

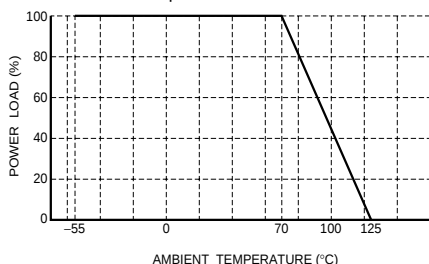
# Compact Chip Resistor Networks

## MNR14 (0603×4 size)

### ●Features

- 1) Convex electrodes  
Easy to check the fillet after soldering is finished.
- 2) Small, light, rectangular 4-chip network  
Area ratio is 65% smaller than that of MNR34, while weight ratio has been cut 75%.
- 3) High-density mounting  
Can be mounted even more densely than four 0603 chips (MCR03), and mounting costs are lower.
- 4) Compatible with a wide range of mounting equipment.  
Squared coners make it excellent for mounting using image recognition machines.
- 5) ROHM resistors have approved ISO9001- / ISO/TS 16949- certification.  
Design and specifications are subject to change without notice. Carefully check the specification sheet supplied with the product before using or ordering it.

### ●Ratings

| Item                  | Conditions                                                                                                                                                                                                                                                                                                                                 | Specifications              |  |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|--|
| Rated power           | Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.<br><div></div><br>Fig.1                                                                                                                  | 0.063W (1 / 16W)<br>at 70°C |  |
|                       |                                                                                                                                                                                                                                                                                                                                            |                             |  |
| Rated voltage         | The voltage rating is calculated by the following equation. If the value obtained exceeds the limiting element voltage, the voltage rating is equal to the maximum operating voltage.<br><div><math display="block">E = \sqrt{P \times R}</math><div>E: Rated voltage (V)<br/>P: Rated power (W)<br/>R: Nominal resistance (Ω)</div></div> | Limiting element voltage    |  |
|                       |                                                                                                                                                                                                                                                                                                                                            | 50V                         |  |
| Nominal resistance    | See Table 1.                                                                                                                                                                                                                                                                                                                               |                             |  |
| Operating temperature |                                                                                                                                                                                                                                                                                                                                            | -55°C to +125°C             |  |

## Resistors

Jumper type

|                       |                 |
|-----------------------|-----------------|
| Resistance            | Max. 50mΩ       |
| Rated current         | 1A              |
| Operating temperature | -55°C to +125°C |

Table 1

| Resistance tolerance | Resistance range (Ω) | Resistance temperature coefficient (ppm / °C) |
|----------------------|----------------------|-----------------------------------------------|
| J (±5%)              | 10 to 1M (E24)       | ±200                                          |
| F (±1%)              | 10 to 1M (E24)       | ±100                                          |

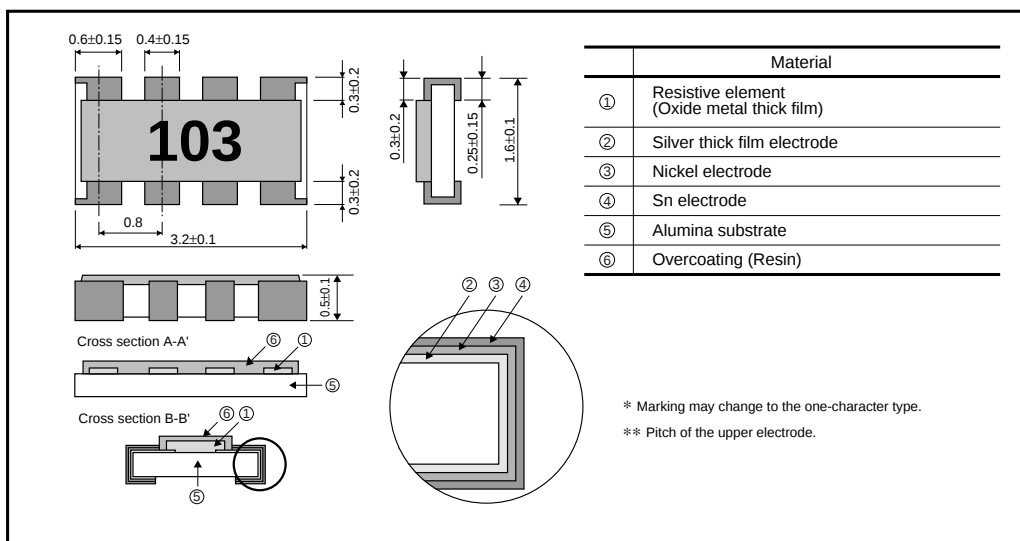
•Before using components in circuits where they will be exposed to transients such as pulse loads (short-duration, high-level loads), be certain to evaluate the component in the mounted state. In addition, the reliability and performance of this component cannot be guaranteed if it is used with a steady state voltage that is greater than its rated voltage.

## ●Characteristics

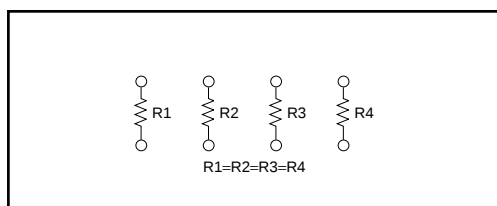
| Item                                     | Guaranteed value                                                                               |             | Test conditions (JIS C 5201-1)                                                                                   |
|------------------------------------------|------------------------------------------------------------------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------|
|                                          | Resistor type                                                                                  | Jumper type |                                                                                                                  |
| Resistance                               | J : ±5%<br>F : ±1%                                                                             | Max. 50mΩ   | JIS C 5201-1 4.5                                                                                                 |
| Variation of resistance with temperature | See Table.1                                                                                    |             | JIS C 5201-1 4.8<br>Measurement : -55 / +25 / +125°C                                                             |
| Overload                                 | ± (2.0%+0.1Ω)                                                                                  | Max. 50mΩ   | JIS C 5201-1 4.13<br>Rated voltage (current) ×2.5, 2s.<br>Maximum Overload Voltage : 100V                        |
| Solderability                            | A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage. |             | JIS C 5201-1 4.17<br>Rosin-Ethanol (25%WT)<br>Soldering condition : 235±5°C<br>Duration of immersion : 2.0±0.5s. |
| Resistance to soldering heat             | ± (1.0%+0.05Ω)<br>No remarkable abnormality on the appearance.                                 | Max. 50mΩ   | JIS C 5201-1 4.18<br>Soldering condition : 260±5°C<br>Duration of immersion : 10±1s.                             |
| Rapid change of temperature              | ± (1.0%+0.05Ω)                                                                                 | Max. 50mΩ   | JIS C 5201-1 4.19<br>Test temp. : -55°C to +125°C 5cyc                                                           |
| Damp heat, steady state                  | ± (3.0%+0.1Ω)                                                                                  | Max. 100mΩ  | JIS C 5201-1 4.24<br>40°C, 93%RH<br>Test time : 1,000h to 1,048h                                                 |
| Endurance at 70°C                        | ± (3.0%+0.1Ω)                                                                                  | Max. 100mΩ  | JIS C 5201-1 4.25.1<br>Rated voltage (current), 70°C<br>1.5h : ON – 0.5h : OFF<br>Test time : 1,000h to 1,048h   |
| Endurance                                | ± (3.0%+0.1Ω)                                                                                  | Max. 100mΩ  | JIS C 5201-1 4.25.3<br>125°C<br>Test time : 1,000h to 1,048h                                                     |
| Resistance to solvent                    | ± (1.0%+0.05Ω)                                                                                 | Max. 50mΩ   | JIS C 5201-1 4.29<br>23±5°C, Immersion cleaning, 5±0.5min.<br>Solvent : 2-propanol                               |
| Bend strength of the end face plating    | ± (1.0%+0.05Ω)<br>Without mechanical damage such as breaks.                                    | Max. 50mΩ   | JIS C 5201-1 4.33                                                                                                |

## Resistors

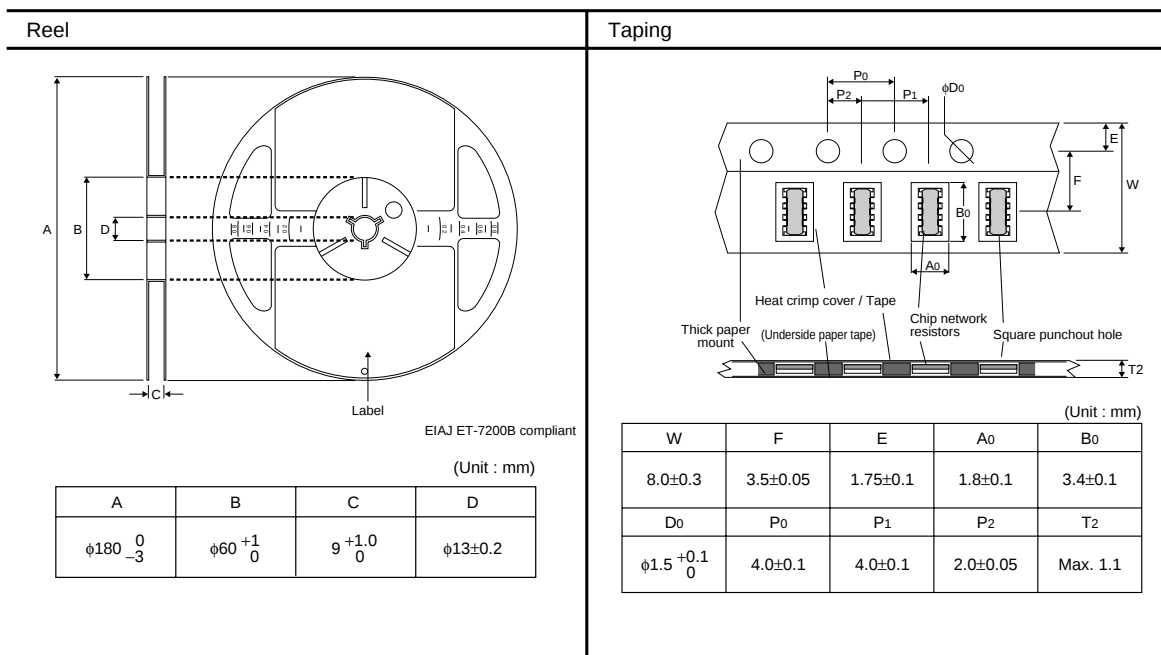
## ●Dimensions (Unit : mm)



## ●Equivalent circuit



## ●Packaging



## Resistors

## ●Part No. Explanation

|                                                             |                 |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
|-------------------------------------------------------------|-----------------|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|--------------------|-----|---|-----|---------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-------------------------------------------------------------|--|----------------------|-----------------|---|------------|---|------------|
| M                                                           | N               | R | 1 | 4 | E                                                                                                                                    | 0 | A | P | J |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| Part No.                                                    |                 |   |   |   | Resistance tolerance                                                                                                                 |   |   |   |   | Nominal resistance |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
|                                                             |                 |   |   |   | <table><tr><td>F</td><td>±1%</td></tr><tr><td>J</td><td>±5%</td></tr><tr><td colspan="2">J is also used for jumper</td></tr></table> |   |   |   |   | F                  | ±1% | J | ±5% | J is also used for jumper |  | <table><tr><td colspan="2">Resistance code, 3 or 4 digits.<br/>000 denotes jumper type.</td></tr><tr><td>Resistance tolerance</td><td>Resistance code</td></tr><tr><td>F</td><td>: 4 digits</td></tr><tr><td>J</td><td>: 3 digits</td></tr></table> |  |  |  | Resistance code, 3 or 4 digits.<br>000 denotes jumper type. |  | Resistance tolerance | Resistance code | F | : 4 digits | J | : 3 digits |
| F                                                           | ±1%             |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| J                                                           | ±5%             |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| J is also used for jumper                                   |                 |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| Resistance code, 3 or 4 digits.<br>000 denotes jumper type. |                 |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| Resistance tolerance                                        | Resistance code |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| F                                                           | : 4 digits      |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |
| J                                                           | : 3 digits      |   |   |   |                                                                                                                                      |   |   |   |   |                    |     |   |     |                           |  |                                                                                                                                                                                                                                                     |  |  |  |                                                             |  |                      |                 |   |            |   |            |

## Packaging Specifications Code

| Part No. | Code | Resistance tolerance |        | Packaging specifications | Reel          | Basic ordering unit (pcs) |
|----------|------|----------------------|--------|--------------------------|---------------|---------------------------|
|          |      | J(±5%)               | F(±1%) |                          |               |                           |
| MNR14    | E0AP | ◎                    | ◎      | Paper tape (4mm Pitch)   | φ180mm (7in.) | 5,000                     |

Reel (φ180) : JEITA ET-7200B  
 ◎ : Standard product

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