



**INPAQ**

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# Product Specification

Document NO.ENS000117260

| Description       | Drawn by           | Designed by     | Checked by     | Approved by      |
|-------------------|--------------------|-----------------|----------------|------------------|
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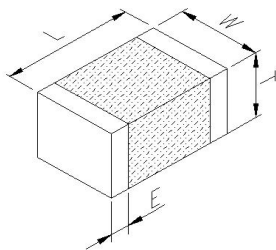
Multilayer Inductor for NFC circuit (MNI Series) engineering Spec.

■ Part Number and Characteristics Table

| Part Number.                    | Inductance (nH)  | Inductance Tolerance | DCR (Ω) Max. | Rated Current (mA) | SRF (MHz)Min. |
|---------------------------------|--|----------------------|--------------|--------------------|---------------|
| MNI1608PR16_BPDG                | 160  | K=±10%               | 0.125        | 1,200              | 330           |
| Test Instruments and Conditions | <ul style="list-style-type: none"> <li>•HP4291B-RF Impedance / Material Analyzer</li> <li>•HP4338A/B Milliohm meter</li> <li>•Test Frequency : 25 MHz</li> <li>•OSC Level : 100mV</li> </ul> |                      |              |                    |               |

\*\* For special part number which is not shown in the above table, please refer to appendix.

■ Shapes and Dimensions



| Type | 1608 (EIA 0603) |
|------|-----------------|
| L    | 1.60±0.15       |
| W    | 0.80±0.15       |
| T    | 0.80±0.15       |
| E    | 0.30±0.20       |
| Unit | mm              |

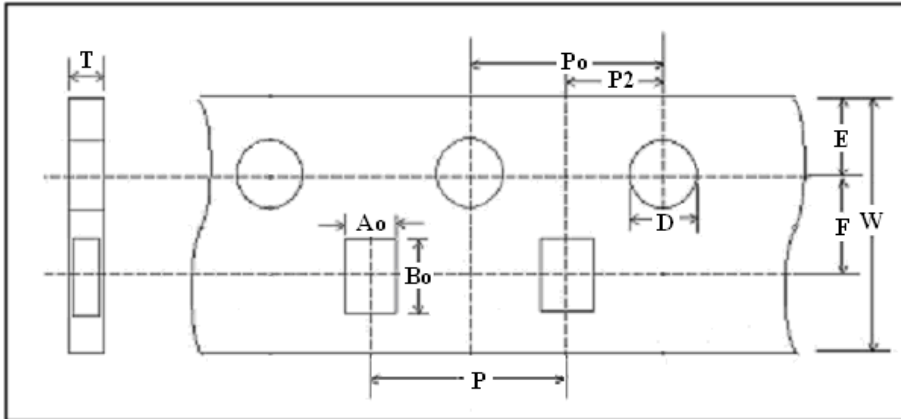
■ Part Number Code

MNI 1608 P R16 K B P DG  
 1 2 3 4 5 6 7 8

- 1 Series Name
- 2 Size Code : The first two digitals: length(mm) 、 the last two digitals: width(mm)
- 3 Material code
- 4 Inductance : R16 = 160nH
- 5 Tolerance : J = ± 5% 、 K = ± 10%
- 6 Soldering : Green Parts 、 B= Lead-Free for whole chip
- 7 Packaging : P - Paper tape, 7" reel.
- 8 INPAQ internal code

■ Tape and Reel Specifications

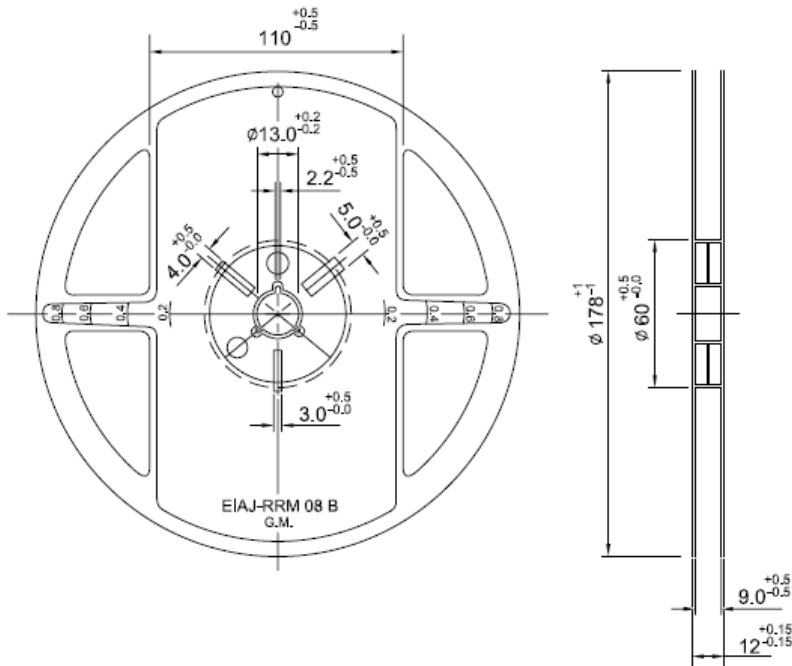
Paper Carrier (P)



Taping Dimensions

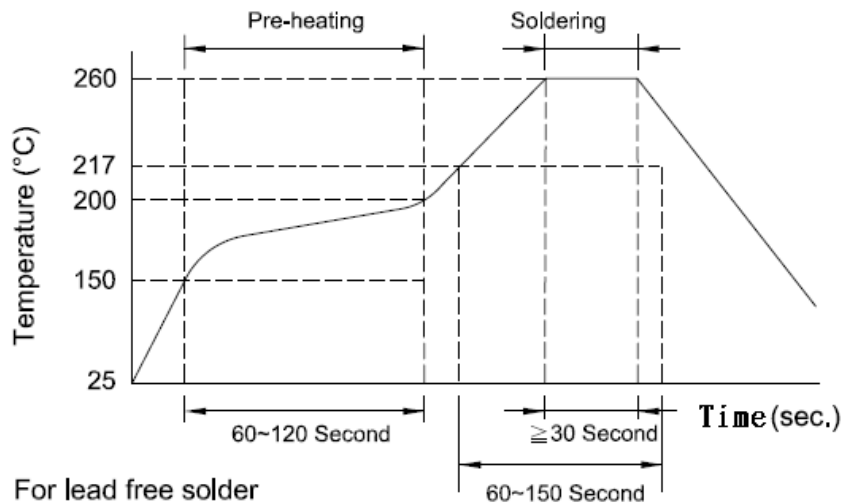
| Size (mm)      | 1608      |
|----------------|-----------|
| Symbol         | Paper     |
| W              | 8.00±0.10 |
| P              | 4.00±0.10 |
| E              | 1.75±0.10 |
| F              | 3.50±0.10 |
| D              | 1.56±0.10 |
| P <sub>0</sub> | 4.00±0.10 |
| P <sub>2</sub> | 2.00±0.10 |
| A <sub>0</sub> | 0.97±0.05 |
| B <sub>0</sub> | 1.80±0.05 |
| T              | 0.75±0.05 |

■ Reel Dimensions

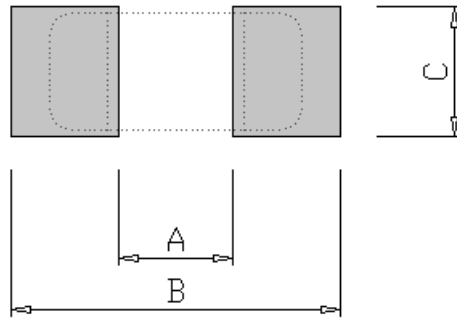


| 7" Reel Packaging Quantity |                     |
|----------------------------|---------------------|
| PART SIZE (EIA size)       | 1608 (0603)         |
| Qty.(pcs)                  | 4,000               |
| BOX                        | 5 reels / inner box |

■ Recommended Soldering Conditions



■ Land Patterns for Reflow Soldering



Solder land information :

| Size (mm) | A           | B           | C           |
|-----------|-------------|-------------|-------------|
| 1608      | 0.50 ~ 0.70 | 1.80 ~ 2.00 | 0.65 ~ 0.95 |

■ Reliability and Test Conditions

| Test item                        | Test condition   | Criteria   |
|----------------------------------|--|--|
| <b>Resistance to Solder Heat</b> | 1. Solder temperature : $260 \pm 5^{\circ}\text{C}$<br>2. Flux : Rosin<br>3. DIP time : $10 \pm 1$ sec | 1. More than 95 % of terminal electrode should be covered with new solder<br>2. No mechanical damage<br>3. Inductance value should be within $\pm 20$ % of the initial value |
| <b>Solderability</b>             | 1. Solder temperature : $235 \pm 5^{\circ}\text{C}$<br>2. Flux : Rosin<br>3. DIP time : $5 \pm 1$ sec  | 1. More than 95 % of terminal electrode should be covered with new solder<br>2. No mechanical damage   |

| Test item                          | Test condition   | Criteria  |
|------------------------------------|--|---|
| <b>Adhesive Test</b>               | 1. Reflow temperature : 245°C It shall be soldered on the substrate applying direction parallel to the substrate<br>2. Apply force(F) :0.5Kgf<br>3. Test time : 10 sec | 1. No mechanical damage<br>2. Soldering the products on PCB after the pulling test force > 0.5Kgf |
| <b>Temperature Cycle</b>           | 1. Temperature:-40 ~ 85°C for 30 minutes each<br>2. Cycle: 100 cycles<br>3. Measurement: at ambient temperature 24 hours after test completion                         | 1. No mechanical damage<br>2. Inductance should be within ±20% of the initial value               |
| <b>High Temperature Resistance</b> | 1. Temperature: 85 ± 5°C<br>2. Testing time: 1000 hrs<br>3. Measurement: at ambient temperature 24 hours after test completion   | 1. No mechanical damage<br>2. Inductance should be within ±20% of the initial value               |
| <b>Humidity</b>                    | 1. Temperature: 40°C ± 2°C<br>2. Humidity: 90-95 % RH<br>3. Testing time: 1000 hrs<br>4. Measurement: at ambient temperature 24 hours after test completion            | 1. No mechanical damage<br>2. Inductance should be within ±20% of the initial value               |
| <b>Rated Current</b>               | At ambient temperature & humidity<br>Testing time:5 minutes<br>( under full rated current )  | MIP product surface temp : below room temperature plus 40°C                                       |

■ **GENERAL TECHNICAL DATA**

Operating temperature range : - 40°C ~ +85°C

Storage Condition : Less than 40°C and 70% RH

Storage time : 12 months

Soldering method : Reflow