Data Sheet

Customer:	
Product:	**Automotive Grade High Reliability SMD NTC Thermistor**
Sizes.:	**0402 / 0603 / 0805**
Issued Date:	**15-Apr-25**
Edition:	**REV.A1**

RoHS Compliant

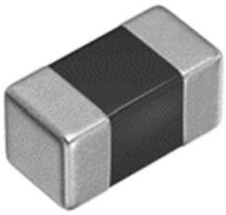
HONG KONG HELISTO INDUSTRIAL LIMITED
香港海利斯特实业有限公司

SHENZHEN HELISTO TECHNOLOGYCOLTD
深圳市海利斯特科技有限公司

ADD:5/F., A Block, Hongdu Industrial Park, Fanshen Road, 45 Area, Baoan, Shenzhen, China
TEL:+86-755-29741555 29749555
FAX:+86-755-29742111
E-mail:donnyhai@helisto.com
www.Helisto.com

Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)
15-Apr-25	15-Apr-25	15-Apr-25	15-Apr-25	
Mandy Chang	*Ben Chang*	*Ben Chang*		

Automotive Grade High Reliability SMD NTC Thermistor



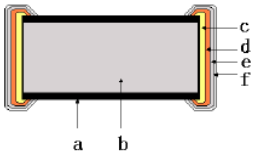
■Features

- Excellent solderability and solder resistance, suitable for wave soldering and reflow soldering.
- Maximum operating temperature up to 125°C-150°C
- High reliability, good resistance to mechanical stress and thermal shock.
- Short response time
- AEC-Q200 certification

■Applications

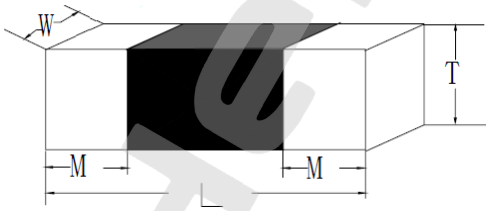
- Rechargeable batteries and supporting systems、LED car lights、small motor、cell phone、Wearable devices.

■Construction



a	Glass Layer	d	Soft Terminal Electrode(Ag)
b	NTC	e	Ni Plating
c	Ag Layer	f	Sn Plating

■Dimensions



Type	Size	L (mm)	W (mm)	T (mm)	M (mm)
NTGH02	0402	1.00±0.15	0.50±0.10	0.50±0.10	0.25±0.10
NTGH03	0603	1.60±0.15	0.75±0.15	0.75±0.15	0.30±0.15
NTGH05	0805	2.00±0.20	1.25±0.20	0.75±0.20	0.50±0.20

■Part Numbering

NTGH	03	T	103	F	338	H	A	A
Product Type	Dimensions	Packaging Code	Resistance (25℃)	Resistance Tolerance	B Value Constant	B Value Tolerance	B Value Temperature	Function Code
	02: 0402 03: 0603 05: 0805	T:Taping Reel	502: 5KΩ 103: 10KΩ 104: 100KΩ	F: ±1% G: ±2% H: ±3% J: ±5%	338: 3380K 420: 4200K	F: ±1% G: ±2% H: ±3%	A: 25/50℃	A: Automotive Grade

■Electrical Characteristics

0402 Type(□:Tolerance) / (25/50℃)

Part No.	Resistance (25℃)	Resistance Tolerance	B-Constant (25/50℃)	B -Constant Tolerance	Maximum Operating Current @ 25℃ (mA)	Maximum Voltage (V)	Typical Dissipation Constant @ 25℃ (mW/℃)	Rated Electric Power @25℃ (mW)
NTGH02T103□338□AA	10KΩ	±1, 2, 3, 5%	3380K	±1, 2, 3%	0.1	5	1	100
NTGH02T103□390□AA	10KΩ	±1, 2, 3, 5%	3900K	±1, 2, 3%	0.1	5	1	100
NTGH02T473□395□AA	47KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.046	5	1	100
NTGH02T104□395□AA	100KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.032	5	1	100
NTGH02T154□395□AA	150KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.025	5	1	100
NTGH02T474□405□AA	470 KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.016	5	1	100

0603 Type(□:Tolerance) / (25/50℃)

Part No.	Resistance (25℃)	Resistance Tolerance	B-Constant (25/50℃)	B -Constant Tolerance	Maximum Operating Current @ 25℃ (mA)	Maximum Voltage (V)	Typical Dissipation Constant @ 25℃ (mW/℃)	Rated Electric Power @25℃ (mW)
NTGH03T103□338□AA	10KΩ	±1, 2, 3, 5%	3380K	±1, 2, 3%	0.1	5	1	100
NTGH03T103□360□AA	10KΩ	±1, 2, 3, 5%	3600K	±1, 2, 3%	0.1	5	1	100
NTGH03T103□395□AA	10KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.1	5	1	100
NTGH03T223□395□AA	22KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.06	5	1	100
NTGH03T473□395□AA	47KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.046	5	1	100
NTGH03T104□405□AA	100KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.032	5	1	100
NTGH03T154□395□AA	150KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.025	5	1	100
NTGH03T474□420□AA	470KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.015	5	1	100

0805 Type(□:Tolerance) / (25/50℃)

Part No.	Resistance (25℃)	Resistance Tolerance	B- Constant (25/50℃)	B- Constant Tolerance	Maximum Operating Current @ 25℃ (mA)	Maximum Voltage (V)	Typical Dissipation Constant @ 25℃ (mW/℃)	Rated Electric Power @25℃ (mW)
NTGH05T502□350□AA	5KΩ	±1, 2, 3, 5%	3500K	±1, 2, 3%	0.15	5	2	200
NTGH05T103□380□AA	10KΩ	±1, 2, 3, 5%	3380K	±1, 2, 3%	0.10	5	2	200
NTGH05T103□360□AA	10KΩ	±1, 2, 3, 5%	3600K	±1, 2, 3%	0.10	5	2	200
NTGH05T103□395□AA	10KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.09	5	2	200
NTGH05T223□395□AA	22KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.067	5	2	200
NTGH05T473□405□AA	47KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.046	5	2	200
NTGH05T104□395□AA	100KΩ	±1, 2, 3, 5%	3950K	±1, 2, 3%	0.032	5	2	200
NTGH05T154□405□AA	150KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.026	5	2	200
NTGH05T224□405□AA	220KΩ	±1, 2, 3, 5%	4050K	±1, 2, 3%	0.021	5	2	200
NTGH05T474□415□AA	470KΩ	±1, 2, 3, 5%	4150K	±1, 2, 3%	0.016	5	2	200

■Environmental Characteristics

Item	Performances	Conditions
High Temperature Exposure (Storage)	No mechanical damage. R25 change shall be less han±5%	Temperature 150℃ Unpowered. Duration 1000h. Measurement at (24±4) hours after test conclusion.
Temperature Cycling	No mechanical damage. R25 change shall be less han±5%;	High Temperature +125℃; low temperature -40℃: Duration at each temperature 30 min: Transition time ≤ 1 min: Severity 1000 cycles: Measurement at 24±4 hours after test Conclusion.
Biased Humidity	No mechanical damage. R25 change shall be less han±5%;	Temperature:85℃: Relative humidity:85%: With permissive operating current-steady state Duration:1000 h; Measurement at 24±4 hours after test conclusion.
Operational Life	No mechanical damage. R25 change shall be less han±5%;	Test temp.: 125°C; Test Rated power at temperature - steady state; Duration:1000 h; Measurement at 24±4 hours after test conclusion;
Mechanical Shock	No mechanical damage. R25 change shall be less han±5%;	Half sine wave; Peak value 1500g; Normal duration 0.5 ms; Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks).
Vibration	No mechanical damage. R25 change shall be less han±5%	The entire frequency range of 10 to 2000 Hz and return to 10 Hz shall be traversed in 20 minutes. This cycle shall be preformed 12 time in each of three mutually perpendicular directions (total of 36 times), so that the motion shall be applied for a total period of approximately 12 hours. Peak value 5g.
Resistance to Soldering Heat	No mechanical damage. R25 change shall be less han±5%	Solder bath; Temperature (260±5) ℃; Immersion timer (10±1) seconds
ESD	No mechanical damage. R25 change shall be less han±5%	Direct contact discgarge; Indicated voltage: 8000V; Two discharges shall be applied to each PUT within a sample group and at each stress voltage level，one with a positive polarity and one with a negative polarity.
Solderability	95% or more of electrode area shall be coated by new solder.	P retreatment 155℃ dry heat@4h Solder bath; Lead-free solder ; Temperature (235±5) ℃; Immersion timer (5±0.5) seconds
Board flex	No mechanical damage. R25 change shall be less han±5%	The testing samples shall be mounted on a 100mm×40mm FR4 PCB board，which is 1.6mm±0.2mm thick ; Bending shall be applied to the 1.0mm with 1.0mm/sec ; Duration：60±5s。
Terminal Strength	No mechanical damage. R25 change shall be less han±5%	The testing samples shall be mounted on the testing boards，exerting force on side of the smple, size 0402: 5N: size 0603: 6N: size 0805: 10N Duration:60s±1s

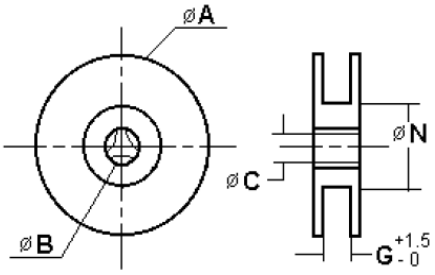
■Operating Temperature: -40~+150℃
■Storage Temperature: -10 ~ 40℃; Humidity 30 ~ 70%RH
■Shelf life: 1 years Max

■Packaging

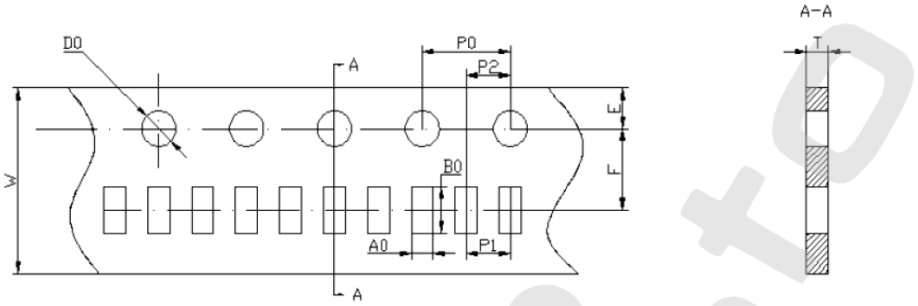
Reel Specifications & Packaging Quantity

Unit: mm

Type	A	B	C	N	G	Packaging Quality
NTGH02	178.0±2.0	22.0±2.0	12.5±1.5	57.0±2.0	8	10,000
NTGH03	178.0±2.0	22.0±2.0	12.5±1.5	57.0±2.0	8	4,000
NTGH05	178.0±2.0	22.0±2.0	12.5±1.5	57.0±2.0	8	4,000



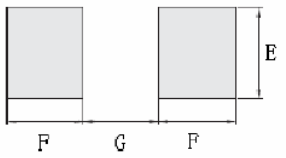
Paper Tape Specifications



Unit: mm

Type	A0	B0	W	F	E	P1	P2	P0	D0	T
NTGH02	0.65±0.1	1.15±0.1	8.0±0.2	3.5±0.1	1.75±0.2	2.0±0.2	2.0±0.05	4.0±0.2	1.55±0.1	0.60±0.1
NTGH03	1.10±0.2	1.90±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.05	4.0±0.2	1.55±0.1	0.95±0.1
NTGH05	1.50±0.2	2.30±0.2	8.0±0.2	3.5±0.1	1.75±0.2	4.0±0.2	2.0±0.05	4.0±0.2	1.55±0.1	0.95±0.1

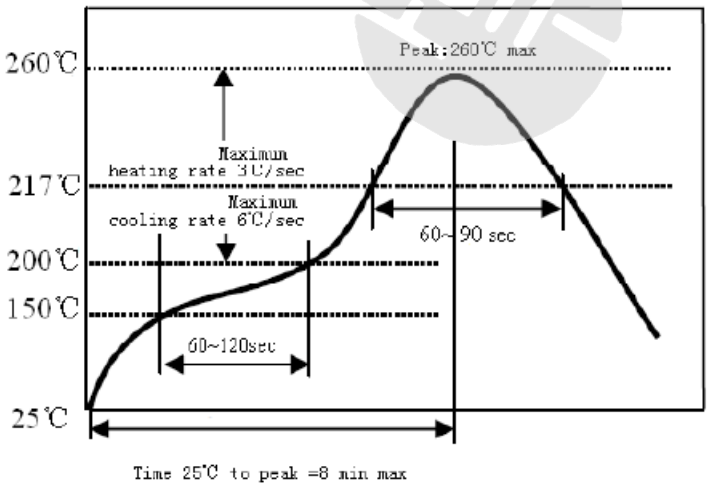
■Recommended Maximum Dimensions



Unit: mm

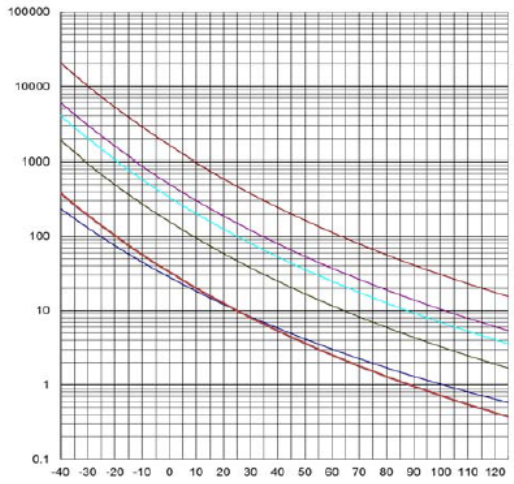
Type	E	F	G
NTGH02	0.60	0.60	0.50
NTGH03	1.00	1.00	1.00
NTGH05	1.40	1.20	1.00

■Re-flowing Profile

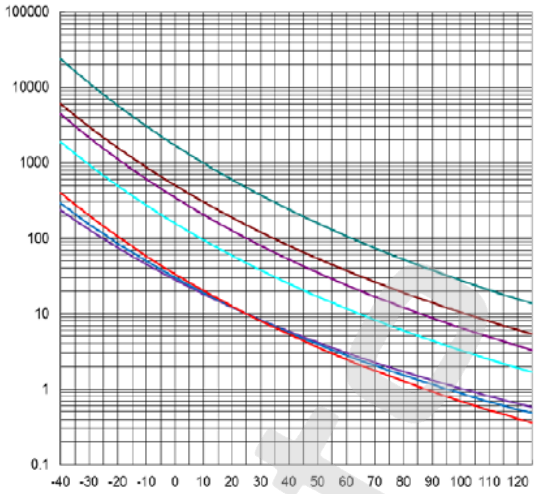


■Resistance Temperature Characteristics

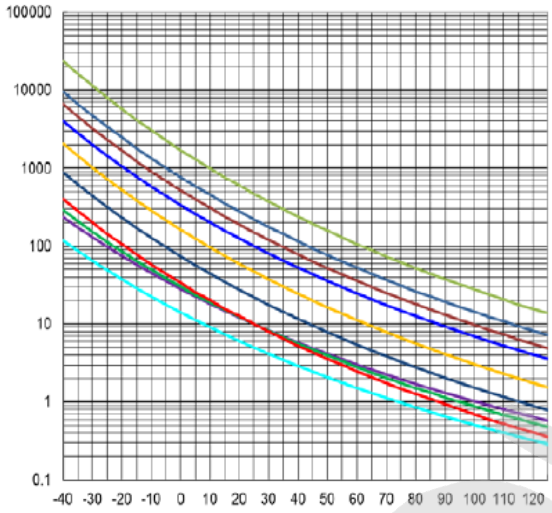
NTGH02 Series



NTGH03 Series



NTGH05 Series



REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A1	Apr 15 ,2025		-Add Shelf life.