



**THE DATASHEET OF  
MCR10EZHJ105**



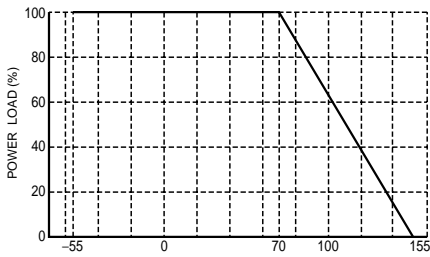
# Thick film rectangular

## MCR10 (2012 size : 1 / 8W)

### ●Features

- 1) Power rating of 1 / 8W
- 2) Highly reliable chip resistor  
Ruthenium oxide dielectric offers superior resistance to the elements.
- 3) Electrodes not corroded by soldering  
Thick film makes the electrodes very strong.
- 4) Leading the world in development and mass production.  
Since start of production in 1982 (first in the world), this component has established a solid reputation as a general-purpose chip resistor.
- 5) ROHM resistors have approved ISO-9001 certification.  
Design and specifications are subject to change without notice. Carefully check the specification sheet before using or ordering it.

### ●Ratings

| Item                     | Conditions  | Specifications  |                          |      |
|--------------------------|---|---|--------------------------|------|
| Rated power              | <p>Power must be derated according to the power derating curve in Figure 1 when ambient temperature exceeds 70°C.</p>  <p style="text-align: center;">Fig.1</p>  | 0.125W (1 / 8W)<br>at 70°C  |                          |      |
| Rated voltage            | <p>The voltage rating is calculated by the following equation.<br/>If the value obtained exceeds the limiting element voltage, the voltage rating is equal to the maximum operating voltage.</p> $E = \sqrt{P \times R}$ <p style="text-align: center;">E: Rated voltage (V)<br/>P: Rated power (W)<br/>R: Nominal resistance (Ω)</p> | <table border="1" style="width: 100%;"> <tr> <td>Limiting element voltage</td> <td>150V</td> </tr> </table> | Limiting element voltage | 150V |
| Limiting element voltage | 150V  |   |                          |      |
| Nominal resistance       | See Table 1.  |   |                          |      |
| Operating temperature    |   | -55°C ~ + 155°C   |                          |      |

## Resistors

## Jumper type

|                       |                 |
|-----------------------|-----------------|
| Resistance            | Max. 50mΩ       |
| Rated current         | 2A              |
| Operating temperature | -55°C to +155°C |

Table 1

| Resistance tolerance | Resistance range (Ω)   | Resistance temperature coefficient (ppm/°C) |
|----------------------|------------------------|---|
| F (±1%)              | 0.1 ≤ R < 0.15 (E24)   | 400±200                                     |
|                      | 0.15 ≤ R < 10 (E24)    | ±250  |
|                      | 10 ≤ R ≤ 2.2M (E24,96) | ±100  |
| J (±5%)              | 0.1 ≤ R < 0.15 (E24)   | 400±200                                     |
|                      | 0.15 ≤ R < 1 (E24)     | ±250  |
|                      | 1.0 ≤ R < 2.2 (E24)    | 500±350                                     |
|                      | 2.2 ≤ R < 10 (E24)     | ±500  |
|                      | 10 ≤ R ≤ 10M (E24)     | ±200  |

- 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 : 200V                        |
| 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~+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~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~1,048h      |
| Endurance                                | ± (3.0%+0.1Ω)  | Max. 100mΩ  | JIS C 5201-1 4.25.3<br>155°C<br>Test time : 1,000h~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

●External dimensions (Units : mm)

| No. | Material                                   |
|-----|--|
| ①   | Resistive element (Oxide metal thick film) |
| ②   | Silver palladium thick film electrode      |
| ③   | Nickel electrode                           |
| ④   | Sn/Pb or Sn electrode                      |
| ⑤   | Alumina substrate                          |
| ⑥   | Overcoating (glass)                        |

●Packaging

**Reel**

EIAJ ET-7200A compliant

(Units: mm)

| A  | B   | C   | D                 |
|--|---|---|-------------------|
| $\phi 180 \begin{smallmatrix} 0 \\ -3 \end{smallmatrix}$ | $\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$ | $9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$ | $\phi 13 \pm 0.2$ |

**Taping**

(Units: mm)

| W  | F              | E              | A <sub>0</sub>                       | B <sub>0</sub>                      |
|--|----------------|----------------|--------------------------------------|-------------------------------------|
| 8.0±0.3  | 3.5±0.05       | 1.75±0.1       | 1.65 <sup>+0.2</sup> <sub>-0.1</sub> | 2.4 <sup>+0.2</sup> <sub>-0.1</sub> |
| D <sub>0</sub>   | P <sub>0</sub> | P <sub>1</sub> | P <sub>2</sub>                       | T <sub>2</sub>                      |
| $\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$ | 4.0±0.1        | 4.0±0.1        | 2.0±0.05                             | Max. 1.1                            |

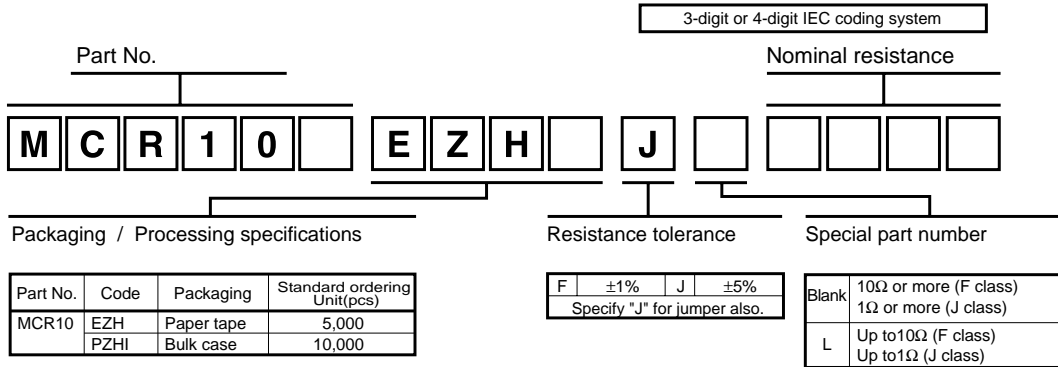
**Bulk case**

(Units: mm)

EIAJ ET-7201A compliant

Resistors

●Part designation



●Dimensions

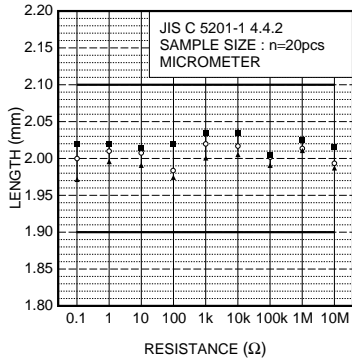


Fig.2 Dimensions (length)

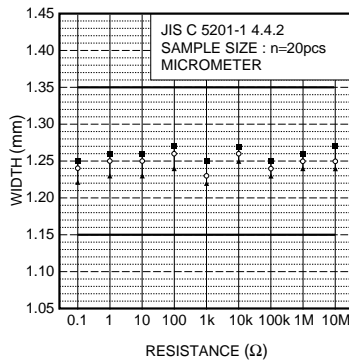


Fig.3 Dimensions (width)

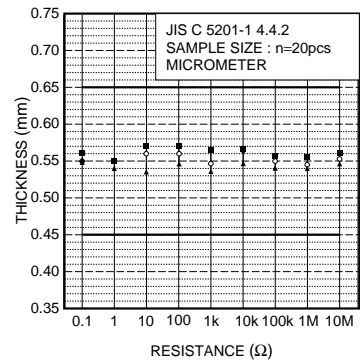


Fig.4 Dimensions (thickness)

●Electrical characteristics

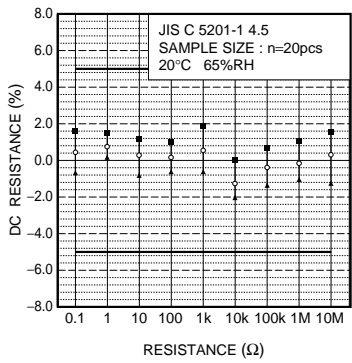


Fig.5 Resistance

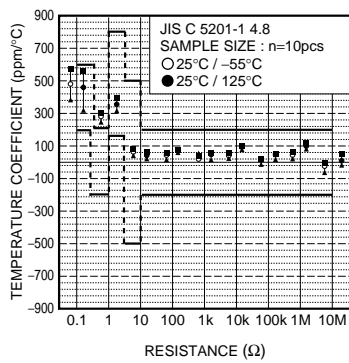


Fig.6 Variation resistance with temperature

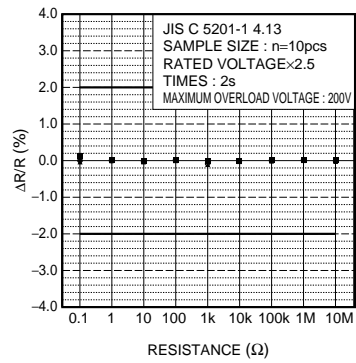


Fig.7 Overload

Resistors

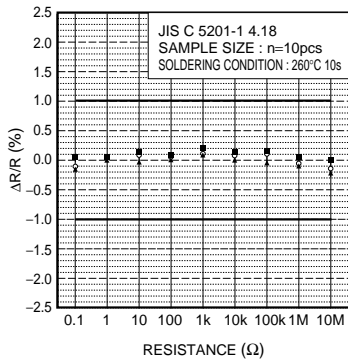


Fig.8 Resistance to soldering heat

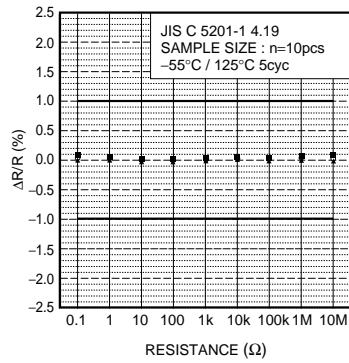


Fig.9 Rapid change of temperature

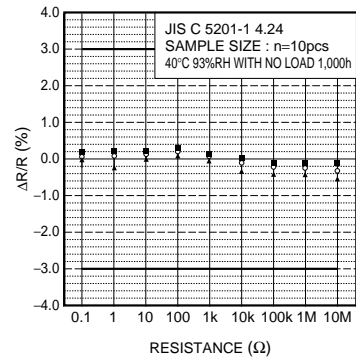


Fig.10 Damp heat, steady state

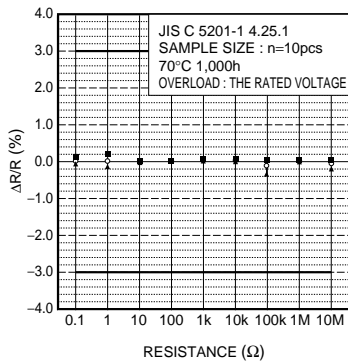


Fig.11 Endurance at 70°C

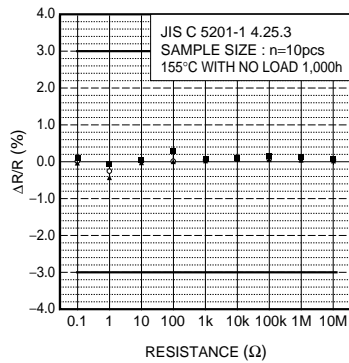


Fig.12 Endurance

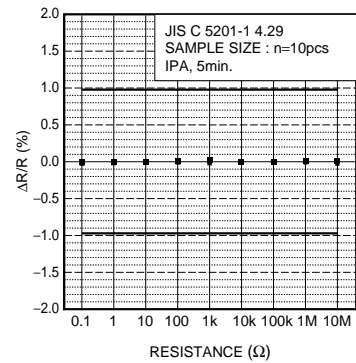


Fig.13 Resistance to solvents

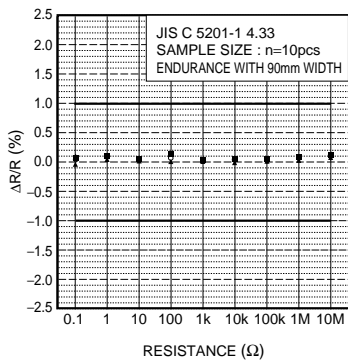




Fig.14 Bend strength of the end face plating

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