



Mag Layers USA, INC

Specification Sheet

P/N : **GMLB-201209-0080P-N8-RU**

Products:

[Molded Power Chokes](#)

[Multilayer Chip Inductors](#)

[Lan Transformer](#)

[RF Passive / Antennas](#)

[Automotive](#)

Certifications:

[ISO9001](#)

[IATF16949](#)

[ISO14001](#)

[QC080000](#)

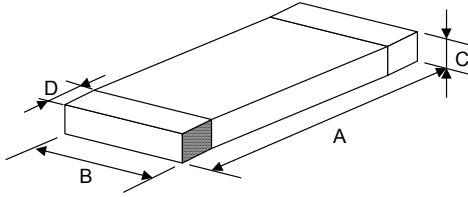
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Contact Us

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info@maglayersusa.com

PRODUCT DIMENSION

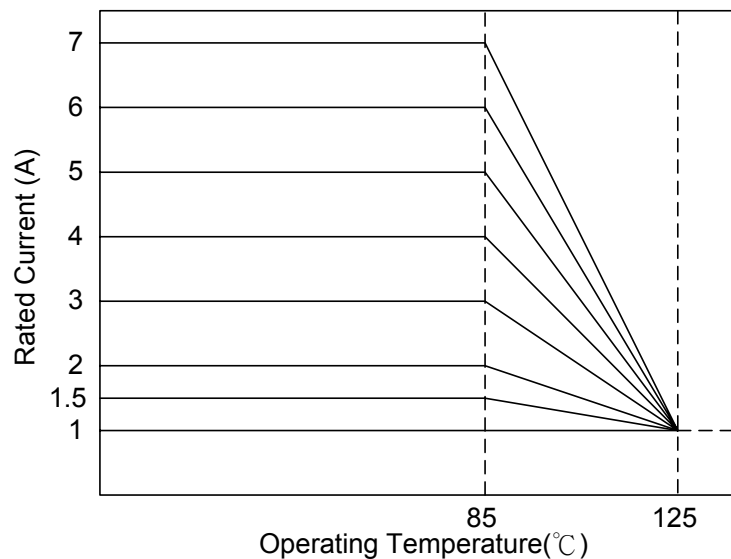


NOTE : Dimensions in mm

| PRODUCT NO. | A | B | C | D |
|--------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| GMLB-453215 (1812)-RU | 4.5±0.20 (0.177±0.008) | 3.2±0.20 (0.126±0.008) | 1.5±0.20 (0.059±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-451616 (1806)-RU | 4.5±0.20 (0.177±0.008) | 1.6±0.20 (0.063±0.008) | 1.6±0.20 (0.063±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-322513 (1210)-RU | 3.2±0.20 (0.126±0.008) | 2.5±0.20 (0.098±0.008) | 1.3±0.20 (0.051±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-321616 (1206)-RU | 3.2±0.20 (0.126±0.008) | 1.6±0.20 (0.063±0.008) | 1.6±0.20 (0.063±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-321611 (1206)-RU | 3.2±0.20 (0.126±0.008) | 1.6±0.20 (0.063±0.008) | 1.1±0.20 (0.043±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-201209 (0805)-RU | 2.0±0.20 (0.079±0.008) | 1.2±0.20 (0.047±0.008) | 0.9±0.20 (0.035±0.008) | 0.5±0.30 (0.020±0.012) |
| GMLB-160808 (0603)-RU | 1.6±0.15 (0.063±0.006) | 0.8±0.15 (0.031±0.006) | 0.8±0.15 (0.031±0.006) | 0.3±0.20 (0.012±0.008) |

CURRENT DERATING

In operating temperatures exceeding +85°C, derating of current is necessary for chip ferrite beads for which rated current is 1.5A or over. Please apply the derating curve shown below according to the operating temperature.



ELECTRICAL REQUIREMENTS

| Part Number | Impedance (Ω) at 100 MHz | R_{DC} (Ω) Max. | Rated Current (mA) Max. | Operating Temp. Range ($^{\circ}\text{C}$) |
|-------------------------|-----------------------------------|----------------------------|-------------------------|--|
| GMLB-201209-0080P-N8-RU | 80 \pm 25% | 0.04 | 5000 | -55 ~ +125 |

- Temperature rise should be less than 40 $^{\circ}\text{C}$ for P-type and less than 25 $^{\circ}\text{C}$ for other types when rated current is applied.

MEASURING METHOD / CONDITION

- Test Instrument:

Z: Agilent 4291B Impedance Analyzer, Test Fixture: Agilent 16192

Osc. Level: 500mV

R_{DC} : Agilent 34401A

- Test Condition:

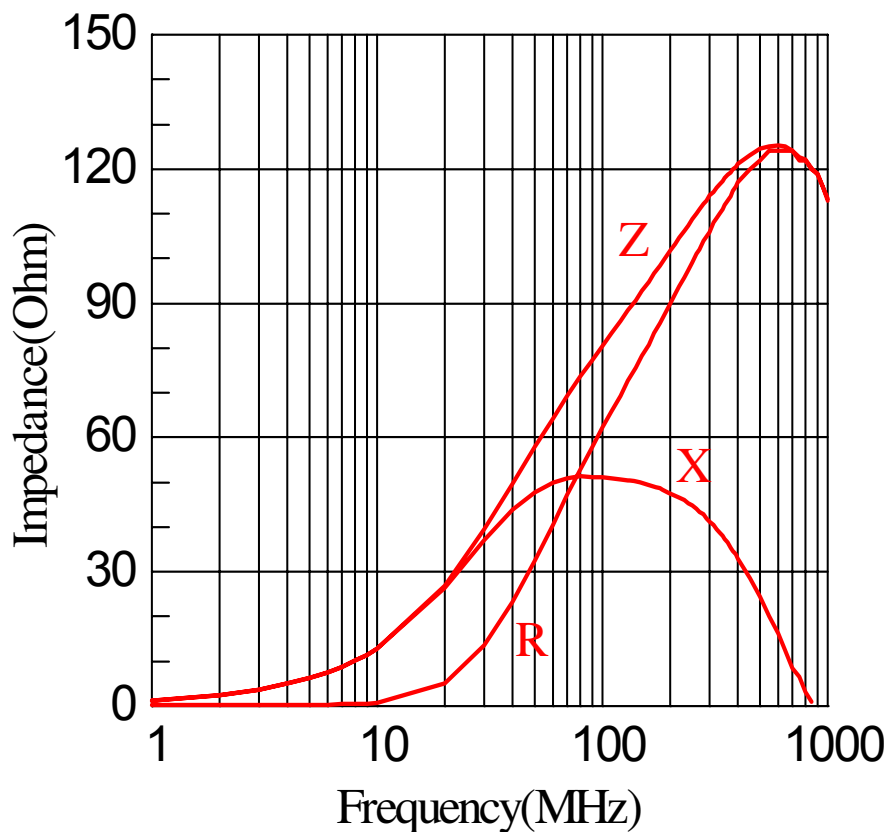
< Unless otherwise specified >

Temperature: 15 $^{\circ}\text{C}$ to 35 $^{\circ}\text{C}$ Humidity: 25% to 85% RH

< In case of doubt >

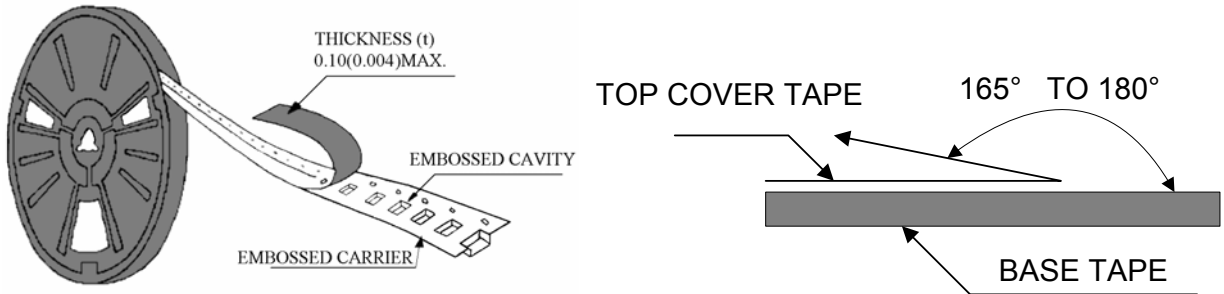
Temperature: 25 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Humidity: 60% to 70% RH

ELECTRICAL CHARACTERISTICS (T=25 $^{\circ}\text{C}$)



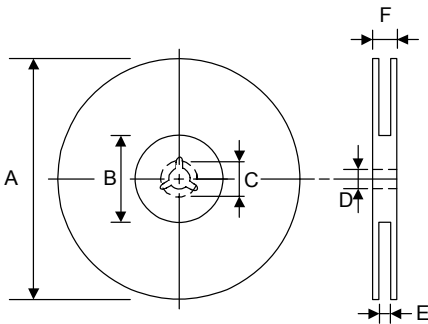
PACKAGING

● Peel-off Force

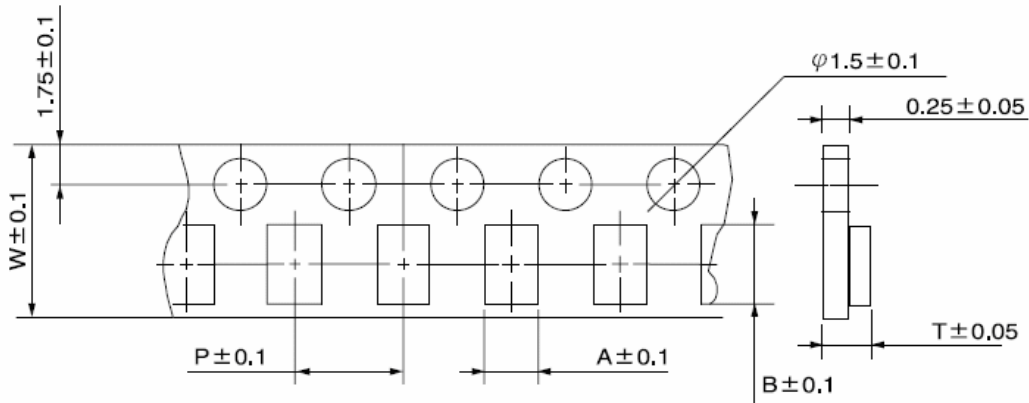


The force for peeling off cover tape is 10 grams in the arrow direction.

● Dimension (Unit: mm)

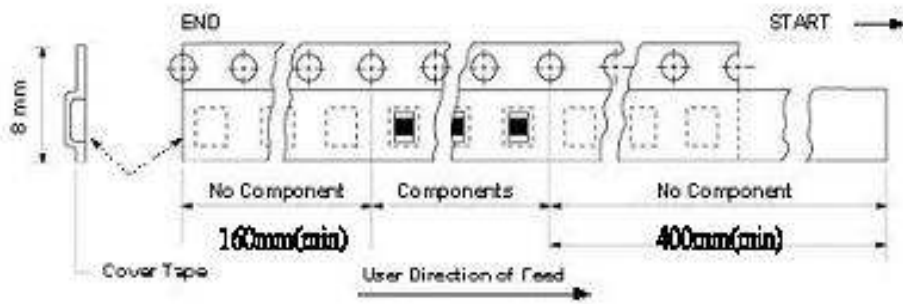


| TYPE | A | B | C | D | E | F |
|-------|---------|---------------|-----------|-----------|-----------|---------|
| 8 mm | 178±1 | 60 +0.5 -0 | - | 13 ±0.2 | 9 ±0.5 | 12 ±0.5 |
| 12 mm | 178±0.3 | 60 ±0.2 | 19.3 ±0.1 | 13.5 ±0.1 | 13.6 ±0.1 | - |



| TYPE | SIZE | A | B | W | P | T | CHIPS/REEL |
|------|--------|-----|-----|----|---|-----------------|------------|
| GMLB | 160808 | 1.1 | 1.9 | 8 | 4 | 1.1, *0.95±0.05 | 4000 |
| | 201209 | 1.5 | 2.3 | 8 | 4 | 1.3, *0.95±0.10 | 4000 |
| | 321611 | 1.9 | 3.5 | 8 | 4 | 1.5 | 3000 |
| | 321616 | 1.9 | 3.5 | 8 | 4 | 2.0 | 3000 |
| | 322513 | 2.9 | 3.6 | 8 | 4 | 1.7 | 2500 |
| | 451616 | 1.9 | 4.9 | 12 | 4 | 2.0 | 2000 |
| | 453215 | 3.6 | 4.9 | 12 | 8 | 1.9 | 1000 |

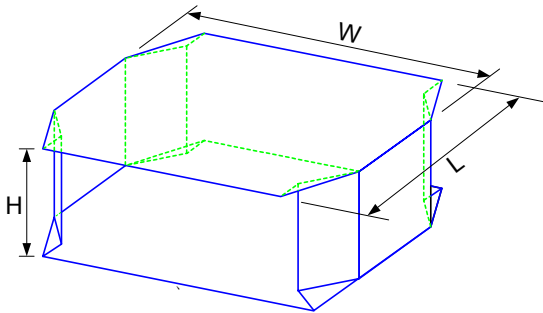
*: For paper reels



● Taping Quantity

| SERIES | 4532 | 4516 | 3225 | 3216 | 2012 | 1608 |
|----------|------|------|------|------|------|------|
| PCS/Reel | 1000 | 2000 | 2500 | 3000 | 4000 | 4000 |

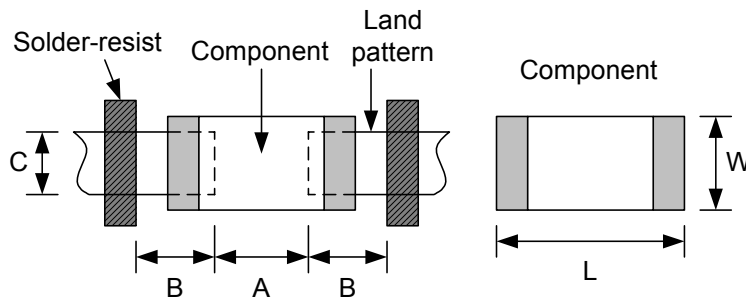
● Tape Packing Case



| No. of Reels | W | L | H |
|--------------|--------|--------|---------|
| 2 | 18±0.5 | 18±0.5 | 2.4±0.2 |
| 3 | 18±0.5 | 18±0.5 | 3.6±0.2 |
| 4 | 18±0.5 | 18±0.5 | 4.8±0.2 |
| 5 | 18±0.5 | 18±0.5 | 6.0±0.2 |

Unit: cm

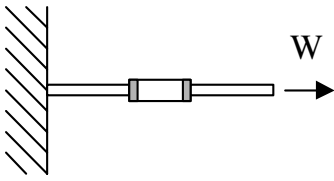
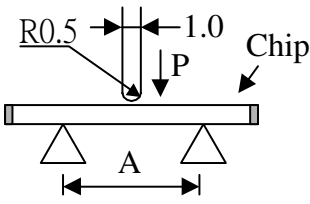
■ RECOMMENDED PCB LAYOUT



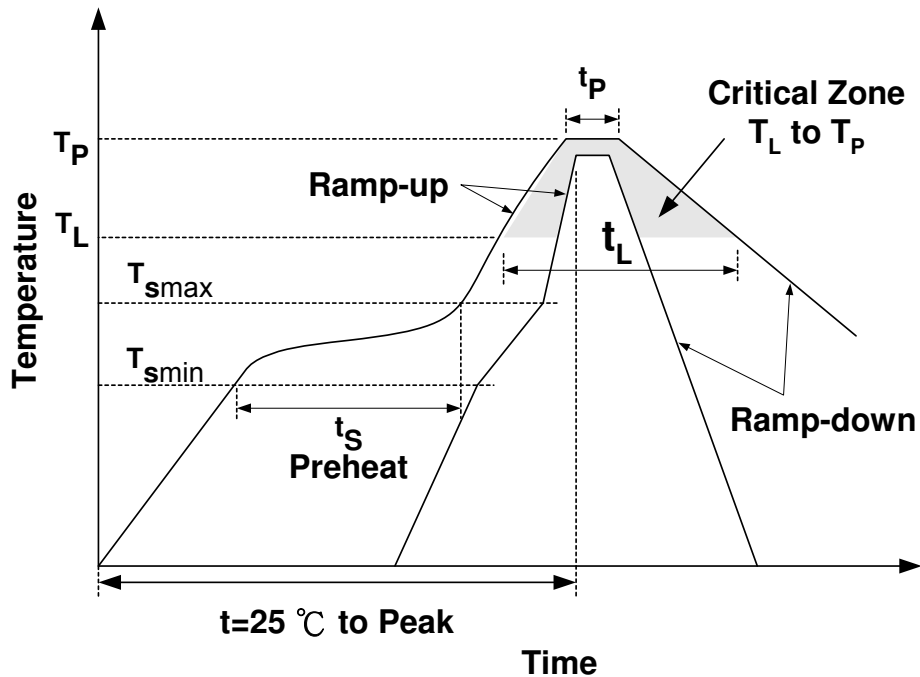
Unit: mm

| Type | 1608 | 2012 | 3216 | 3225 | 4516 | 4532 | |
|------|---------|---------|---------|---------|------|------|-----|
| Size | L | 1.6 | 2.0 | 3.2 | 3.2 | 4.5 | 4.5 |
| | W | 0.8 | 1.2 | 1.6 | 2.5 | 1.6 | 3.2 |
| A | 0.6~0.8 | 0.8~1.2 | 1.8~2.2 | 1.8~2.2 | 3.4 | 3.4 | |
| B | 0.6~0.8 | 0.8~1.2 | 1.1~1.6 | 1.1~1.6 | 1.5 | 1.5 | |
| C | 0.6~0.8 | 0.9~1.6 | 0.9~1.6 | 3.40 | 1.4 | 4.2 | |

RELIABILITY TEST

| •Mechanical Performance Test | | | | | | | | | | | | | | | | | | | | | |
|--|---|--|---|--------|------------|------------|-------------|-----|--------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-----|-----|-------------|-------------|-----|
| ITEM | SPECIFICATION | | TEST CONDITION | | | | | | | | | | | | | | | | | | |
| Solderability | More than 90% of the terminal electrode shall be covered with fresh solder. | | Solder: 96.5Sn-3.0Ag-0.5Cu Solder Temperature: 245 ± 5°C Flux: Rosin Dip Time: 3 ± 1 Seconds | | | | | | | | | | | | | | | | | | |
| Soldering Resistance | Heat | The chip shall not crack. More than 75% of the terminal electrode shall be covered with solder. | Solder: 96.5Sn-3.0Ag-0.5Cu Solder temperature : 260 ± 5°C Flux: Rosin Dip time: 10 ± 1 seconds | | | | | | | | | | | | | | | | | | |
| Terminal Strength | The terminal electrode shall not be broken off nor the ferrite damaged.  | | <table border="1"> <thead> <tr> <th>TYPE</th> <th>W(KGF)</th> <th>TIME (SEC)</th> </tr> </thead> <tbody> <tr> <td>GMLB-160808</td> <td rowspan="2">0.6</td> <td rowspan="7">30 ± 5</td> </tr> <tr> <td>GMLB-201209</td> </tr> <tr> <td>GMLB-321611</td> <td rowspan="4">1.0</td> </tr> <tr> <td>GMLB-321616</td> </tr> <tr> <td>GMLB-322513</td> </tr> <tr> <td>GMLB-451616</td> </tr> <tr> <td>GMLB-453215</td> <td>1.5</td> </tr> </tbody> </table> | TYPE | W(KGF) | TIME (SEC) | GMLB-160808 | 0.6 | 30 ± 5 | GMLB-201209 | GMLB-321611 | 1.0 | GMLB-321616 | GMLB-322513 | GMLB-451616 | GMLB-453215 | 1.5 | | | | |
| | | | TYPE | W(KGF) | TIME (SEC) | | | | | | | | | | | | | | | | |
| | | | GMLB-160808 | 0.6 | 30 ± 5 | | | | | | | | | | | | | | | | |
| | | | GMLB-201209 | | | | | | | | | | | | | | | | | | |
| | | | GMLB-321611 | 1.0 | | | | | | | | | | | | | | | | | |
| | | | GMLB-321616 | | | | | | | | | | | | | | | | | | |
| | | | GMLB-322513 | | | | | | | | | | | | | | | | | | |
| GMLB-451616 | | | | | | | | | | | | | | | | | | | | | |
| GMLB-453215 | 1.5 | | | | | | | | | | | | | | | | | | | | |
| Bending Strength | No mechanical damage. The ferrite shall not be damaged.  | | <table border="1"> <thead> <tr> <th>TYPE</th> <th>A(MM)</th> <th>P(KGF)</th> </tr> </thead> <tbody> <tr> <td>GMLB-160808</td> <td>1.0</td> <td rowspan="2">1.0</td> </tr> <tr> <td>GMLB-201209</td> <td>1.4</td> </tr> <tr> <td>GMLB-321611</td> <td rowspan="2">2.0</td> <td rowspan="2">2.0</td> </tr> <tr> <td>GMLB-321616</td> </tr> <tr> <td>GMLB-322513</td> <td rowspan="2">2.5</td> <td rowspan="2">2.5</td> </tr> <tr> <td>GMLB-451616</td> </tr> <tr> <td>GMLB-453215</td> <td>2.7</td> </tr> </tbody> </table> | TYPE | A(MM) | P(KGF) | GMLB-160808 | 1.0 | 1.0 | GMLB-201209 | 1.4 | GMLB-321611 | 2.0 | 2.0 | GMLB-321616 | GMLB-322513 | 2.5 | 2.5 | GMLB-451616 | GMLB-453215 | 2.7 |
| | | | TYPE | A(MM) | P(KGF) | | | | | | | | | | | | | | | | |
| | | | GMLB-160808 | 1.0 | 1.0 | | | | | | | | | | | | | | | | |
| | | | GMLB-201209 | 1.4 | | | | | | | | | | | | | | | | | |
| | | | GMLB-321611 | 2.0 | 2.0 | | | | | | | | | | | | | | | | |
| | | | GMLB-321616 | | | | | | | | | | | | | | | | | | |
| GMLB-322513 | 2.5 | 2.5 | | | | | | | | | | | | | | | | | | | |
| GMLB-451616 | | | | | | | | | | | | | | | | | | | | | |
| GMLB-453215 | 2.7 | | | | | | | | | | | | | | | | | | | | |
| • Climatic test | | | | | | | | | | | | | | | | | | | | | |
| ITEM | SPECIFICATION | | TEST CONDITION | | | | | | | | | | | | | | | | | | |
| Thermal Shock (Temperature Cycle) | Impedance shall be within ± 20% of the initial value. | | Temperature: -55°C~125°C for 30 minutes each, 100 cycles. | | | | | | | | | | | | | | | | | | |
| Humidity Resistance | | | Temperature : 60°C Humidity: 95% RH Time: 1000 ± 12 Hours | | | | | | | | | | | | | | | | | | |
| High Temperature Resistance | | | Temperature : 85°C±2°C Time: 1000 ± 12 Hours | | | | | | | | | | | | | | | | | | |
| 1. Operating Temperature Range: -55 °C TO +125°C 2. Storage Condition: The temperature should be within -40°C~85°C and humidity should be less than 75% RH. The product should be used within 6 months from the time of delivery. | | | | | | | | | | | | | | | | | | | | | |

RECOMMENDED REFLOW SOLDERING PROFILE



| Profile Feature | | Sn-Pb | Pb-Free |
|--|-----------------------|-----------------|-----------------|
| Preheat | t_s | 60~120 seconds | 60~180 seconds |
| | T_{smin} | 100°C | 150°C |
| | T_{smax} | 150°C | 200°C |
| Average ramp-up rate (T_{smax} to T_P) | | 3°C/second max. | 3°C/second max. |
| Time main above | Temperature (T_L) | 183°C | 217°C |
| | Time (t_L) | 60~150 seconds | 60~150 seconds |
| Peak temperature (T_P) | | 230°C | 250~260°C |
| Time within 5°C of actual peak temperature (t_P) | | 10 seconds | 10 seconds |
| Ramp-down rate | | 6°C/sec max. | 6°C/sec max. |
| Time 25°C to peak temperature | | 6 minutes max. | 8 minutes max. |

NOTES

The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.