

# METAL GLAZE FIXED RESISTORS

## TYPE RGP SERIES

### INTRODUCTION

TE Connectivity (TE)'s metal glaze resistors are manufactured using thick film techniques. The ceramic slugs are printed with thick film, fired, and end caps are pressure fitted onto the slugs. The resistive element is then spiralled to the required value and lead wires are welded onto the end caps. The metal glaze element enables much higher resistance values to be manufactured compared to metal film resistors, whilst maintaining the high stability recognised in those resistors, and giving additional resistance to environmental & overload conditions.



### FEATURES

- Similar characteristics to metal film resistors, but with a much higher resistance value capability.
- Metal-glaze elements provide high stable performance against environmental conditions and overload.
- Resistance to heat, humidity, and solvents.

### CHARACTERISTICS - ELECTRICAL

| Characteristic                 | RGP0207CH                 | RGP50 | RGP100 | RGP200 |
|--------------------------------|---------------------------|-------|--------|--------|
| Rated power@70°C (W)           | 0.25                      | 0.5   | 1      | 2      |
| Resistance Range (ohms)        | Minimum                   | 47KΩ  | 47KΩ   | 47KΩ   |
|                                | Maximum                   | 1GΩ   | 1GΩ    | 1GΩ    |
| Tolerance (%)                  | ±1%, ±5%, 10%             |       |        |        |
| Code Letter                    | F = ±1%, J = ±5%, K = 10% |       |        |        |
| Temp. Coefficient Max (ppm/°C) | ±200ppm/°C                |       |        |        |
| Maximum Working Voltage (VDC)  | 1600                      | 3500  | 5000   | 10000  |
| Maximum Overload Voltage (VDC) | 3200                      | 7000  | 10000  | 20000  |
| Operating Temp. Range (°C)     | -65°C to 175°C            |       |        |        |
| Dielectric Strength (V)        | 350                       |       |        |        |
| Insulation Resistance (Mohms)  | 1000MΩ                    |       |        |        |

**Note:**

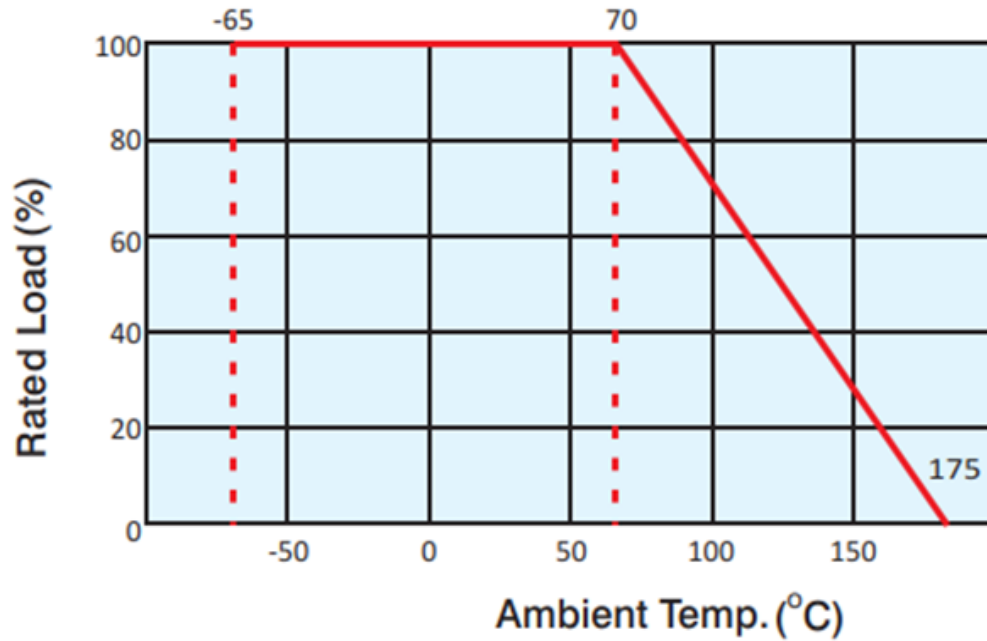
- Resistance values over 510MΩ (≥510MΩ), the tolerance shall be ±10%.
- RGP 1W and RGP 2W are coated in flame resistant paint.

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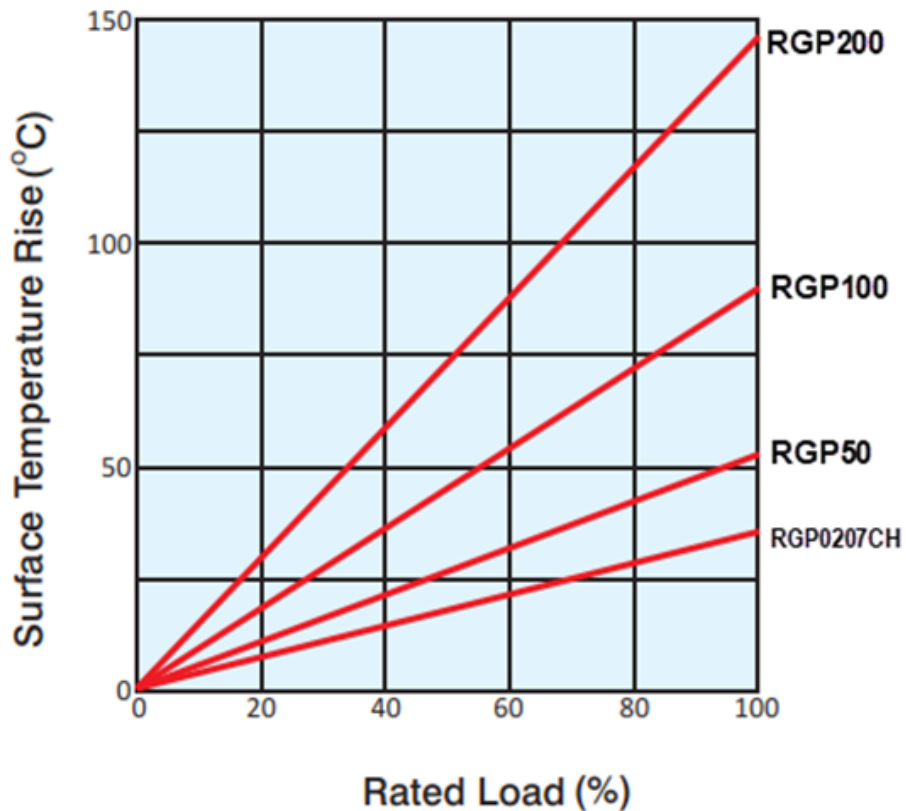
RGP Series

## DERATING CURVE

For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with this curve.



## SURFACE TEMPERATURE RISE



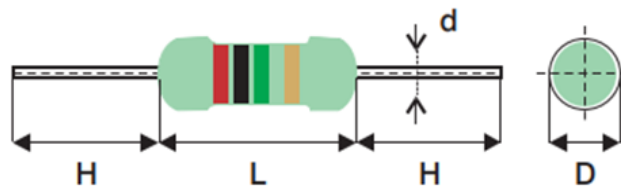
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## ENVIRONMENTAL CHARACTERISTICS

| Characteristic                     | Specification   | Test Method   |
|------------------------------------|---|---|
| Resistance temperature coefficient | $\pm 200\text{PPM}/^{\circ}\text{C}$                        | $-65^{\circ}\text{C}$ to $175^{\circ}\text{C}$  |
| Power rating load                  | Surface temp. $175^{\circ}\text{C}$ Max.                    | Rated voltage for 30 minutes  |
| Short time overload                | $\pm 1\%$   | 2.5 times of rated voltage for 5 seconds  |
| Dielectric withstand voltage       | No evidence of mechanical damage or insulation breakdown    | AC 350V for 1 minute  |
| Insulation resistance              | 1000M $\Omega$  | DC100V megger   |
| Pulse loading capability           | $\Delta R/R \leq \pm 2\%$                                   | IEC 60065 14.1  |
| Terminal strength                  | No evidence of mechanical damage.                           | < 1/2W : 1 kg<br>> 1W : 2.5kg   |
| Solderability                      | Minimum 95% coverage  | $235 \pm 5^{\circ}\text{C}$ for 2 seconds   |
| Resistance to soldering heat       | No evidence of mechanical damage. $\Delta R/R \leq \pm 1\%$ | $270 \pm 5^{\circ}\text{C}$ for $10 \pm 1$ second<br>$350 \pm 10^{\circ}\text{C}$ for $3.5 \pm 0.5$ seconds   |
| Temp. cycle                        | $\Delta R/R \leq \pm 0.5\%$                                 | 1 cycle: 30 minutes @ $-55^{\circ}\text{C}$<br>3 minutes @ room temperature<br>30 minutes @ $175^{\circ}\text{C}$<br>3 minutes @ room temperature<br><br>Total cycles : 5 |
| Load life                          | $\Delta R/R \leq \pm 3\%$                                   | Rated power load 90 minutes ON 30 minutes OFF<br>$70^{\circ}\text{C}$<br>1000 hours -0/+48 hours  |
| Load life in humidity              | $\Delta R/R \leq \pm 3\%$                                   | Rated power load 90 minutes ON 30 minutes OFF<br>$40^{\circ}\text{C}$ 95% RH<br>500 hours -0/+24 hours  |
| Nonflammability                    | Not flamed  | 16 times of rated wattage for 5 min.<br>(RT 1W & RT 2W)   |

## DIMENSIONS (UNIT: mm)



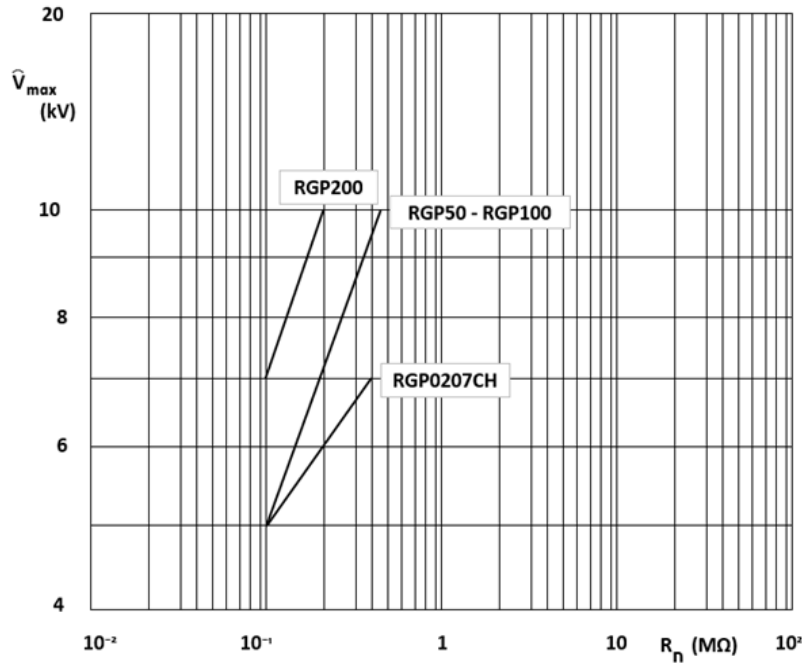
| Type      | $D \pm 1$     | $L \pm 1$ | $H \pm 0.1$ | $d \pm 0.20$ |
|-----------|---------------|-----------|-------------|--------------|
| RGPO207CH | $2.4 \pm 0.5$ | 6.4       | 28          | 0.6          |
| RGP50     | 3.5           | 9         | 28          | 0.65         |
| RGP100    | 4.5           | 11        | 28          | 0.8          |
| RGP200    | 5.0           | 15        | 28          | 0.8          |

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## PULSE LOADING CAPABILITIES

In accordance with IEC 60065 chapter 14.1; 50 discharges from a 1 nF capacitor charged to  $V_{max}$ ; 12 discharges/minute (drift  $\Delta R/R \leq 2\%$ )



## COATING AND MARKING

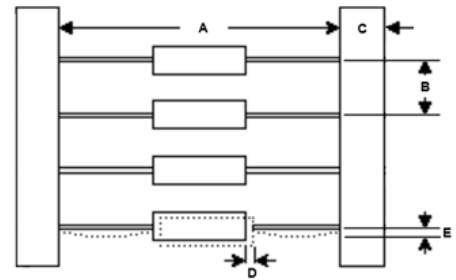
Coating consists of 3 layers of non-flammable silicone resin for RGP100 and RGP200 and 1 layer of phenolic resin and 3 layers of epoxy resin for RGP0207CH and RGP50

Resistors are marked on resistor surface with four band colour code.

## PACKAGING

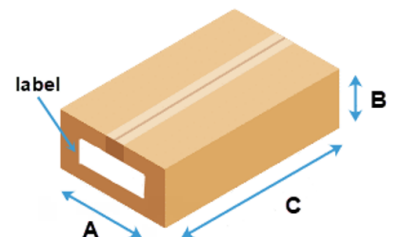
Taping specification

| Type      | Size |  | A    | B     | C ± 1 | D Max | E Max |
|-----------|------|--|------|-------|-------|-------|-------|
|           | Type |  |      |       |       |       |       |
| RGP0207CH | T-52 |  | 52±1 | 5±0.5 | 6     | 0.6   | 1.2   |
| RGP50     | T-52 |  | 52±1 | 5±0.5 | 6     | 0.6   | 1.2   |
| RGP100    | T-63 |  | 63±1 | 5±0.5 | 6     | 0.6   | 1.2   |
| RGP200    | T-63 |  | 63±1 | 10±1  | 6     | 0.6   | 1.2   |

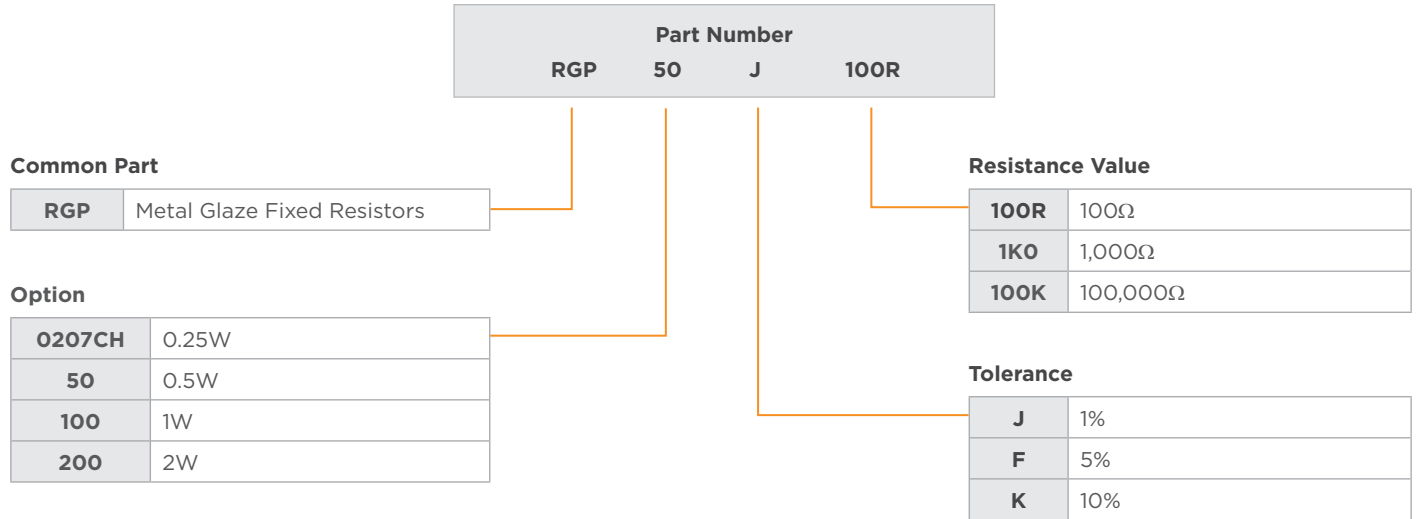


## BOX SPECIFICATION

| Type      | Package | A  | B   | C   | Qty Per Box |
|-----------|---------|----|-----|-----|-------------|
| RGP0207CH | T/B     | 75 | 100 | 255 | 5000        |
| RGP50     | T/B     | 75 | 55  | 255 | 1000        |
| RGP100    | T/B     | 85 | 105 | 260 | 1000        |
| RGP200    | T/B     | 85 | 105 | 260 | 1000        |



## PRODUCT CODE STRUCTURE



## PRODUCT INFORMATION

| TCPN        | Catalogue Number | Description             |
|-------------|------------------|-------------------------|
| 1623708-1   | RGPO207CHJ100M   | RGPO207CH 5% 100M       |
| 1623708-2   | RGPO207CHJ10M    | RGPO207CH 5% 10M        |
| 1623708-3   | RGPO207CHJ15M    | RGPO207CH 5% 15M        |
| 1623708-5   | RGPO207CHJ22M    | RGPO207CH 5% 22M        |
| 1623708-6   | RGPO207CHJ33M    | RGPO207CH 5% 33M        |
| 1623708-7   | RGPO207CHJ470M   | RGPO207CH 5% 470M 5K PK |
| 1623708-8   | RGPO207CHJ47M    | RGPO207CH 5% 47M        |
| 1-1623708-0 | RGPO207CHJ68M    | RGPO207CH 5% 68M        |
| 1-1623708-1 | RGPO207CHJ82M    | RGPO207CH 5% 82M        |
| 1-1623708-2 | RGPO207CHK1G0    | RGPO207CH 10% 1G0       |
| 2-1623708-1 | RGPO207CHJ27M    | RGPO207CH 5% 27M        |
| 2-1623708-3 | RGPO207CHJ130M   | RGPO207CH 5% 130M       |
| 2-1623708-5 | RGPO207CHJ150M   | RGPO207CH 5% 150M       |

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