

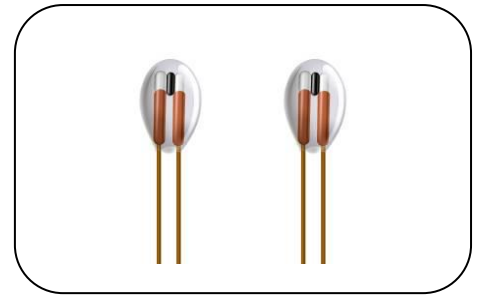
# NTC Thermistor : TGM Series



## Glass Encapsulated Type for Temperature Sensing/Compensation

### ■ Features

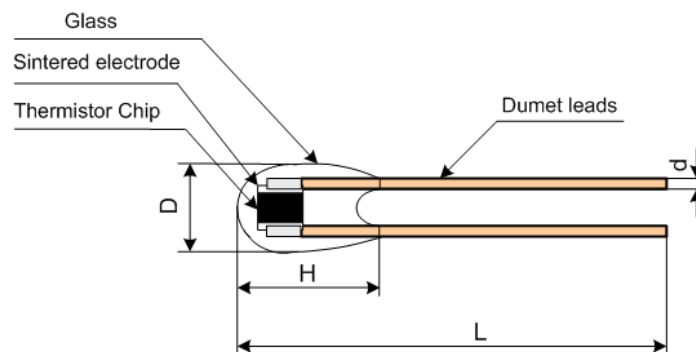
1. RoHS compliant
2. Glass-encapsulated and heat-resistive
3. Body size:  $\Phi 2.5\text{mm}$
4. Operating temperature range:  $-40^{\circ}\text{C} \sim +250^{\circ}\text{C}$
5. Agency recognition: UL / cUL



### ■ Recommended Applications

1. Home appliances
2. Automotive electronics

### ■ Structure and Dimensions



(Unit: mm)

Series	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 Value	RT Curve	Max. Power Dissipation at 25°C	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals	
	(KΩ)			(K)				--	P <sub>max</sub> (mW)
TGMAA503F3993DA6	R100=3.3K±2%	B0/100=3970±3%	A	7	Approx. 1.4	Approx. 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%			√	√				

Note 1: Special specifications are available upon request.

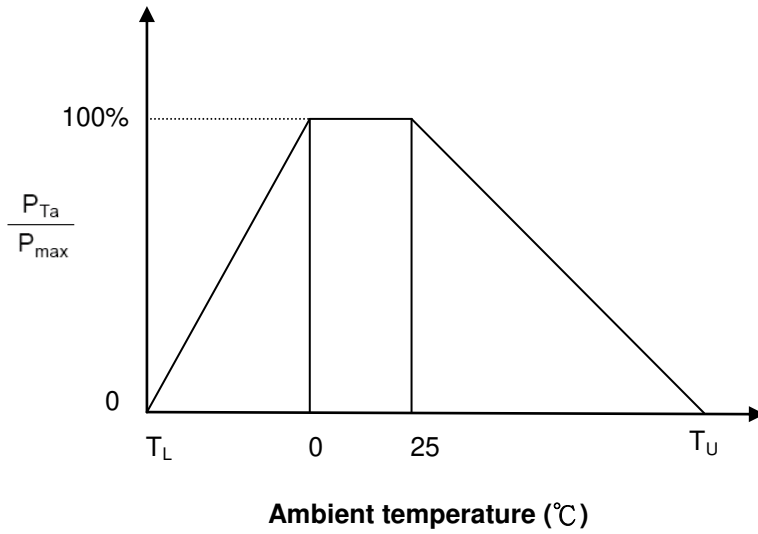
Note 2: UL/cUL File No: E138827

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## Max. Power Dissipation Derating Curve



$T_U$  : Maximum operating temperature (°C)

$T_L$  : Minimum operating temperature (°C)

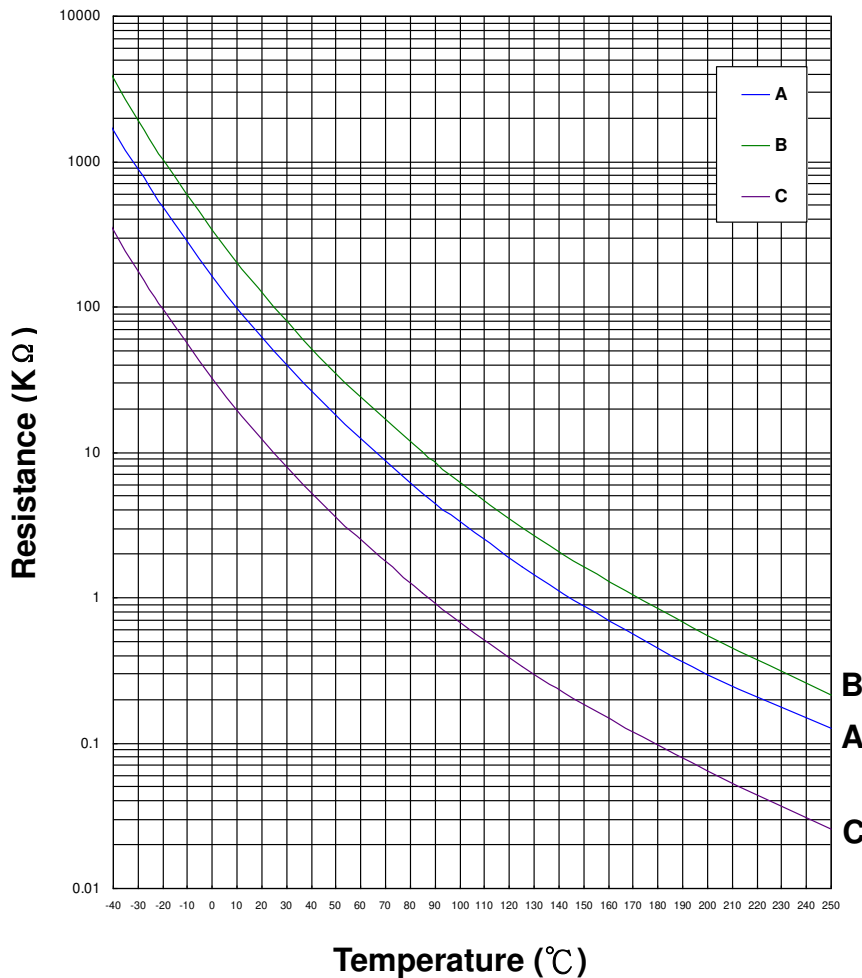
For example:

Ambient temperature ( $T_a$ ) = 60°C

Maximum operating temperature ( $T_U$ ) = 200°C

$$P_{Ta} = (T_U - T_a) / (T_U - 25) \times P_{max} = 80\% P_{max}$$

## R-T Characteristic Curves (representative)



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### ■ Reliability

Item	Standard	Test conditions / Methods	Specifications															
High Temperature Storage	IEC 60068-2-2	$T_U \pm 5^\circ\text{C}$ , 1000 $\pm$ 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 5\%$															
Damp Heat, Steady State	IEC 60068-2-78	$40 \pm 2^\circ\text{C}$ , 90~95% RH, 1000 $\pm$ 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 3\%$															
Rapid Change of Temperature	IEC 60068-2-14	<p>The conditions shown below shall be repeated 5 cycles.</p> <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><math>30 \pm 3</math></td></tr><tr><td>2</td><td>Room temperature</td><td><math>5 \pm 3</math></td></tr><tr><td>3</td><td><math>T_U \pm 5</math></td><td><math>30 \pm 3</math></td></tr><tr><td>4</td><td>Room temperature</td><td><math>5 \pm 3</math></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 $ \Delta R_{25}/R_{25}  \leq 3\%$
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3	$T_U \pm 5$	$30 \pm 3$																
4	Room temperature	$5 \pm 3$																
Max. Power Dissipation	IEC 60539-1 4.26.3	$25 \pm 5^\circ\text{C}$ , Pmax. X 1000 $\pm$ 24 hrs	No visible damage $ \Delta R_{25}/R_{25}  \leq 5\%$															

### ■ Warehouse Storage Conditions of Products

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