

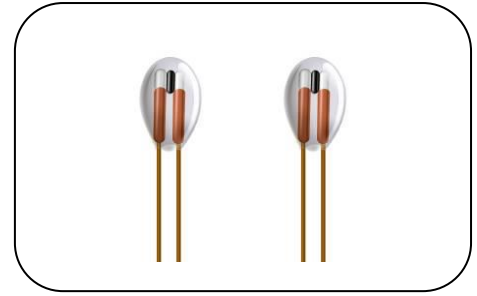
NTC Thermistor : TGM Series



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

■ Part Number Code

T	G	M	A	A	5	0	3	F	3	9	D	1			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Product Type	
TGM	THINKING NTC Thermistor TGM Series

Body Size	
A	$\Phi 3\text{mm}$

Definition of B Value	
A	$B_{25/85}$
B	$B_{25/50}$

Zero Power Resistance at 25°C (R_{25})	
0RY	0.7Ω
2R5	2.5Ω
470	47Ω
471	470Ω

Tolerance of R_{25}	
F	$\pm 1\%$
G	$\pm 2\%$
H	$\pm 3\%$
J	$\pm 5\%$
K	$\pm 10\%$

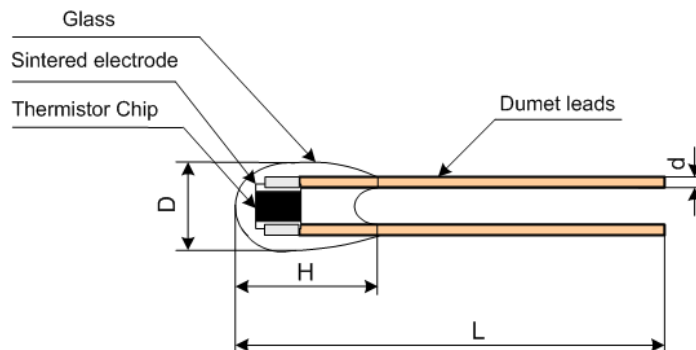
B Value	
374	3740
39D	3935
395	3970
39H	3975
520	5200

Tolerance of B Value	
1	$\pm 1\%$
2	$\pm 2\%$
3	$\pm 3\%$
5	$\pm 5\%$

Optional Suffix	
Y	RoHS & HF Compliant

Appearance	
D	$\Phi 3\text{mm}$ unplated wire
N	$\Phi 3\text{mm}$ unplated wire with insulation
V	$\Phi 3\text{mm}$ plated wire
R	$\Phi 3\text{mm}$ plated wire with insulation

■ Structure and Dimensions



(Unit: mm)

Series	D	H	L	d
TGMA	2.5 ± 0.2	3.8 ± 0.5	≥ 40	0.30 ± 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 _{max} (mW)	δ(mW/°C)	τ (Sec.)	T _L ~T _U (°C)	UL	cUL
TGMAA503F3993*A6	R100=3.3K±2%	B0/100=3970±3%	A	7	Approx. 1.4	Approx. 14	-40 ~ +250	√	√
TGMAA503F3993*A5	R100=3.3K±3%							√	√
TGMAA503F3993*A1	R100=3.3K±5%							√	√
TGMAA503G4013*A1	R25=50K±2%							√	√
TGMAA503H4013*A1	R25=50K±3%							√	√
TGMAA503J4013*A1	R25=50K±5%							√	√
TGMAA104G4113*A1	R25=100K±2%	B100/200=4300±3%	B					√	√
TGMAA104H4113*A1	R25=100K±3%							√	√
TGMAA104J4113*A1	R25=100K±5%							√	√
TGMAA104F4113*A2	R200=0.55K±2%							√	√
TGMAA104F4113*A3	R200=0.55K±3%							√	√
TGMAA104F4113*A5	R200=0.55K±5%							√	√
TGMAA103G39HA*	R25=10K±2%	B25/85= 3975±1.5%	C	√	√				
TGMAA103H39HA*	R25=10K±3%			√	√				
TGMAA103J39HA*	R25=10K±5%			√	√				

Note 1: Special specifications are available upon request.

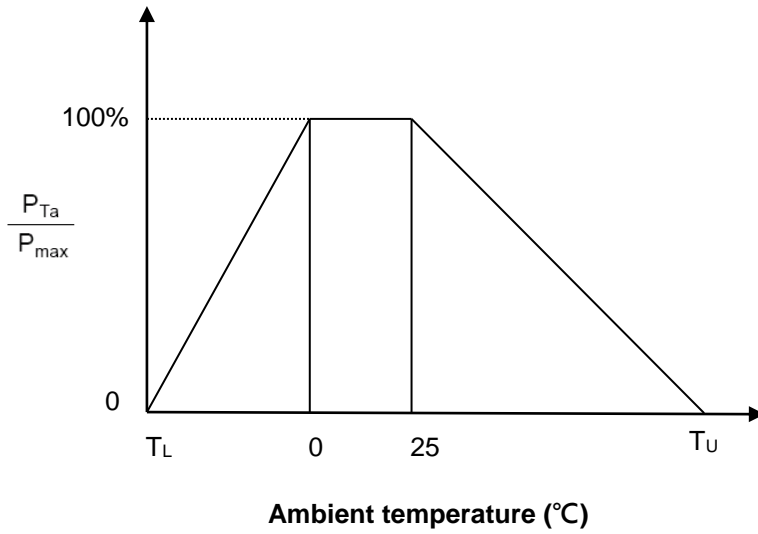
Note 2: UL/cUL File No: E138827

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Max. Power Dissipation Derating Curve



T_U : Maximum operating temperature (°C)

T_L : Minimum operating temperature (°C)

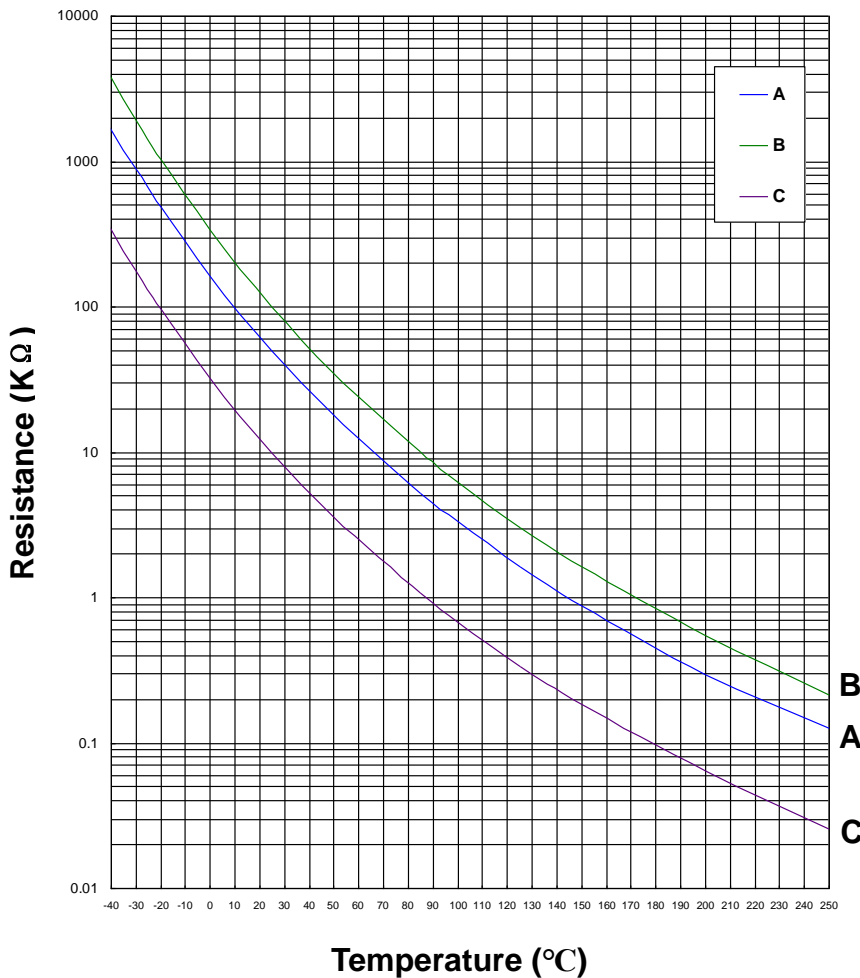
For example:

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	The conditions shown below shall be repeated 5 cycles. <table border="1"><thead><tr><th>Step</th><th>Temperature ($^\circ\text{C}$)</th><th>Period (minutes)</th></tr></thead><tbody><tr><td>1</td><td>$T_L \pm 5$</td><td>30 ± 3</td></tr><tr><td>2</td><td>Room temperature</td><td>5 ± 3</td></tr><tr><td>3</td><td>$T_U \pm 5$</td><td>30 ± 3</td></tr><tr><td>4</td><td>Room temperature</td><td>5 ± 3</td></tr></tbody></table>	Step	Temperature ($^\circ\text{C}$)	Period (minutes)	1	$T_L \pm 5$	30 ± 3	2	Room temperature	5 ± 3	3	$T_U \pm 5$	30 ± 3	4	Room temperature	5 ± 3	No visible damage $\Delta R_{25}/R_{25}$ $\leq 3\%$
Step	Temperature ($^\circ\text{C}$)	Period (minutes)																
1	$T_L \pm 5$	30 ± 3																
2	Room temperature	5 ± 3																
3	$T_U \pm 5$	30 ± 3																
4	Room temperature	5 ± 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°C ~ $+40^\circ\text{C}$
 2. Relative Humidity: $\leq 75\%$ RH
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage : 1 year