

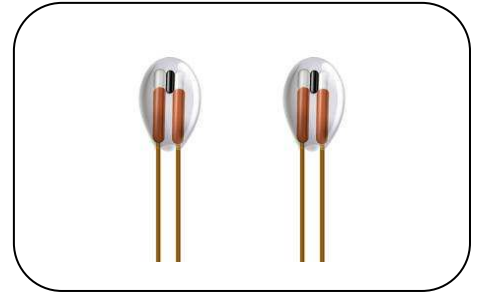
# NTC Thermistor: TGM Series



## Glass Encapsulated Type for Temperature Sensing/Compensation

### ■ Features

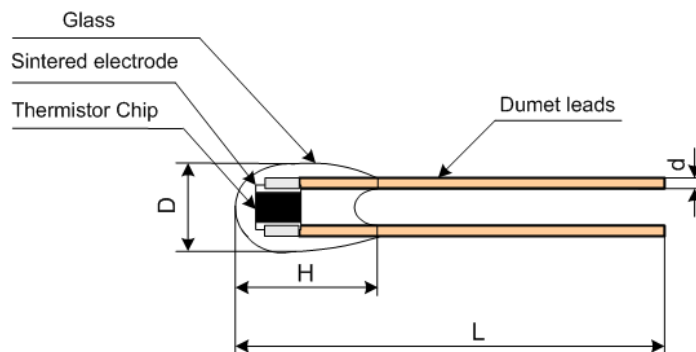
1. RoHS compliant
2. Glass-encapsulated and heat-resistive
3. Body size:  $\phi 2.5\text{mm}$
4. Operating temperature range:  $-40 \sim +250\text{ }^{\circ}\text{C}$



### ■ Recommended Applications

1. Home appliances
2. Automotive electronics

### ■ Structure and Dimensions



Unit: mm

| Part No. | D            | H            | L         | d              |
|----------|--------------|--------------|-----------|----------------|
| TGMA     | $2.5\pm 0.2$ | $3.8\pm 0.5$ | $\geq 40$ | $0.30\pm 0.02$ |

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## ■ Electrical Characteristics

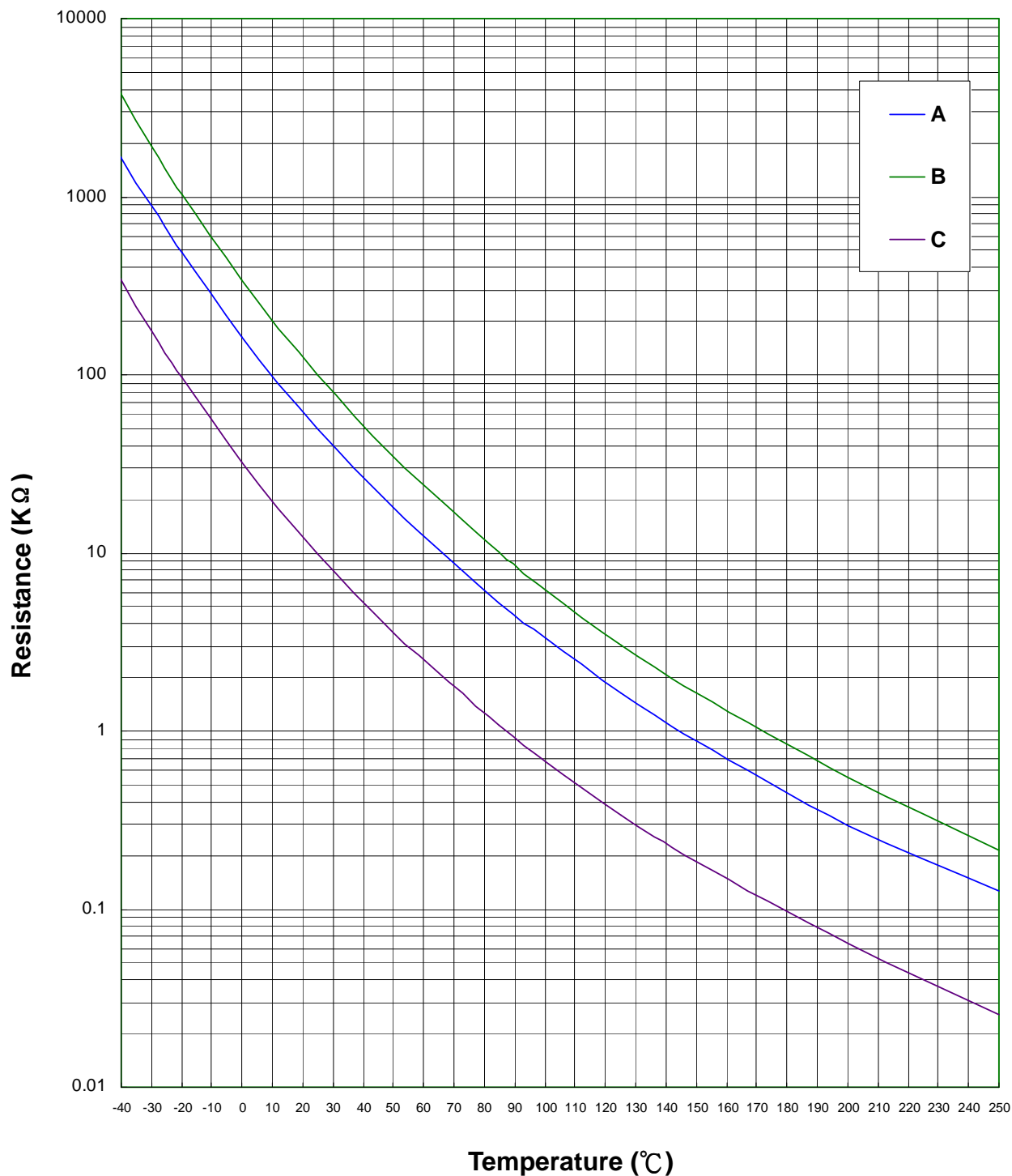
| Part No.         | Zero Power Resistance | B <sub>25/85</sub> Value | RT Curve | Max. Power Dissipation at 25°C | Dissipation Factor | Thermal Time Constant | Operating Temperature Range         |
|------------------|-----------------------|--------------------------|----------|--------------------------------|--------------------|-----------------------|-------------------------------------|
|                  | (KΩ)                  | (K)                      | --       | P <sub>max</sub> (mW)          | δ(mW/°C)           | τ(Sec.)               | T <sub>L</sub> ~T <sub>U</sub> (°C) |
| TGMAA503F3993DA6 | R100=3.3K±2%          | B0/100=3970±3%           | A        | 70                             | Approx.<br>1.4     | Approx.<br>14         | -40 ~ +250                          |
| TGMAA503F3993DA5 | R100=3.3K±3%          |                          |          |                                |                    |                       |                                     |
| TGMAA503F3993DA1 | R100=3.3K±5%          |                          |          |                                |                    |                       |                                     |
| TGMAA503G4013DA1 | R25=50K±2%            |                          |          |                                |                    |                       |                                     |
| TGMAA503H4013DA1 | R25=50K±3%            |                          |          |                                |                    |                       |                                     |
| TGMAA503J4013DA1 | R25=50K±5%            |                          |          |                                |                    |                       |                                     |
| TGMAA104G4113DA1 | R25=100K±2%           | B100/200=4300±3%         | B        |                                |                    |                       |                                     |
| TGMAA104H4113DA1 | R25=100K±3%           |                          |          |                                |                    |                       |                                     |
| TGMAA104J4113DA1 | R25=100K±5%           |                          |          |                                |                    |                       |                                     |
| TGMAA104F4113DA2 | R200=0.55K±2%         |                          |          |                                |                    |                       |                                     |
| TGMAA104F4113DA3 | R200=0.55K±3%         |                          |          |                                |                    |                       |                                     |
| TGMAA104F4113DA5 | R200=0.55K±5%         |                          |          |                                |                    |                       |                                     |
| TGMAA103G39HAD   | R25=10K±2%            | B25/85= 3975±1.5%        | C        |                                |                    |                       |                                     |
| TGMAA103H39HAD   | R25=10K±3%            |                          |          |                                |                    |                       |                                     |
| TGMAA103J39HAD   | R25=10K±5%            |                          |          |                                |                    |                       |                                     |

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## ■ R-T Characteristic Curves (representative)



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## Glass Encapsulated Type for Temperature Sensing/Compensation

### ■ Reliability

| Item                        | Standard                         | Test conditions / Methods   | Specifications   |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
|-----------------------------|----------------------------------|---|--|----------------------------------|------------------|---|--------------|------------|---|------------------|-----------|---|-------------|------------|---|------------------|-----------|--|
| High Temperature Storage    | IEC60068-2-2                     | $T_u \pm 5^\circ\text{C}$ , 1000 $\pm$ 24 hrs   | No visible damage<br>$ \Delta R_{25}/R_{25}  \leq 5\%$ |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| Damp Heat, Steady State     | IEC60068-2-3                     | $40 \pm 2^\circ\text{C}$ , 90~95% RH, 1000 $\pm$ 24 hrs   | No visible damage<br>$ \Delta R_{25}/R_{25}  \leq 5\%$ |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| Rapid Change of Temperature | IEC60068-2-14                    | The conditions shown below shall be repeated 5 cycles<br><table border="1"><thead><tr><th>Step</th><th>Temperature (<math>^\circ\text{C}</math>)</th><th>Period (minutes)</th></tr></thead><tbody><tr><td>1</td><td><math>-T_L \pm 5</math></td><td>30<math>\pm</math>3</td></tr><tr><td>2</td><td>Room temperature</td><td>5<math>\pm</math>3</td></tr><tr><td>3</td><td><math>T_U \pm 5</math></td><td>30<math>\pm</math>3</td></tr><tr><td>4</td><td>Room temperature</td><td>5<math>\pm</math>3</td></tr></tbody></table> | Step   | Temperature ( $^\circ\text{C}$ ) | Period (minutes) | 1 | $-T_L \pm 5$ | 30 $\pm$ 3 | 2 | Room temperature | 5 $\pm$ 3 | 3 | $T_U \pm 5$ | 30 $\pm$ 3 | 4 | Room temperature | 5 $\pm$ 3 | No visible damage<br>$ \Delta R_{25}/R_{25}  \leq 5\%$ |
| Step                        | Temperature ( $^\circ\text{C}$ ) | Period (minutes)  |  |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| 1                           | $-T_L \pm 5$                     | 30 $\pm$ 3  |  |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| 2                           | Room temperature                 | 5 $\pm$ 3   |  |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| 3                           | $T_U \pm 5$                      | 30 $\pm$ 3  |  |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| 4                           | Room temperature                 | 5 $\pm$ 3   |  |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |
| Max. Power Dissipation      | IEC 60539-1                      | $25 \pm 5^\circ\text{C}$ , $P_{\text{max.}} \times 1000 \pm 24$ hrs   | No visible damage<br>$ \Delta R_{25}/R_{25}  \leq 5\%$ |                                  |                  |   |              |            |   |                  |           |   |             |            |   |                  |           |  |

### ■ Storage Conditions of Products

- Storage Conditions :
  1. Storage Temperature :  $-10^\circ\text{C} \sim +40^\circ\text{C}$
  2. Relative Humidity :  $\leq 75\% \text{RH}$
  3. Keep away from corrosive atmosphere and sunlight.
- Shelf life : 1 year