

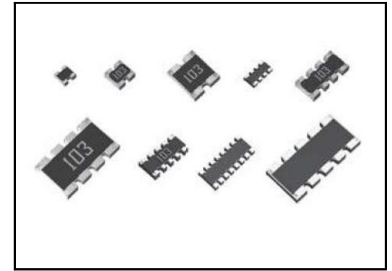


**THE DATASHEET OF
MNR14E0APJ000**



●Features

- 1) Can be mounted even more densely than chip resistors.
- 2) Mounting cost can be reduced by less frequency of mounting times.
- 3) Convex electrodes secures visual inspection of fillets after soldering.
- 4) ROHM resistors have obtained ISO9001 / IATF16949 certification.
- 5) Corresponds to AEC-Q200



●Products list

| Part No. | Size | | Rated power (70°C) (W) | Limiting element voltage (V) | Temperature coefficient (ppm / °C) | Resistance tolerance (%) | Resistance range (Ω) | Operating temperature range (°C) | Automotive grade available |
|--|----------|----------|--|---------------------------------|---------------------------------------|-----------------------------|----------------------------|-------------------------------------|----------------------------|
| | (mm) | [inch] | | | | | | | |
| ΔMNR02 | 1005 × 2 | 0402 × 2 | 0.063/ Element | 25 | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | -55 ~ +155 | Yes |
| | | | (Jumper type) Resistance : Max. 50mΩ, Rated current : 1A | | | | | | |
| ΔMNR04 | 1005 × 4 | 0402 × 4 | 0.063/ Element | 25 | +500 / -250 | J (±5%) | 1 ≤ R < 10 (E24 series) | -55 ~ +155 | Yes |
| | | | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | | | | |
| (Jumper type) Resistance : Max. 50mΩ, Rated current : 1A | | | | | | | | | |
| ΔMNR12 | 1608 × 2 | 0603 × 2 | 0.063/ Element | 50 | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | -55 ~ +155 | Yes |
| | | | (Jumper type) Resistance : Max. 50mΩ, Rated current : 1A | | | | | | |
| ΔMNR14 | 1608 × 4 | 0603 × 4 | 0.063/ Element | 50 | ±500 | J (±5%) | 2.2 ≤ R < 10 (E6 series) | -55 ~ +155 | Yes |
| | | | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | | | | |
| (Jumper type) Resistance : Max. 50mΩ, Rated current : 1A | | | | | | | | | |
| ΔMNR15 | 1608 × 5 | 0603 × 5 | 0.031/ Element | 12.5 | ±200 | J (±5%) | 56 ≤ R ≤ 100k (E24 series) | -55 ~ +125 | Yes |
| ΔMNR18 | 1605 × 8 | 0602 × 8 | 0.063/ Element | 25 | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | -55 ~ +125 | Yes |
| | | | (Jumper type) Resistance : Max. 50mΩ, Rated current : 1A | | | | | | |
| ▲MNR32 | 3216 × 2 | 1206 × 2 | 0.125/ Element | 200 | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | -55 ~ +125 | Yes |
| | | | (Jumper type) Resistance : Max. 50mΩ, Rated current : 2A | | | | | | |
| ▲MNR34 | 3216 × 4 | 1206 × 4 | 0.125/ Element | 200 | ±200 | J (±5%) | 10 ≤ R ≤ 1M (E24 series) | -55 ~ +125 | Yes |
| | | | (Jumper type) Resistance : Max. 50mΩ, Rated current : 2A | | | | | | |
| ▲MNR35 | 3216 × 5 | 1206 × 5 | 0.063/ Element | 50 | ±200 | J (±5%) | 56 ≤ R ≤ 100k (E12 series) | -55 ~ +125 | Yes |

Design and specifications are subject to change without notice. Carefully check the specification sheet supplied with the product before using or ordering it.

△ : Only for customers who are currently purchasing the products from ROHM or its authorized distributor.

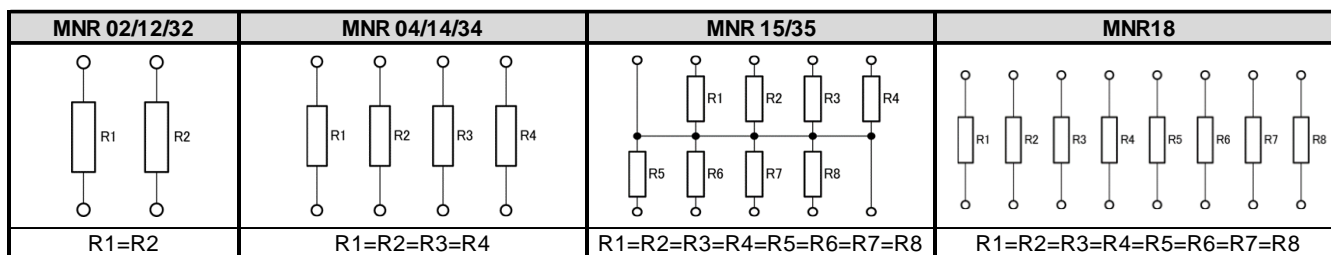
Please consider single chip resistor for new adoption. (Please contact us for details.)

▲ : NRND(Not Recommended for New Design)

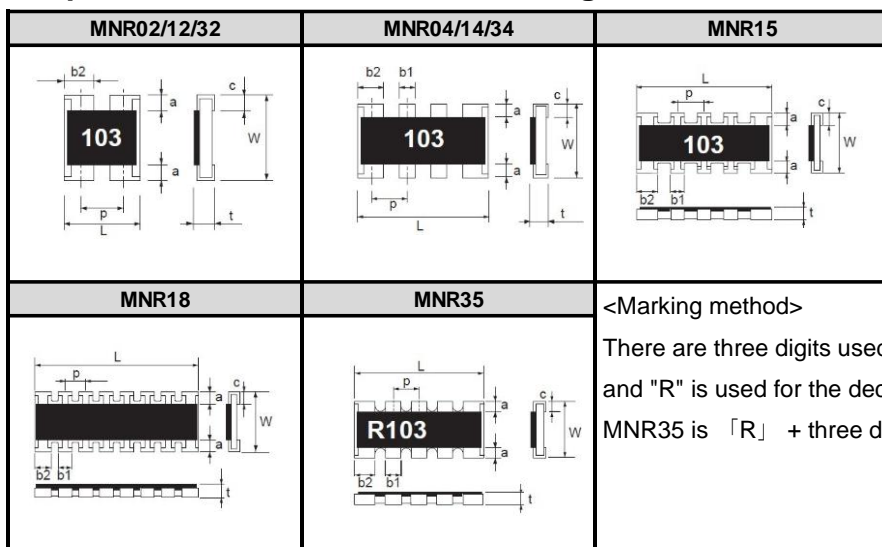
●Part Number Description

| MNR | 02 | M0AP | J | 105 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|--------------------------|-------------------------|---|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---|-----------|--|--|--|----------|------|--------------------------|-----------------|-------|------|-----------------------|--------|-------|------|-----------------------|--------|-------|------|-----------------------|-------|-------|------|-----------------------|-------|-------|------|-----------------------|-------|-------|------|-----------------------|-------|-------|------|--------------------------|-------|-------|------|--------------------------|-------|-------|-----|--------------------------|-------|--|----------------------|---------------------------------|---|--------------------|--|---------------------------|-----------------|---|------------|-----|----------------|------------------|-----------------|-----------------|
| <table border="1"> <tr><th>Part No.</th></tr> <tr><td>MNR</td></tr> <tr><td>Chip resistors networks</td></tr> </table> | Part No. | MNR | Chip resistors networks | <table border="1"> <tr><th>Size (mm)[inch]</th></tr> <tr><td>02 (1005×2)[0402×2]</td></tr> <tr><td>04 (1005×4)[0402×4]</td></tr> <tr><td>12 (1608×2)[0603×2]</td></tr> <tr><td>14 (1608×4)[0603×4]</td></tr> <tr><td>15 (1608×5)[0603×5]</td></tr> <tr><td>18 (1605×8)[0602×8]</td></tr> <tr><td>32 (3216×2)[1206×2]</td></tr> <tr><td>34 (3216×4)[1206×4]</td></tr> <tr><td>35 (3216×5)[1206×5]</td></tr> </table> | Size (mm)[inch] | 02 (1005×2)[0402×2] | 04 (1005×4)[0402×4] | 12 (1608×2)[0603×2] | 14 (1608×4)[0603×4] | 15 (1608×5)[0603×5] | 18 (1605×8)[0602×8] | 32 (3216×2)[1206×2] | 34 (3216×4)[1206×4] | 35 (3216×5)[1206×5] | <table border="1"> <tr><th colspan="4">Type code</th></tr> <tr><th>Part No.</th><th>Code</th><th>Packaging specifications</th><th>Quantity / Reel</th></tr> <tr><td>MNR02</td><td>M0AP</td><td>Paper tape (2mmPitch)</td><td>10,000</td></tr> <tr><td>MNR04</td><td>M0AP</td><td>Paper tape (2mmPitch)</td><td>10,000</td></tr> <tr><td>MNR12</td><td>E0AP</td><td>Paper tape (4mmPitch)</td><td>5,000</td></tr> <tr><td>MNR14</td><td>E0AP</td><td>Paper tape (4mmPitch)</td><td>5,000</td></tr> <tr><td>MNR15</td><td>E0RP</td><td>Paper tape (4mmPitch)</td><td>5,000</td></tr> <tr><td>MNR18</td><td>E0AP</td><td>Paper tape (4mmPitch)</td><td>5,000</td></tr> <tr><td>MNR32</td><td>J0AB</td><td>Embossed tape (4mmPitch)</td><td>4,000</td></tr> <tr><td>MNR34</td><td>J5AB</td><td>Embossed tape (4mmPitch)</td><td>4,000</td></tr> <tr><td>MNR35</td><td>J5R</td><td>Embossed tape (4mmPitch)</td><td>4,000</td></tr> </table> | Type code | | | | Part No. | Code | Packaging specifications | Quantity / Reel | MNR02 | M0AP | Paper tape (2mmPitch) | 10,000 | MNR04 | M0AP | Paper tape (2mmPitch) | 10,000 | MNR12 | E0AP | Paper tape (4mmPitch) | 5,000 | MNR14 | E0AP | Paper tape (4mmPitch) | 5,000 | MNR15 | E0RP | Paper tape (4mmPitch) | 5,000 | MNR18 | E0AP | Paper tape (4mmPitch) | 5,000 | MNR32 | J0AB | Embossed tape (4mmPitch) | 4,000 | MNR34 | J5AB | Embossed tape (4mmPitch) | 4,000 | MNR35 | J5R | Embossed tape (4mmPitch) | 4,000 | <table border="1"> <tr><th>Resistance tolerance</th></tr> <tr><td>J (±5%) (Including jumper type)</td></tr> </table> | Resistance tolerance | J (±5%) (Including jumper type) | <table border="1"> <tr><th>Nominal resistance</th></tr> <tr><td>Resistance code, 3 digits. 000 denotes jumper type.</td></tr> <tr> <td>Resistance tolerance code</td> <td>Resistance code</td> </tr> <tr> <td>J</td> <td>: 3 digits</td> </tr> <tr><td>EX)</td></tr> <tr><td>1Ω = 1R0 (±5%)</td></tr> <tr><td>9.1Ω = 9R1 (±5%)</td></tr> <tr><td>10Ω = 100 (±5%)</td></tr> <tr><td>1MΩ = 105 (±5%)</td></tr> </table> | Nominal resistance | Resistance code, 3 digits. 000 denotes jumper type. | Resistance tolerance code | Resistance code | J | : 3 digits | EX) | 1Ω = 1R0 (±5%) | 9.1Ω = 9R1 (±5%) | 10Ω = 100 (±5%) | 1MΩ = 105 (±5%) |
| Part No. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Chip resistors networks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Size (mm)[inch] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 (1005×2)[0402×2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 (1005×4)[0402×4] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 (1608×2)[0603×2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 (1608×4)[0603×4] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 (1608×5)[0603×5] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 (1605×8)[0602×8] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 (3216×2)[1206×2] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 (3216×4)[1206×4] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 (3216×5)[1206×5] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Type code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part No. | Code | Packaging specifications | Quantity / Reel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR02 | M0AP | Paper tape (2mmPitch) | 10,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR04 | M0AP | Paper tape (2mmPitch) | 10,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR12 | E0AP | Paper tape (4mmPitch) | 5,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR14 | E0AP | Paper tape (4mmPitch) | 5,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR15 | E0RP | Paper tape (4mmPitch) | 5,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR18 | E0AP | Paper tape (4mmPitch) | 5,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR32 | J0AB | Embossed tape (4mmPitch) | 4,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR34 | J5AB | Embossed tape (4mmPitch) | 4,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MNR35 | J5R | Embossed tape (4mmPitch) | 4,000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance tolerance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| J (±5%) (Including jumper type) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nominal resistance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance code, 3 digits. 000 denotes jumper type. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resistance tolerance code | Resistance code | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| J | : 3 digits | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EX) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1Ω = 1R0 (±5%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9.1Ω = 9R1 (±5%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10Ω = 100 (±5%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1MΩ = 105 (±5%) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

●Circuit construction



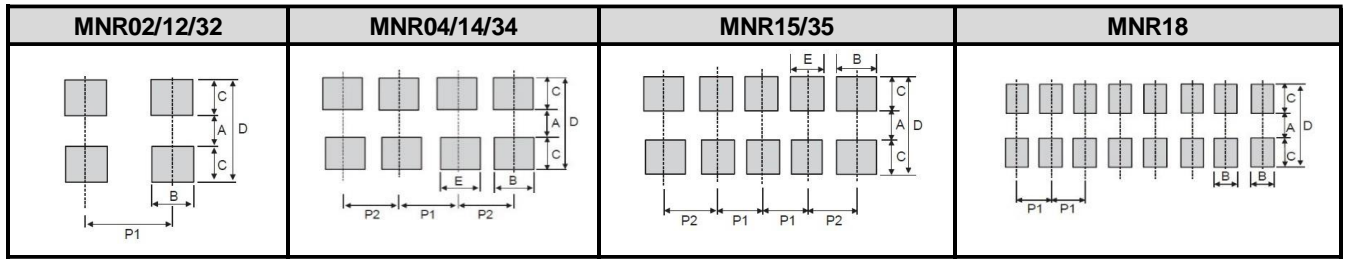
●Chip resistor dimensions and markings



(Unit : mm)

| Part No. | Type code | (mm) | [inch] | L | W | t | a | b1 | b2 | c | p | Marking existence <small>*Including jumper type</small> |
|----------|-----------|--------|--------|-----------|-----------|-----------|-----------|-----------|--------------------|-----------|------|--|
| MNR02 | M0AP | 1005x2 | 0402x2 | 1.00±0.10 | 1.00±0.10 | 0.35±0.10 | 0.20±0.10 | — | 0.33+0.10 -0.05 | 0.25±0.10 | 0.68 | No |
| MNR04 | M0AP | 1005x4 | 0402x4 | 2.00±0.10 | 1.00±0.10 | 0.35±0.10 | 0.20±0.10 | 0.30±0.10 | 0.40±0.10 | 0.25±0.10 | 0.5 | No |
| MNR12 | E0AP | 1608x2 | 0603x2 | 1.60±0.10 | 1.60±0.10 | 0.50±0.10 | 0.30±0.20 | — | 0.60±0.15 | 0.25±0.15 | 0.8 | Yes |
| MNR14 | E0AP | 1608x4 | 0603x4 | 3.20±0.10 | 1.60±0.10 | 0.50±0.10 | 0.30±0.20 | 0.40±0.15 | 0.60±0.15 | 0.25±0.15 | 0.8 | Yes |
| MNR15 | E0RP | 1608x5 | 0603x5 | 3.20±0.10 | 1.60±0.10 | 0.50±0.10 | 0.30±0.10 | 0.32±0.15 | 0.48±0.15 | 0.30±0.10 | 0.64 | Yes |
| MNR18 | E0AP | 1605x8 | 0602x8 | 3.80±0.10 | 1.60±0.10 | 0.45±0.10 | 0.30±0.20 | 0.30±0.10 | 0.30±0.10 | 0.30±0.20 | 0.5 | No |
| MNR32 | J0AB | 3216x2 | 1206x2 | 2.60±0.20 | 3.10±0.20 | 0.55±0.10 | 0.50±0.30 | — | 1.00±0.20 | 0.5MAX | 1.27 | Yes |
| MNR34 | J5AB | 3216x4 | 1206x4 | 5.20±0.40 | 3.10±0.20 | 0.55±0.10 | 0.50±0.30 | 0.80±0.20 | 1.00±0.20 | 0.5MAX | 1.27 | Yes |
| MNR35 | J5R | 3216x5 | 1206x5 | 6.40±0.40 | 3.10±0.20 | 0.55±0.10 | 0.50±0.30 | 0.80±0.20 | 1.00±0.20 | 0.5MAX | 1.27 | Yes |

●Land pattern example



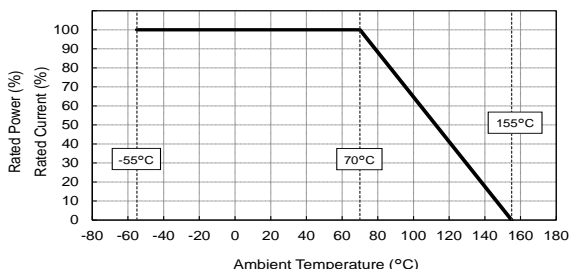
(Unit : mm)

| Part No. | Type code | A | B | C | D | E | P1 | P2 |
|--------------|-----------|-----|------------|-----------|-----------|-----------|-------------|-------------|
| MNR02 | M0AP | 0.5 | 0.35 ~ 0.4 | 0.5 | 1.5 | — | 0.65 ~ 0.7 | — |
| MNR04 | M0AP | 0.5 | 0.4 | 0.5 | 1.5 | 0.3 | 0.5 | 0.5 ~ 0.55 |
| MNR12 | E0AP | 1.0 | 0.4 ~ 0.6 | 0.7 ~ 0.8 | 2.4 ~ 2.6 | — | 0.8 ~ 1.0 | — |
| MNR14 | E0AP | 1.0 | 0.4 ~ 0.6 | 0.7 ~ 0.8 | 2.4 ~ 2.6 | 0.4 | 0.8 | 0.8 ~ 0.9 |
| MNR15 | E0RP | 1.0 | 0.48 | 0.7 ~ 0.8 | 2.4 ~ 2.6 | 0.32 | 0.64 | 0.72 |
| MNR18 | E0AP | 1.0 | 0.3 | 0.7 ~ 0.8 | 2.4 ~ 2.6 | — | 0.5 | — |
| MNR32 | J0AB | 2.1 | 0.8 ~ 1.0 | 0.8 ~ 1.0 | 3.7 ~ 4.1 | — | 1.27 ~ 1.6 | — |
| MNR34 | J5AB | 2.1 | 0.8 ~ 1.0 | 0.8 ~ 1.0 | 3.7 ~ 4.1 | 0.7 ~ 0.8 | 1.27 ~ 1.35 | 1.27 ~ 1.45 |
| MNR35 | J5R | 2.1 | 0.8 ~ 1.0 | 0.8 ~ 1.0 | 3.7 ~ 4.1 | 0.7 ~ 0.8 | 1.27 ~ 1.3 | 1.27 ~ 1.4 |

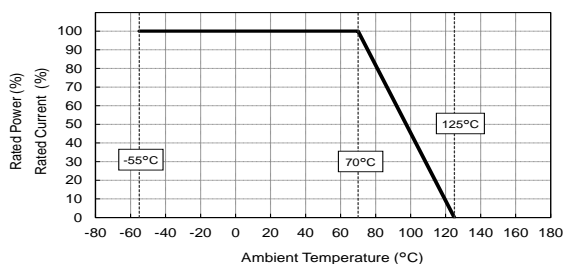
●Derating curve

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curves below.

■MNR02 /04/12 /14



■MNR15/18/32/34/35



●Characteristics

| Test items | Guaranteed value | | Test conditions |
|--|--|-------------|---|
| | Resistor type | Jumper type | |
| Resistance | See "Products list" | | 20°C |
| Variation of resistance with temperature | See "Products list" | | Measurement : +25/-55, +25/+125°C(MNR12/14/15/32/34/35) +25/+125°C(MNR02/04/18) |
| Overload | ±(2.0%+0.1Ω) | MAX. 50mΩ | Test voltage is the smaller one of ① or ② ①Rated voltage(current)×2.5 Test time : 2s ②Maximum overload voltage * |
| Solderability | A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage. | | Rosin-ethanol solution(25% mass) Soldering condition : 245±5°C Duration of immersion : 2.0±0.5s |
| Resistance to soldering heat | ±(1.0%+0.05Ω) ±(1.0%+0.1Ω) MNR35 | MAX. 50mΩ | Soldering condition : 260±5°C Duration of immersion : 10±1s |
| Rapid change of temperature | ±(1.0%+0.05Ω) ±(1.0%+0.1Ω) MNR35 | MAX. 50mΩ | Test temp : -55°C~+125°C 1,000cycles |
| Damp heat, steady state | ±(3.0%+0.1Ω) | MAX. 100mΩ | 85°C, 85%(Relative humidity) Test time : 1,000h |
| Endurance at 70°C | ±(3.0%+0.1Ω) | MAX. 100mΩ | Rated voltage(current),70°C±3°C 1.5h:ON – 0.5h:OFF Test time : 1,000h |
| Endurance | ±(3.0%+0.1Ω) | MAX. 100mΩ | 155°C(MNR02/04/12/14) 125°C(MNR15/18/32/34/35) Test time : 1,000h |
| Resistance to solvent | ±(1.0%+0.05Ω) ±(1.0%+0.1Ω) MNR35 | MAX. 50mΩ | 23±5°C, , Immersion cleaning, 5±0.5min Solvent: 2-propanol |
| Bend strength of the end face plating | ±(1.0%+0.05Ω) Without mechanical damage such as breaks. | MAX. 50mΩ | Endurance with 90mm width Deflection : 3mm |

Compliance Standards : IEC60115-1 / IEC60115-8
JIS C 5201-1 / JIS C 5201-8

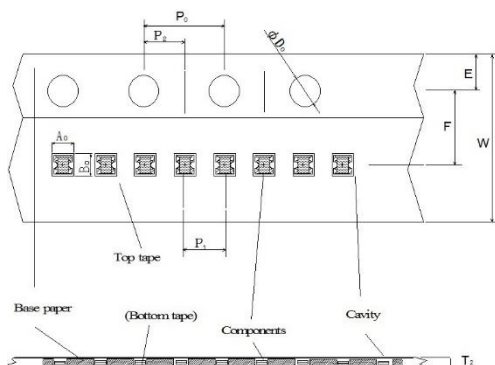
※Maximum overload voltage (Test voltage)

| MNR02 | MNR04 | MNR12 | MNR14 | MNR15 | MNR18 | MNR32 | MNR34 | MNR35 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 50V | 50V | 100V | 100V | 25V | 50V | 400V | 400V | 100V |

●Tape dimensions

■Paper tape

(Unit : mm)

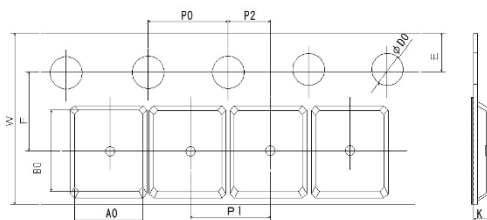


| Part No. | Type code | W | F | E | A0 | B0 |
|----------|-----------|---------|----------|----------|-----------|----------|
| MNR02 | M0AP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.17±0.1 | 1.17±0.1 |
| MNR04 | M0AP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.2±0.1 | 2.2±0.1 |
| MNR12 | E0AP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.8±0.1 | 1.8±0.1 |
| MNR14 | E0AP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.8±0.1 | 3.4±0.1 |
| MNR15 | E0RP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.8±0.1 | 3.4±0.1 |
| MNR18 | E0AP | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 1.95±0.15 | 4.1±0.15 |

| Part No. | Type code | D0 | P0 | P1 | P2 | T2 |
|----------|-----------|---------------------|---------|---------|----------|--------|
| MNR02 | M0AP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 2.0±0.1 | 2.0±0.05 | MAX0.5 |
| MNR04 | M0AP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 2.0±0.1 | 2.0±0.05 | MAX1.1 |
| MNR12 | E0AP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | MAX1.1 |
| MNR14 | E0AP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | MAX1.1 |
| MNR15 | E0RP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | MAX1.1 |
| MNR18 | E0AP | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | MAX1.1 |

■Embossed tape

(Unit : mm)



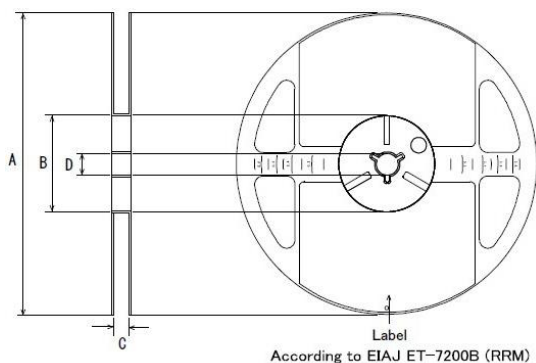
| Part No. | Type code | W | F | E | A0 | B0 |
|----------|-----------|----------|----------|----------|---------|---------|
| MNR32 | J0AB | 8.0±0.3 | 3.5±0.05 | 1.75±0.1 | 3.0±0.1 | 3.5±0.1 |
| MNR34 | J5AB | 12.0±0.3 | 5.5±0.05 | 1.75±0.1 | 3.4±0.1 | 5.6±0.1 |
| MNR35 | J5R | 12.0±0.3 | 5.5±0.05 | 1.75±0.1 | 3.4±0.1 | 6.6±0.1 |

| Part No. | Type code | D0 | P0 | P1 | P2 | K |
|----------|-----------|---------------------|---------|---------|----------|----------|
| MNR32 | J0AB | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | 0.9±0.1 |
| MNR34 | J5AB | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | 1.0±0.15 |
| MNR35 | J5R | $\Phi 1.5+0.1$ 0 | 4.0±0.1 | 4.0±0.1 | 2.0±0.05 | 1.0±0.15 |

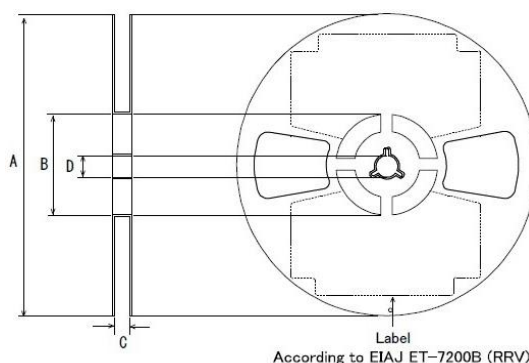
●Reel dimensions

Using two kinds of reels for taping.

①MNR 02/04/12/14/15/18/32/34/35



②MNR 02/04/12/14/15/18/32





(Unit : mm)

| Part No. | | A | B | C | D |
|----------|------|----------------|---------------|--------------|---------|
| MNR02 | M0AP | Φ180 0 -1.5 | Φ60 +1.0 0 | 9 +1.0 0 | Φ13±0.2 |
| MNR04 | M0AP | | | | |
| MNR12 | E0AP | | | | |
| MNR14 | E0AP | | | | |
| MNR15 | E0RP | | | | |
| MNR18 | E0AP | | | | |
| MNR32 | J0AB | | | 13 +1.0 0 | |
| MNR34 | J5AB | | | | |
| MNR35 | J5R | | | | |

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