NST Series

Surface Mount NTC Thermistors

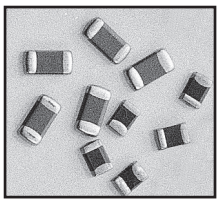
ISO 9001:2015 CERTIFIED

ROHS/REACH COMPLIANT HALOGEN FREE

NIC Components Corp.

FEATURES

- NEGATIVE TEMPERATURE COEFFICIENT
- FAST RESPONSE TO TEMPERATURE VARIATIONS MAKE THEM IDEALLY FOR TEMPERATURE SENSORS AND COMPENSATORS
- STANDARD EIA 01005, 0201, 0402, 0603 AND 0805 SIZES
- TAPE AND REEL FOR AUTOMATIC MOUNTING



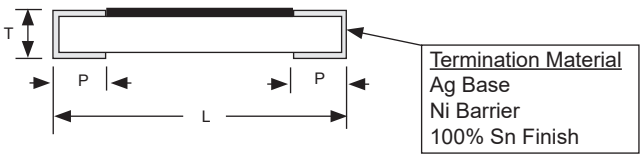
CHARACTERISTICS AND PERFORMANCE

Series	NST01	NST02	NST04	NST06	NST10
EIA Size	01005	0201	0402	0603	0805
Resistance Range (+25°C)	10KΩ & 100KΩ	10KΩ ~ 100KΩ	6.8KΩ ~ 220KΩ	2.2KΩ ~ 220KΩ	4.7KΩ ~ 220KΩ
Power Rating (+25°C)	100mW	100mW	100mW	100mW	200mW
Resistance Tolerance (+25°C)	F = 1%, H = ±3%, J = ±5%				
Operating Temperature Range	-40°C ~ 125°C				
Dissipation Factor	1mW/°C	1mW/°C	1mW/°C	1mW/°C	2mW/°C
Thermal Time Constant	<3 Sec	<3 Sec.	<3 Sec.	<5 Sec.	<5 Sec.
Beta Temperature Range	D = +25°C ~ +50°C				
Beta Value Range	3380 & 4250	3380 ~ 4250	3950 ~ 4250	3450 ~ 4350	3950 ~ 4350
Beta Value Tolerance	F = 1%, H = ±3%				
Resistance to Soldering Heat +260°C for 5 seconds	Resistance Change ΔR ±1% for F tolerance parts ΔR ±3% for H tolerance parts ΔR ±5% for J tolerance parts Beta Change ΔBeta ±1% for F Beta tolerance parts ΔBeta ±3% for H Beta tolerance parts				
Damp Heat 1000hrs @ +60°C, 90~95%RH					
Thermal Shock -55°C (30 min.), within 20 seconds to +125°C (30 min.), 100 cycles					
Life Test 1,000hrs @ +85°C with maximum operating current applied					
High Temperature Storage 1000hrs @ +125°C, 90~95%RH					

DIMENSIONS (mm)

Series	EIA Size	L	W	T	P
NST01	01005	0.40 ± 0.02	0.20 ± 0.02	0.20 ± 0.02	0.105 ± 0.035
NST02	0201	0.60 ± 0.05	0.30 ± 0.05	0.30 ± 0.05	0.15 ± 0.05
NST04	0402	1.00 ± 0.15	0.50 ± 0.15	0.50 ± 0.15	0.25 ± 0.10
NST06	0603	1.60 ± 0.15	0.80 ± 0.15	0.80 ± 0.15	0.30 ± 0.20
NST10	0805	2.00 ± 0.20	1.25 ± 0.20	0.85 ± 0.20	0.50 ± 0.30

SIDE VIEW



TOP VIEW

PART NUMBER SYSTEM

NST06 D J 103 H 3450 TR F

- F — RoHS compliant
- TR — Packaging TR: Tape and Reel
- 3450 — Beta Value
- H — Beta Value Tolerance: F=±1%, H=±3%
- 103 — Resistance Value Code (E-24 Standard Values)
- J — Resistance Value Tolerance: F=±1%, H=±3%, J=±5%
- D — Beta Temperature Range: D = +25°C ~ +50°C
- NST06 — Series

Beta Temperature Range 25/50	Beta Value									
	3380	3450	3500	3950	4050	4100	4150	4250	4300	4350
Beta over 25/85	3434	3500	3550	3987	4108	4150	4209	4311	4350	4400
Beta over 25/100	3455	3550	3590	3998	4131	4200	4232	4334	4400	4450
Beta over 25/105	3470	3600	3640	4000	4150	4220	4250	4350	4420	4470

NST01 (01005 CASE SIZE) STANDARD VALUES AND SPECIFICATIONS

NST01 Part Number	Resistance Value +25°C	Beta Value (B25/50)	Maximum Operating Current (mA)	Termal Time Constant (sec.)	Dissipation Factor (mW/°C)	Rated Power (mW)
NST01D_103_3380TRF	10K	3380	0.31	<3sec	1	100
NST01D_104_4250TRF	100K	4250	0.10			

After D beta temperature range code: _ Insert resistance tol. code (F=1%, H=±3%, J=±5%)
After nominal resistance value: _ Insert beta tolerance code (F = 1%, H = ±3%)

NST02 (0201 CASE SIZE) STANDARD VALUES AND SPECIFICATIONS

NST04 Part Number	Resistance Value +25°C	Beta Value (B25/50)	Maximum Operating Current (mA)	Termal Time Constant (sec.)	Dissipation Factor (mW/°C)	Rated Power (mW)
NST02D_103_3380TRF	10K	3380	0.31	<3sec	1	100
NST02D_223_3380TRF	22K	3380	0.21			
NST02D_473_4050TRF	47K	4050	0.14			
NST02D_683_4250TRF	68K	4250	0.12			
NST02D_104_4250TRF	100K	4250	0.10			

After D beta temperature range code: _ Insert resistance tol. code (F=1%, H=±3%, J=±5%)
After nominal resistance value: _ Insert beta tolerance code (F = 1%, H = ±3%)

NST04 (0402 CASE SIZE) STANDARD VALUES AND SPECIFICATIONS

NST04 Part Number	Resistance Value +25°C	Beta Value (B25/50)	Maximum Operating Current (mA)	Termal Time Constant (sec.)	Dissipation Factor (mW/°C)	Rated Power (mW)
NST04D_682_3850TRF	6.8K	3850	0.38	<3sec	1	100
NST04D_103_3380TRF	10K	3380	0.31			
NST04D_103_3950TRF	10K	3950	0.31			
NST04D_103_4050TRF	10K	4050	0.33			
NST04D_153_3450TRF	15K	3450	0.25			
NST04D_223_3950TRF	22K	3950	0.23			
NST04D_303_3950TRF	30K	3950	0.15			
NST04D_303_4050TRF	30K	4050	0.15			
NST04D_333_3950TRF	33K	3950	0.15			
NST04D_333_4050TRF	33K	4050	0.15			
NST04D_473_4050TRF	47K	4050	0.12			
NST04D_473_4100TRF	47K	4100	0.12			
NST04D_503_4050TRF	50K	4050	0.12			
NST04D_503_4100TRF	50K	4100	0.12			
NST04D_683_4150TRF	68K	4150	0.11			
NST04D_104_3950TRF	100K	3950	0.10			
NST04D_104_4150TRF	100K	4150	0.10			
NST04D_104_4250TRF	100K	4250	0.10			
NST04D_154_4250TRF	150K	4250	0.08			
NST04D_224_4250TRF	220K	4250	0.06			
NST04D_224_4350TRF	220K	4350	0.06			

After D beta temperature range code: _ Insert resistance tol. code (F=1%, H=±3%, J=±5%)
After nominal resistance value: _ Insert beta tolerance code (F = 1%, H = ±3%)

NST06 (0603 CASE SIZE) STANDARD VALUES AND SPECIFICATIONS

NST04 Part Number	Resistance Value +25°C	Beta Value (B25/50)	Maximum Operating Current (mA)	Termal Time Constant (sec.)	Dissipation Factor (mW/°C)	Rated Power (mW)
NST06D_222_3450TRF	2.2K	3450	0.67	<5sec	1	100
NST06D_472_3850TRF	4.7K	3850	0.46			
NST06D_502_3850TRF	5K	3850	0.44			
NST06D_103_3435TRF	10K	3435	0.31			
NST06D_103_3950TRF	10K	3950	0.33			
NST06D_103_4000TRF	10K	4000	0.33			
NST06D_153_3950TRF	15K	3950	0.25			
NST06D_223_3950TRF	22K	3950	0.21			
NST06D_223_4050TRF	22K	4050	0.21			
NST06D_303_4050TRF	30K	4050	0.17			
NST06D_333_4050TRF	33K	4050	0.17			
NST06D_473_4050TRF	47K	4050	0.14			
NST06D_473_4150TRF	47K	4150	0.14			
NST06D_503_4050TRF	50K	4050	0.13			
NST06D_503_4150TRF	50K	4150	0.13			
NST06D_683_4150TRF	68K	4150	0.12			
NST06D_104_3950TRF	100K	3950	0.10			
NST06D_104_4250TRF	100K	4250	0.10			
NST06D_124_4250TRF	120K	4250	0.10			
NST06D_154_4300TRF	150K	4300	0.08			
NST06D_224_4300TRF	220K	4300	0.06			

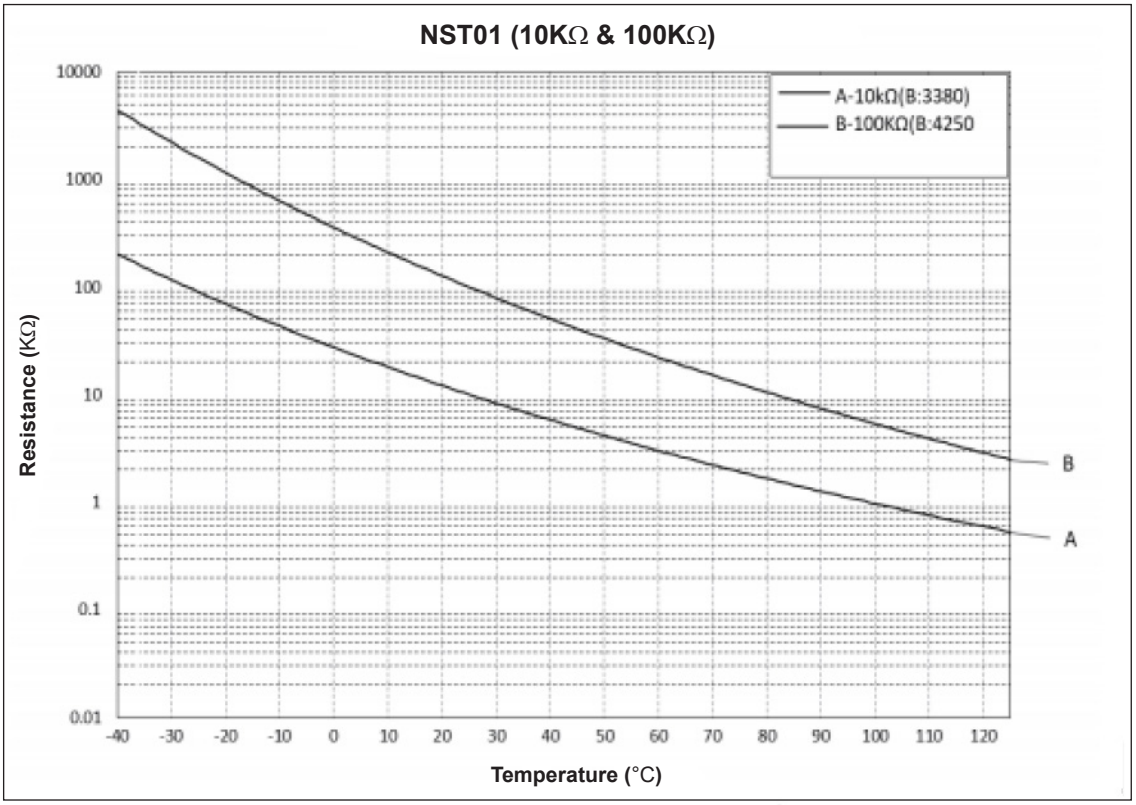
After D beta temperature range code: _ Insert resistance tol. code (F=1%, H=±3%, J=±5%)
After nominal resistance value: _ Insert beta tolerance code (F = 1%, H = ±3%)

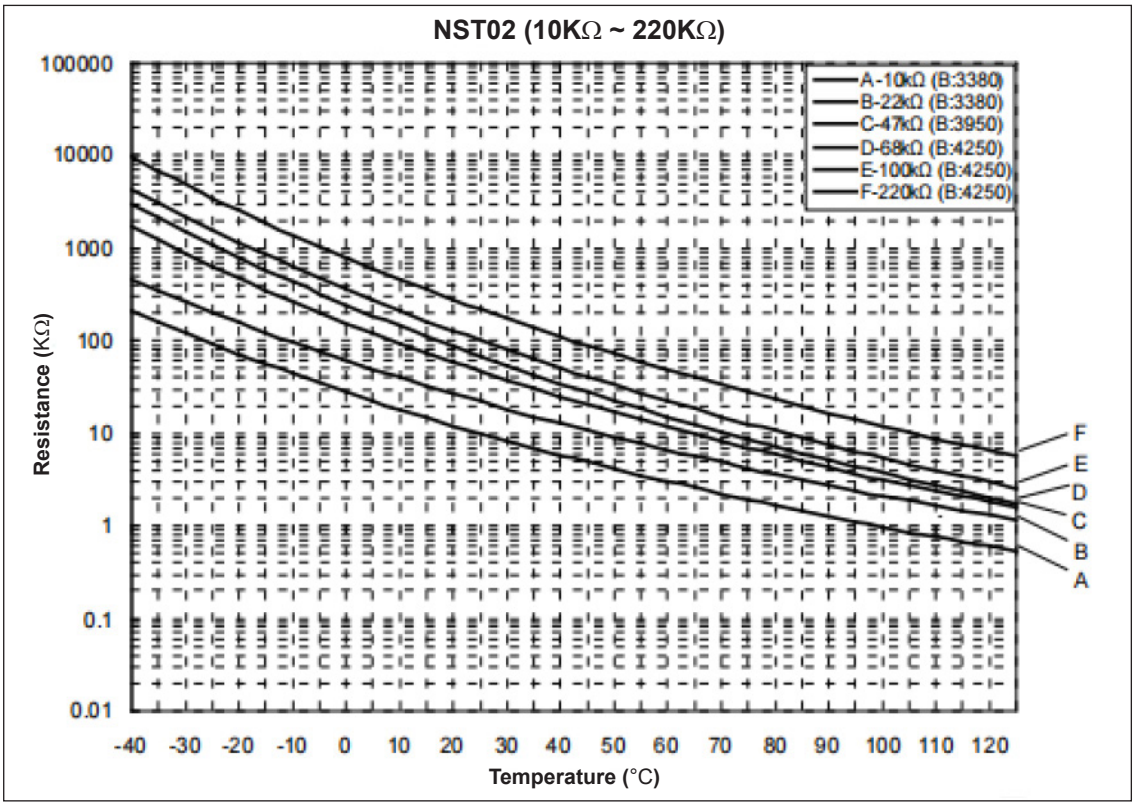
NST10 (0805 CASE SIZE) STANDARD VALUES AND SPECIFICATIONS

NST04 Part Number	Resistance Value +25°C	Beta Value (B25/50)	Maximum Operating Current (mA)	Termal Time Constant (sec.)	Dissipation Factor (mW/°C)	Rated Power (mW)
NST10D_472_3950TRF	4.7K	3950	0.65	<5sec	2	200
NST10D_502_3950TRF	5K	3950	0.60			
NST10D_103_3450TRF	10K	3450	0.40			
NST10D_103_3950TRF	10K	3950	0.44			
NST10D_153_3950TRF	15K	3950	0.33			
NST10D_223_4050TRF	22K	4050	0.31			
NST10D_303_4050TRF	30K	4050	0.25			
NST10D_333_4050TRF	33K	4050	0.24			
NST10D_473_4050TRF	47K	4050	0.20			
NST10D_473_4150TRF	47K	4150	0.20			
NST10D_503_4050TRF	50K	4050	0.18			
NST10D_503_4150TRF	50K	4150	0.18			
NST10D_104_3950TRF	100K	3950	0.14			
NST10D_104_4250TRF	100K	4250	0.14			
NST10D_154_4350TRF	150K	4350	0.11			
NST10D_224_4350TRF	220K	4350	0.08			

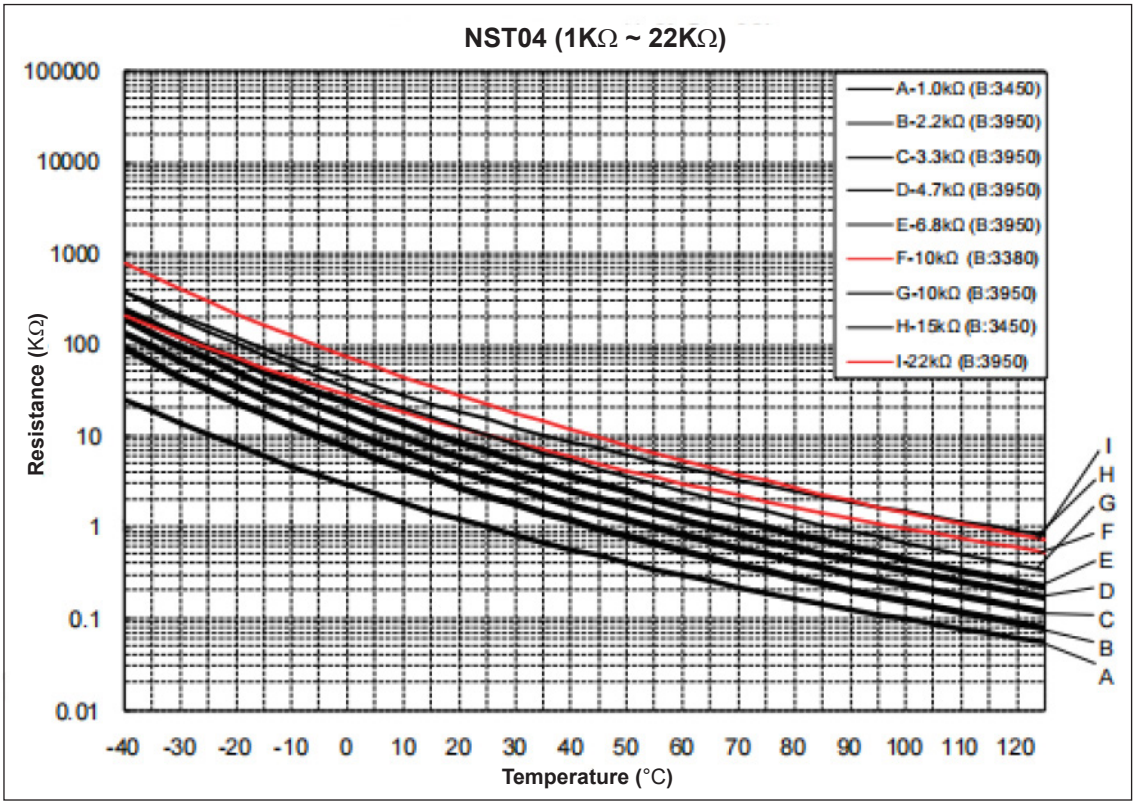
After D beta temperature range code: _ Insert resistance tol. code (F=1%, H=±3%, J=±5%)
After nominal resistance value: _ Insert beta tolerance code (F = 1%, H = ±3%)

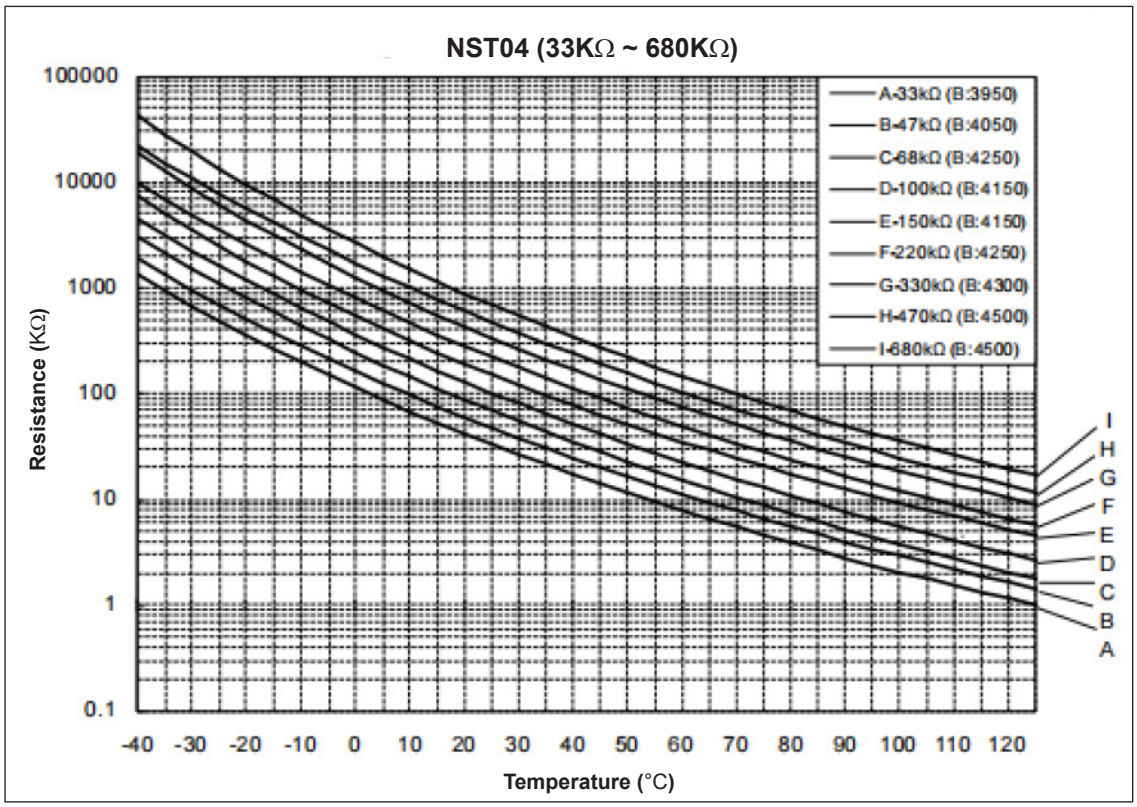
NST RT Curves



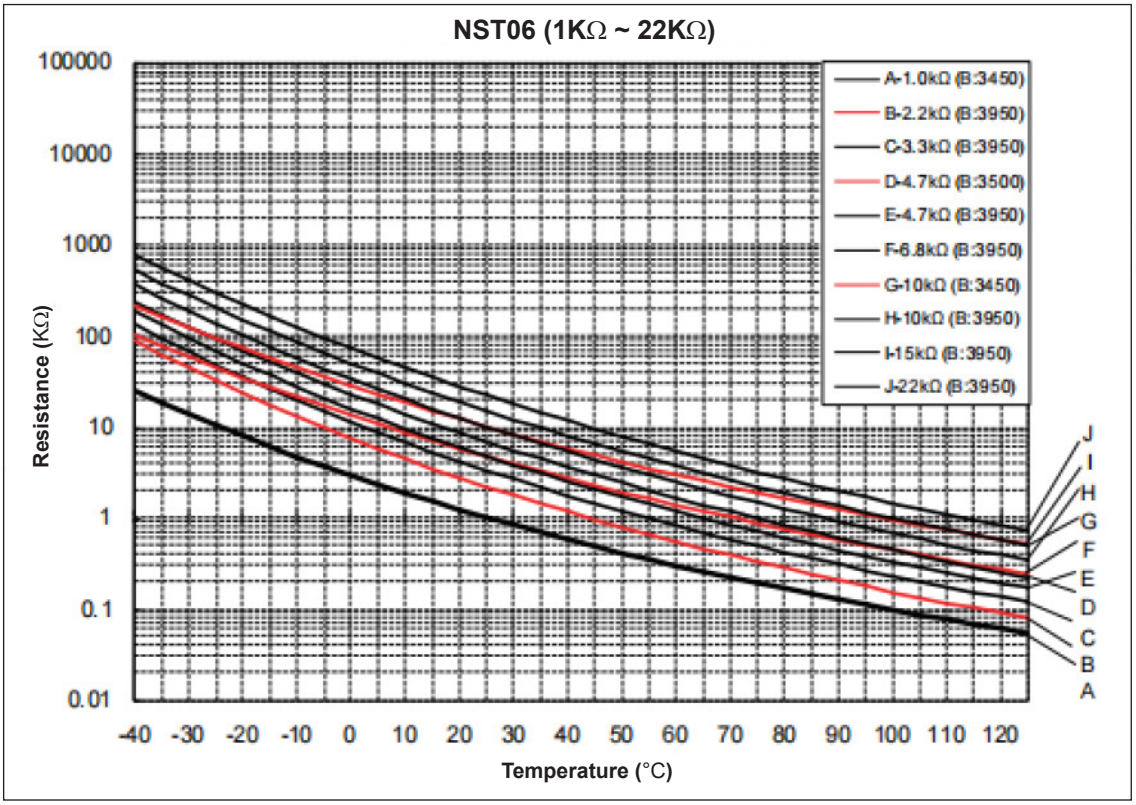


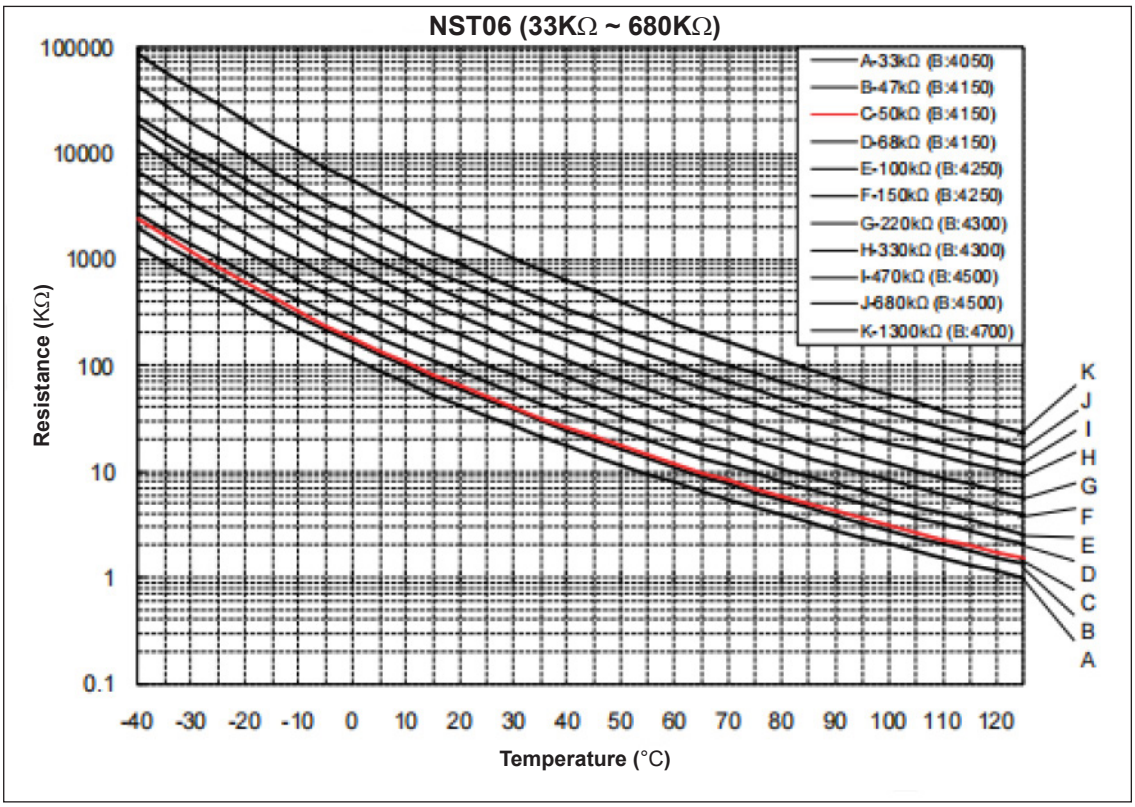
NST RT Curves



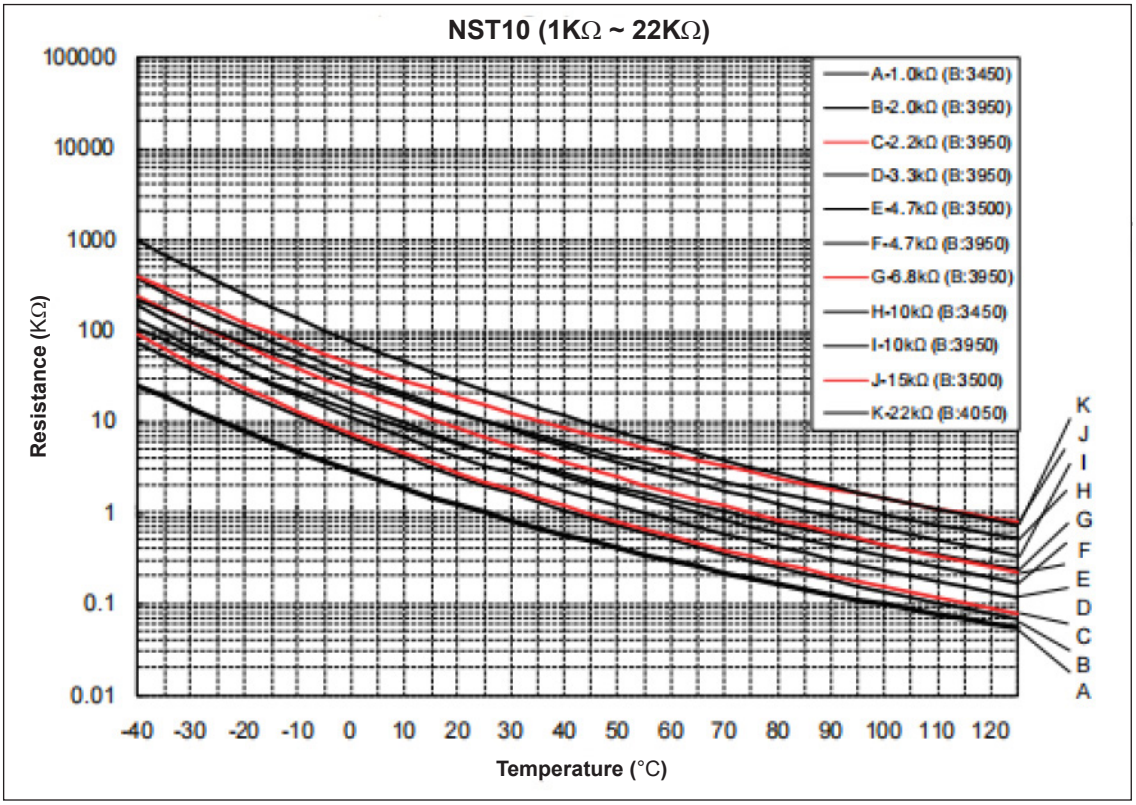


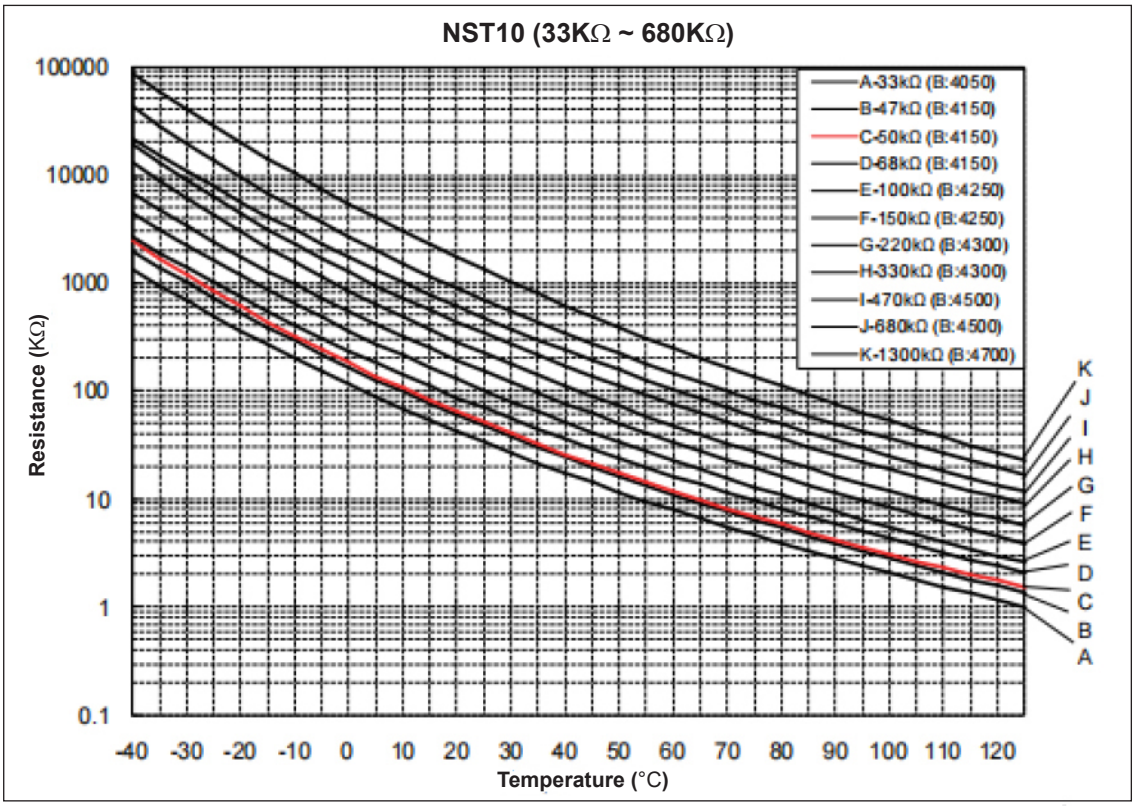
NST RT Curves





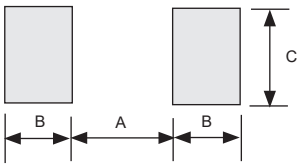
NST RT Curves



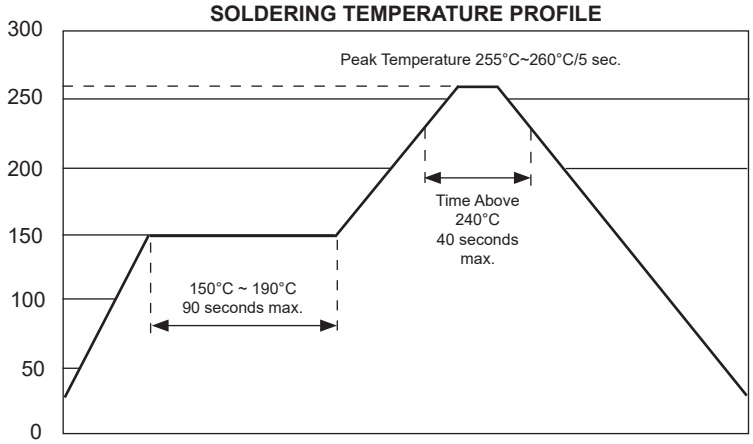


LAND PATTERN DIMENSIONS (mm)

Type	A	B	C
NST01	0.15 ~ 0.19	0.18 ~ 0.22	0.18 ~ 0.22
NST02	0.20 ~ 0.30	0.20 ~ 0.30	0.30 ~ 0.35
NST04	0.45 ~ 0.55	0.40 ~ 0.50	0.45 ~ 0.55
NST06	0.60 ~ 0.80	0.60 ~ 0.80	0.60 ~ 0.80
NST10	0.80 ~ 1.20	0.80 ~ 1.20	0.90 ~ 1.60

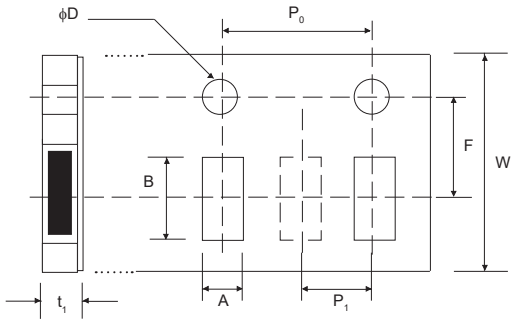


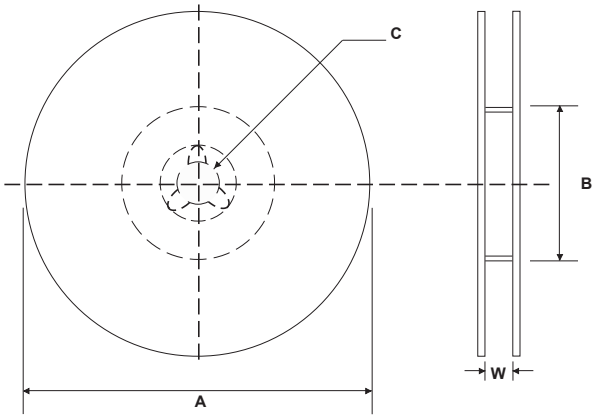
RECOMMENDED REFLOW SOLDERING TEMPERATURE PROFILE



CARRIER TAPE DIMENSIONS (mm)

Type	A	B	W	F	E	P_1	P_0	ϕD	T_1
NST01	0.22 nom.	0.43 nom.	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	2.00 ±0.05	4.00 ±0.10	1.5 +0.1/-0	0.35 max.
NST02	0.40 ± 0.10	0.70 ± 0.10							0.55 max.
NST04	0.65 ± 0.05	1.15 ± 0.05							0.80 max.
NST06	1.00 ± 0.10	1.80 ± 0.10				4.00 ±0.10			1.10 max.
NST10	1.50 ± 0.10	2.30 ± 0.10							



REEL DIMENSIONS (mm) AND QUANTITY

Type	A ± 2.0	B ± 2.0	C ±0.20	W ±1.5	Quantity
NST01	178	58	13.5	8.4	20,000
NST02				10.0	15,000
NST04					10,000
NST06					4,000
NST10