz/0.1V | 0.09±15% | 60 | 48 | 53 | 70N |

※ □ specify the inductance tolerance,L(±15%),,M(±20%),N(±30%)

※ Isat1： Based on inductance change (△L/Lo： drop 20% Typ.)@ ambient temp. 25℃

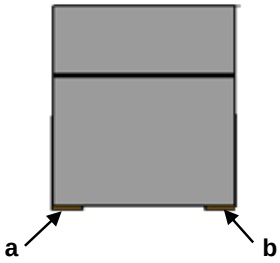
Isat2： Based on inductance change (△L/Lo： drop 20% Typ.)@ ambient temp. 100℃

Irms： Based on temperature rise (△T： 45℃ TYP.)

Rated DC Current： The less value which is Isat1 or Irms .

## RDC TEST POINT

The nominal DCR is measured from point 〝a〞 to point 〝b〞 .

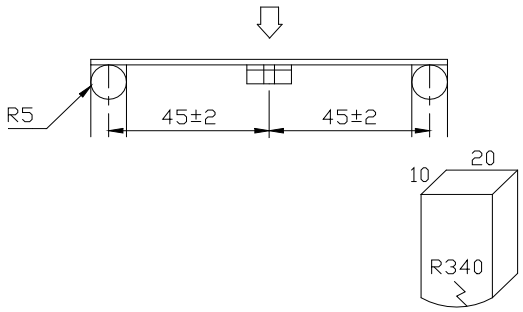


## (4) RELIABILITY TEST METHOD

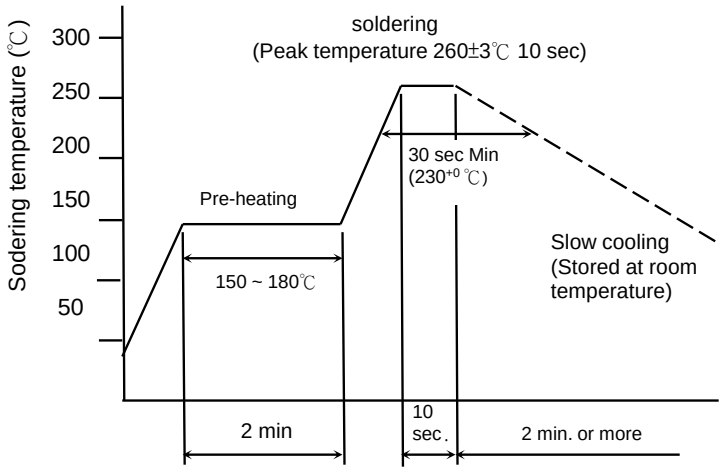
### ELECTRICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|---|---|---|
| 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%. |

### MECHANICAL

| TEST ITEM | SPECIFICATION | TEST DETAILS |
|---|---|---|
| Substrate bending | △L/Lo≦±5%<br><br>There shall be no mechanical damage or elec-trical damage. | 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><br>PRESSURE ROD<br>figure-1 |

## MECHANICAL

| TEST ITEM | SPECIFICATION | |
|---|---|---|
| Vibration | △L/Lo≦±5%<br><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. (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. |
| Resistance to Soldering heat (reflow soldering) | There shall be no damage or problems. | Temperature profile of reflow soldering<br>  <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. |

## ENVIROMENT CHARACTERISTICS

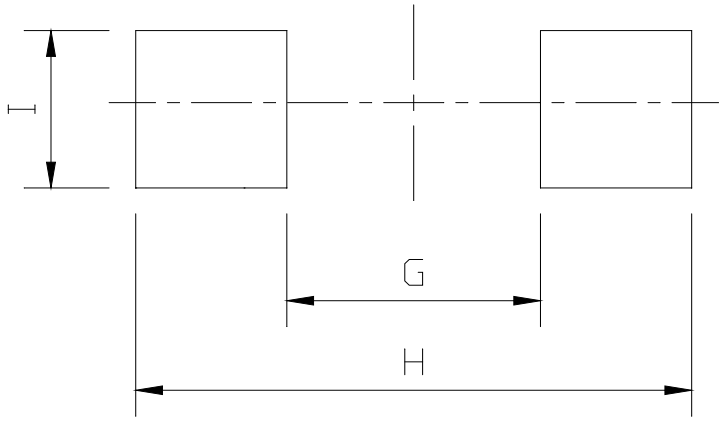
<table>
<tr><th>TEST ITEM</th><th colspan="2">SPECIFICATION</th></tr>
<tr><td>High temperature storage</td><td>△L/Lo≦±5%<br><br>There shall be no mechanical damage.</td><td>The sample shall be left for 96±4 hours in an atmospere with a temperature of 125℃ and a normal humidity.<br>Upon completion of 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><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 -40±2℃.<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><br>There shall be no other dama-ge 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><br>table 2<br><table><tr><th></th><th>Temperature</th><th>Duration</th></tr><tr><td>1</td><td>－25±3℃<br>(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℃<br>(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><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**

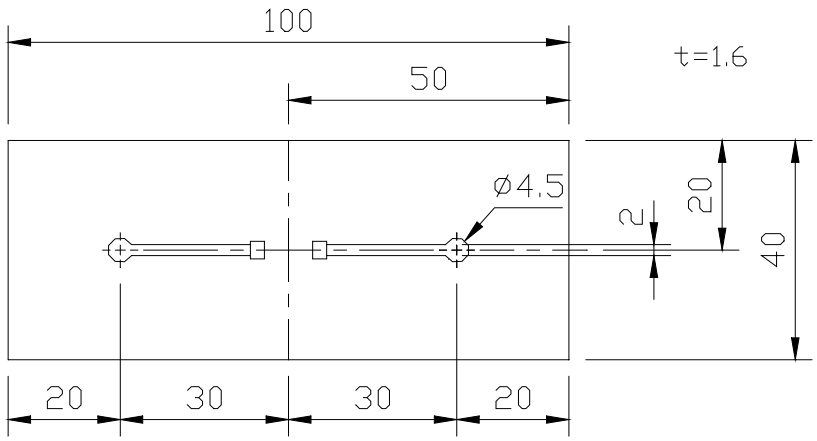
### (5)-1 LAND PATTERN DIMENSIONS(mm)

**(STANDARD PATTERN)**



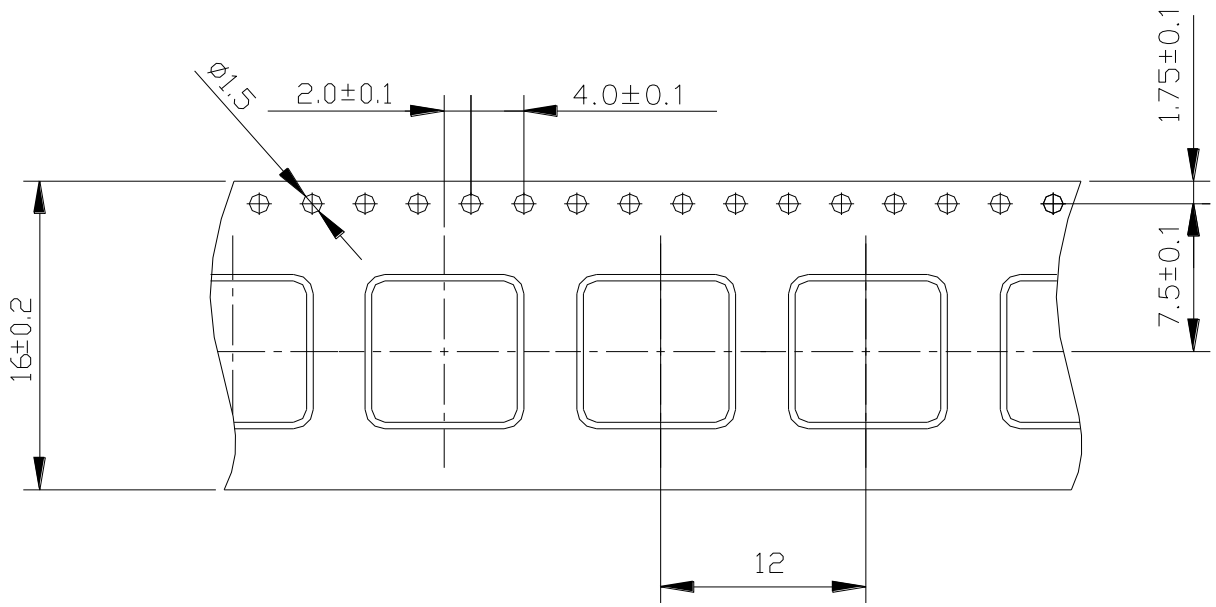

**G:3.4**
**H:6.5**
**I :2.7**

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

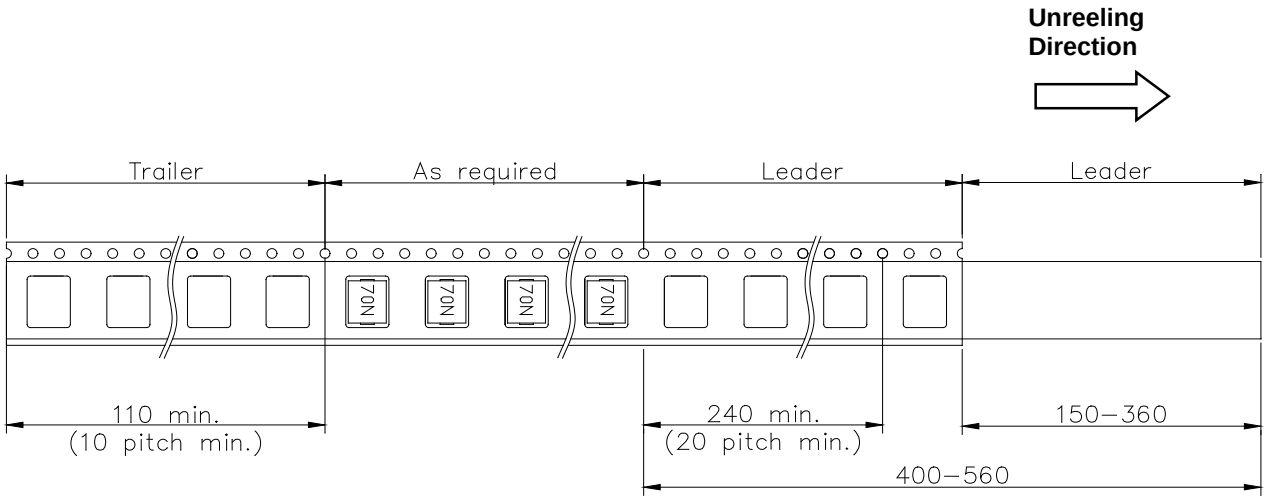


# (6) PACKAGING

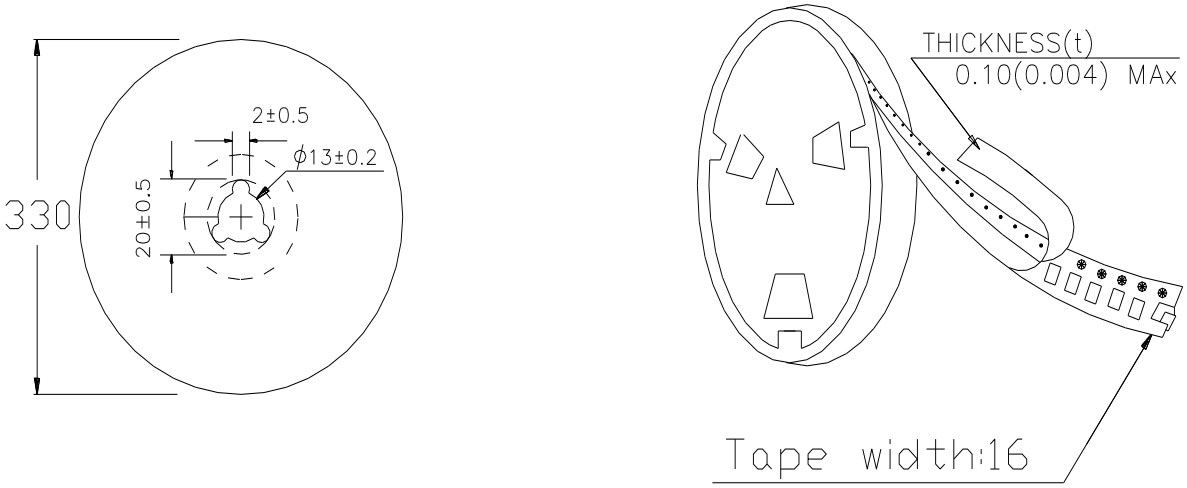
## (6)-1 CARRIER TAPE DIMENSIONS (mm)




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



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




## (6)-4 QUANTITY

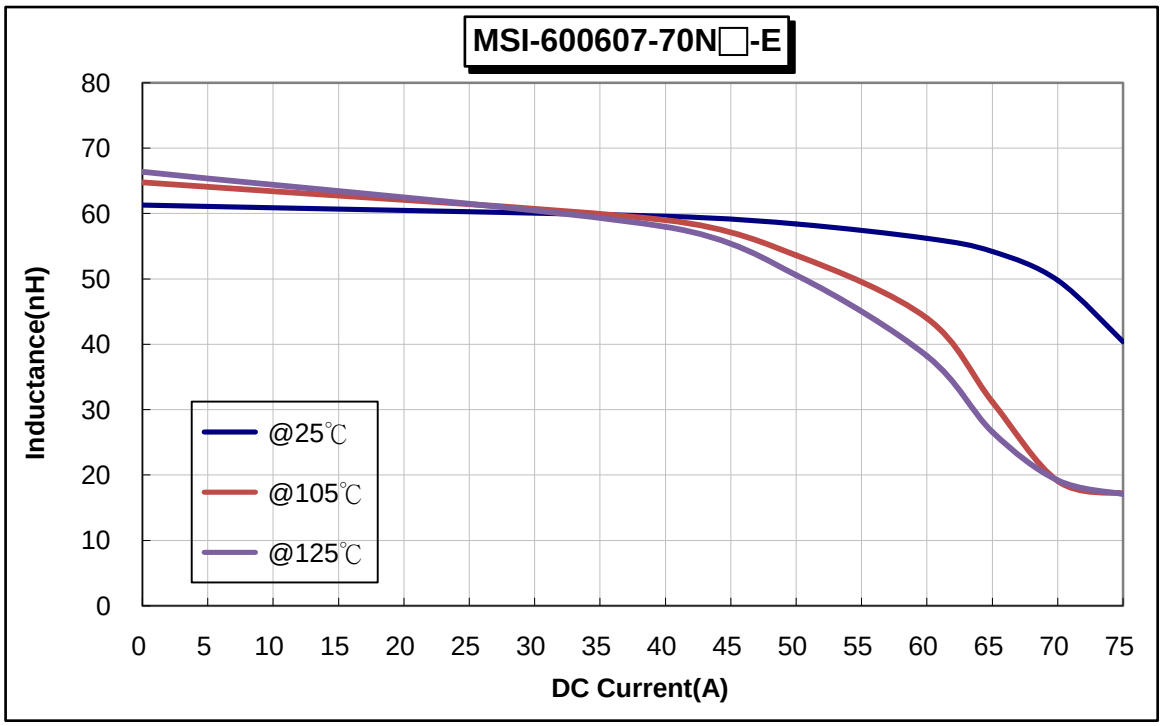
**800 pcs/Reel**

**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.

## TYPICAL ELECTRICAL CHARACTERISTICS

### INDUCTANCE vs. DC CURRENT@100kHz/1.0V




### Temperature Rise vs. DC Current