

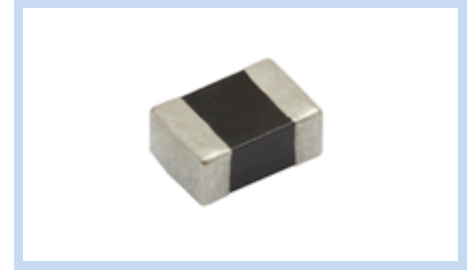
SMD NTC Thermistor Temperature Sensing Type

SNT Series

MERITEK

FEATURE

- Operating Temperature: -40 ~ +125°C
- EIA Sizes: 0201, 0402, 0603, 0805
- Highly reliable structure
- Wide Resistance Range
- UL safety approved: certification No: E223037



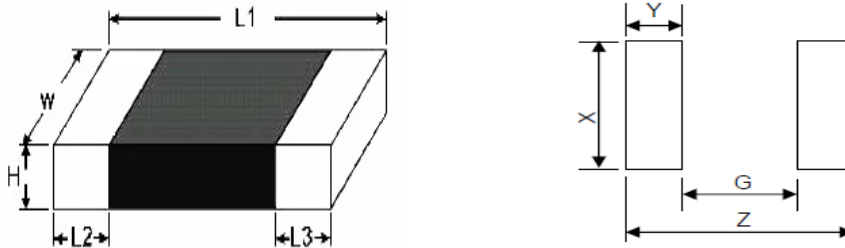
PART NUMBERING SYSTEM

SNT 01 B 103 F 338 F
(1) (2) (3) (4) (5) (6) (7)



No	Item	Code	Description	Series Reference
(1)	Meritek Series	SNT	SMD NTC Thermistor	Temperature Sensing Type
(2)	Size Code	01	01: 0201	02: 0402, 03: 0603, 05: 0805
(3)	Definition of B	B	B: B _{25/50}	A: B _{25/85}
(4)	Zero Power Resistance	103	103: 10KΩ	First Two Digits: Significant; Third: Multiplier
(5)	Tolerance of Resistance	F	F: ±1%	G: ±2%, H: ±3%, J: ±5%, K: ±10%
(6)	B Value	338	338: 3380	See B Value Reference Table Below
(7)	Tolerance of B Value	F	F: ±1%	G: ±2%, H: ±3%

DIMENSIONS



Unit: mm

Series	EIA Size	L1	W	H	L2	L3	X	Y	Z	G
SNT01	0201	0.60±0.05	0.30±0.05	0.35 Max.	0.15±0.05	0.15±0.05	0.3 Ref.	0.25 Ref.	0.8 Ref.	0.3 Ref.
SNT02	0402	1.00±0.15	0.50±0.10	0.6 Max.	0.20±0.10	0.20±0.10	0.6 Ref.	0.6 Ref.	1.7 Ref.	0.5 Ref.
SNT03	0603	1.60±0.15	0.80±0.15	0.95 Max.	0.40±0.15	0.40±0.15	1.0 Ref.	1.0 Ref.	3.0 Ref.	1.0 Ref.
SNT05	0805	2.00±0.20	1.25±0.20	1.0 Max.	0.40±0.20	0.40±0.20	1.4 Ref.	1.2 Ref.	3.4 Ref.	1.0 Ref.

B VALUE REFERENCE

Code	B Value	Code	B Value	Code	B Value	Code	B Value	Code	B Value	Code	B Value	Code	B Value
320	3200	350	3500	365	3650	395	3950	406	4060	425	4250	455	4550
338	3380	354	3540	370	3700	39H	3975	410	4100	430	4300	460	4600
340	3400	355	3550	385	3850	398	3980	415	4150	436	4360	470	4700
34D	3435	363	3630	392	3920	405	4050	420	4200	450	4500	480	4800

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ELECTRICAL CHARACTERISTICS

Part No.	Size	Zero Power Resistance	Tolerance of Resistance	B Value		Tolerance of B Value	Max Power Dissipation	Dissipation Factor	Thermal Time Constant	
		R ₂₅ (KΩ)	(± %)	(K)		(± %)	P _{max} (mW)	δ (mW/°C)	τ (sec.)	
SNT01B103□338*	0201	10	1, 2, 3, 5, 10	25/50	3380	1, 2, 3	100	Approx. 1.4	Approx. 1.2	
SNT01B683□425*		68			4250					
SNT01B104□425*		100			4250					
SNT02A103□34D*	0402	10	1, 2, 3, 5, 10	25/85	3435	1, 2, 3	170	Approx. 1.7	Approx. 2.0	
SNT02A103□395*		10			3950					
SNT02A223□395*		22			3950					
SNT02A473□395*		47			3950					
SNT02A683□410*		68			4100					
SNT02A104□405*		100			4050					
SNT02A104□436*		100			4360					
SNT02A224□475*		220			4750					
SNT02B103□338*		10			25/50					3380
SNT02B473□405*		47								4050
SNT02B104□425*		100								4250
SNT02B104□436*		100								4360
SNT02B224□470*		220	4700							
SNT02A103□430*		10	5, 10	25/85		4300	2, 3	100		
SNT02B102□365*		1		25/50	3650					
SNT02B474□470*		470		4700						
SNT03A202□340*		0603	2	1, 2, 3, 5, 10	25/85	3400	1, 2, 3	210	Approx. 2.1	Approx. 3.1
SNT03A472□34D*			4.7			3435				
SNT03A472□370*	4.7		3700							
SNT03A502□34D*	5		3435							
SNT03A502□385*	5		3850							
SNT03A682□34D*	6.8		3435							
SNT03A103□34D*	10		3435							
SNT03A103□39H*	10		3975							
SNT03A223□395*	22		3950							
SNT03A333□392*	33		3920							
SNT03A473□39H*	47		3975							
SNT03A503□400*	50		4000							
SNT03A683□400*	68		4000							
SNT03A104□39H*	100		3975							
SNT03A104□405*	100		4050							
SNT03A104□436*	100		4360							
SNT03A154□406*	150		4060							
SNT03A204□410*	200		4100							
SNT03A474□41H*	470		4175							
SNT03B222□395*	2.2		5, 10	25/50	3950	2, 3	100			
SNT03B682□425*	6.8				4250	3				
SNT03B332□365*	3.3		1, 2, 3, 5, 10	25/50	3650	1, 2, 3	210			
SNT03B682□395*	6.8				3950					
SNT03B103□338*	10				3380					
SNT03B103□420*	10				4200					
SNT03B473□425*	47				4250					
SNT03B104□359*	100				3590					
SNT03B104□425*	100				4250					
SNT03B224□450*	220	4500								

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ELECTRICAL CHARACTERISTICS

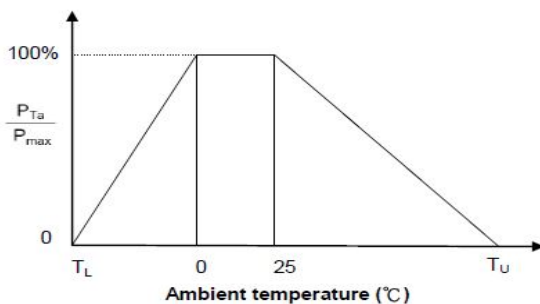
Part No.	Size	Zero Power Resistance	Tolerance of Resistance	B Value	Tolerance of B Value	Max Power Dissipation	Dissipation Factor	Thermal Time Constant	
		R ₂₅ (KΩ)	(± %)	(K)	(± %)	P _{max} (mW)	δ (mW/°C)	τ (sec.)	
SNT05A102□320*	0805	1	1, 2, 3, 5, 10	25/85	1, 2, 3	240	Approx. 2.4	Approx. 5.4	
SNT05A222□345*		2.2							3200
SNT05A502□34D*		5							3450
SNT05A682□34D*		6.8							3435
SNT05A103□34D*		10							3435
SNT05A103□373*		10							3730
SNT05A103□395*		10							3950
SNT05A223□395*		22							3920
SNT05A333□400*		33							4000
SNT05A473□400*		47							4000
SNT05A104□400*		100							4000
SNT05A104□455*		100							4550
SNT05A334□41H*		330							4175
SNT05B103□395*		10							25/50
SNT05B104□425*		100		4250					

Notes: □ = Tolerance of R₂₅, * = Tolerance of B Value; Special specifications are available upon request

RELIABILITY TEST CONDITION AND REQUIREMENT

Test	Standard	Condition	Requirement															
Bending Strength	IEC 60068-2-21	Warp: 2mm (1mm for 0201) Speed < 0.5mm/s for 10 seconds on PCB	ΔR ₂₅ /R ₂₅ ≤ 5% No visible damage															
Solderability	IEC 60068-2-58	Temperature: 245±5°C for 3±0.3 seconds	95% Terminal Coverage															
Resistance to Soldering Heat	IEC 60068-2-58	Temperature: 260±5°C for 10±1 second	ΔR ₂₅ /R ₂₅ ≤ 3% No visible damage															
High Temperature Storage	IEC 60068-2-2	Temperature: 125±5°C for 1000±24 hrs	ΔR ₂₅ /R ₂₅ ≤ 5% No visible damage															
Damp Heat, Steady State	IEC 60068-2-78	Temperature: 40±2°C, Humidity: 90~95%RH For 1000±24 hrs	ΔR ₂₅ /R ₂₅ ≤ 3% No visible damage															
Rapid Change of Temperature	IEC 60068-2-14	Cycle 5 times on PCB <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Duration</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-40±5°C</td> <td>30±3 min</td> </tr> <tr> <td>2</td> <td>Room Temperature</td> <td>5±3 min</td> </tr> <tr> <td>3</td> <td>125±5°C</td> <td>30±3 min</td> </tr> <tr> <td>4</td> <td>Room Temperature</td> <td>5±3 min</td> </tr> </tbody> </table>	Step	Temperature	Duration	1	-40±5°C	30±3 min	2	Room Temperature	5±3 min	3	125±5°C	30±3 min	4	Room Temperature	5±3 min	ΔR ₂₅ /R ₂₅ ≤ 3% No visible damage
Step	Temperature	Duration																
1	-40±5°C	30±3 min																
2	Room Temperature	5±3 min																
3	125±5°C	30±3 min																
4	Room Temperature	5±3 min																
Max Power Dissipation	IEC 60539-1 4.26.3	Temperature: 25±5°C at P _{max} for 1000±24hrs	ΔR ₂₅ /R ₂₅ ≤ 5% No visible damage															

POWER DERATING CURVE



Item	Description
T _U	Maximum Operating Temperature (°C)
T _L	Minimum Operating Temperature (°C)
Example	Ambient Temperature (T _a) = 55°C Maximum Operating Temperature (T _U) = 125°C P _{TA} = (T _U -T _a) / (T _U -25) × P _{max} = 70% P _{max}

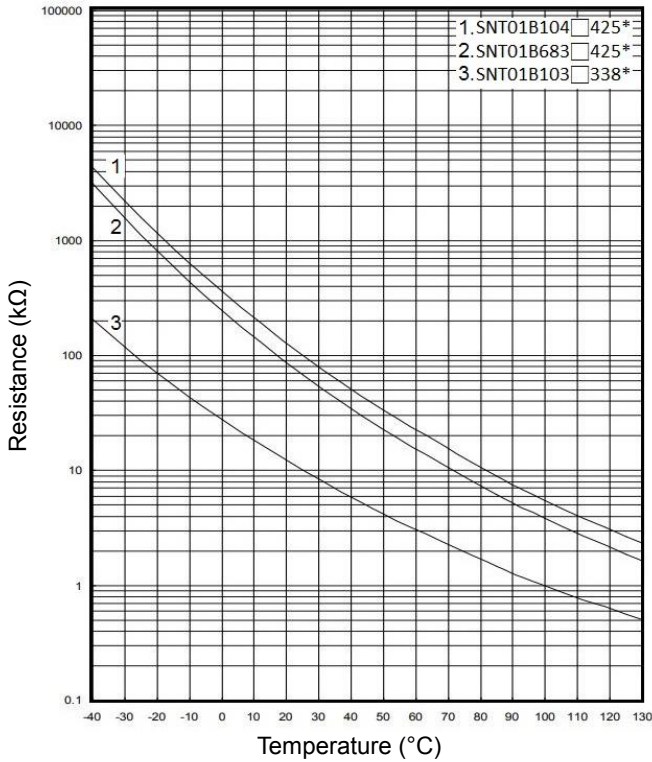
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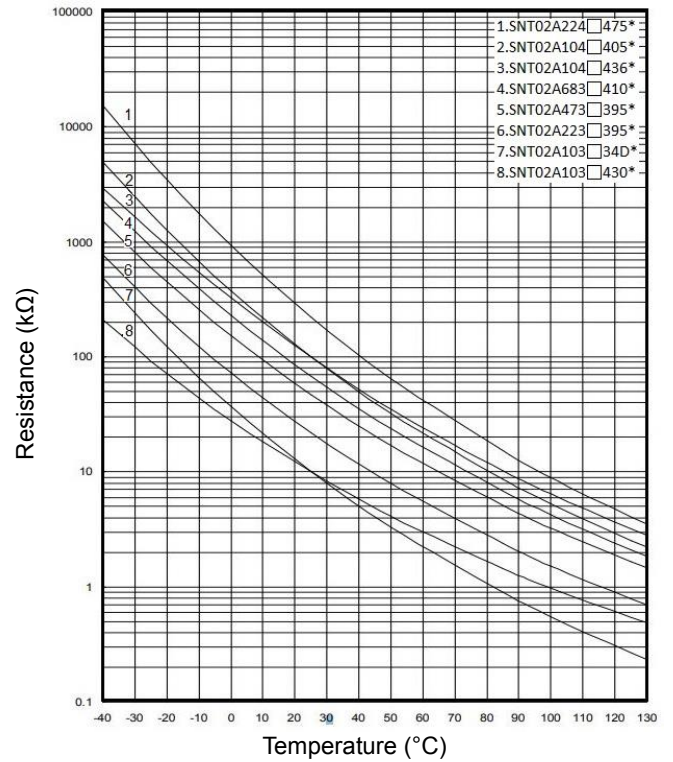
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R-T CHARACTERISTIC CURVES

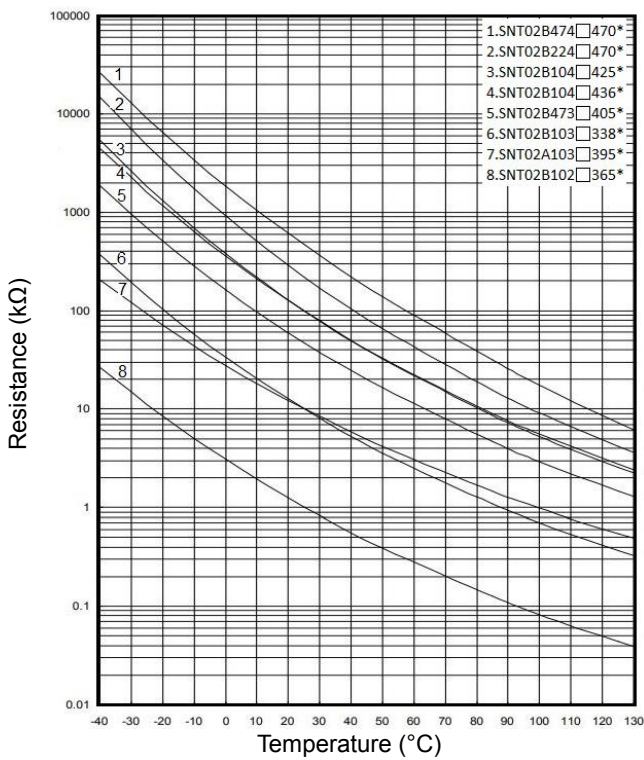
SNT01B103□338* ~ SNT01B104□425*



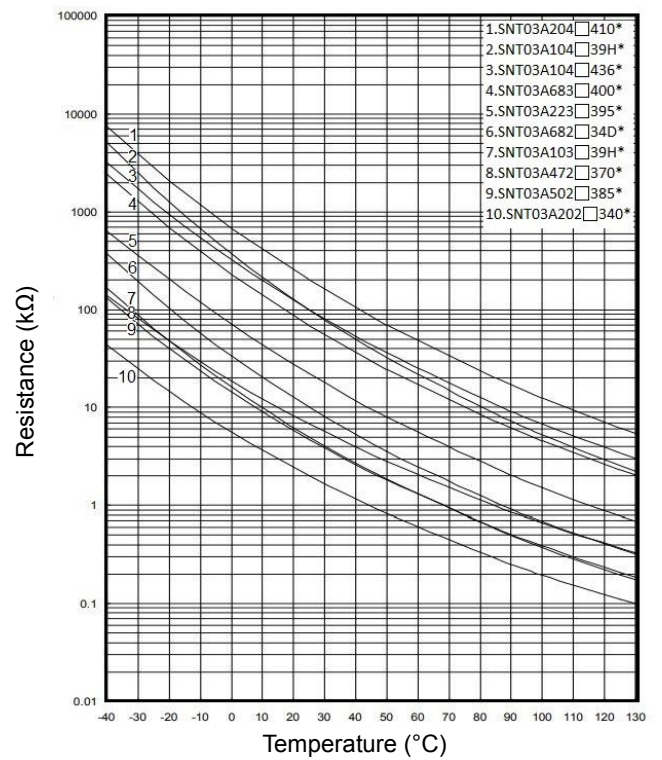
SNT02A103□34D* ~ SNT02A224□475*



SNT02B102□365* ~ SNT02B474□470*



SNT03 A202□340* ~ SNT03A204□410*



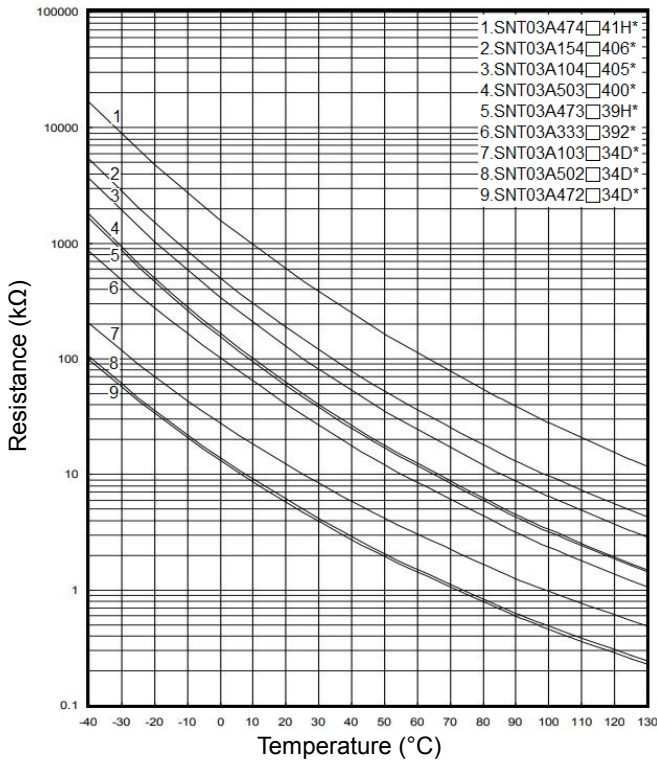
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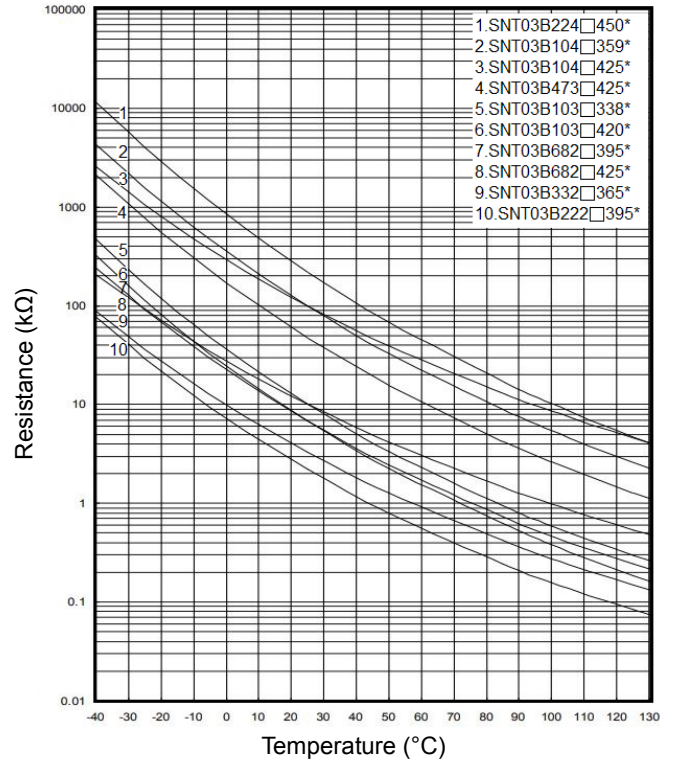
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R-T CHARACTERISTIC CURVES (CONTINUED)

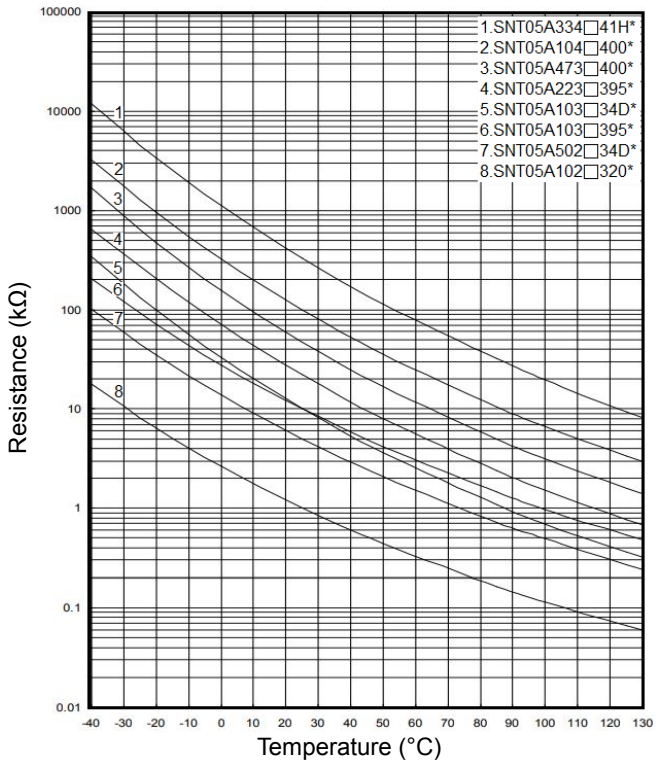
SNT03A472□34D* ~ SNT03A474□41H*



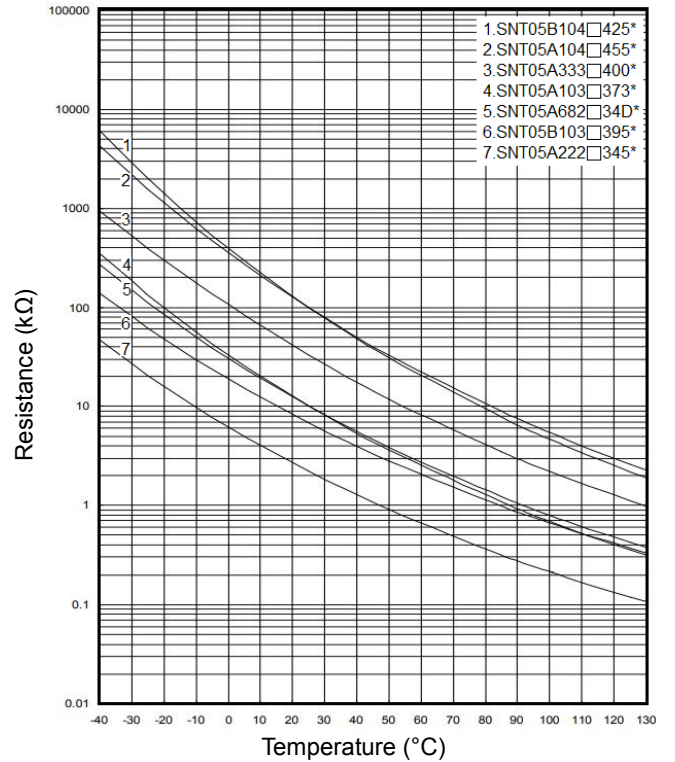
SNT03B222□395* ~ SNT03B224□450*



SNT05A102□320* ~ SNT05A334□41H*



SNT05A222□345* ~ SNT05B104□425*



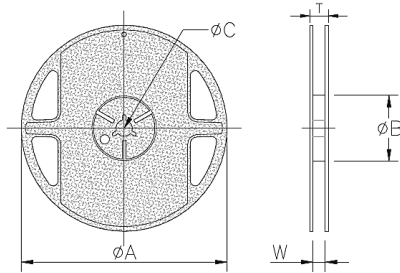
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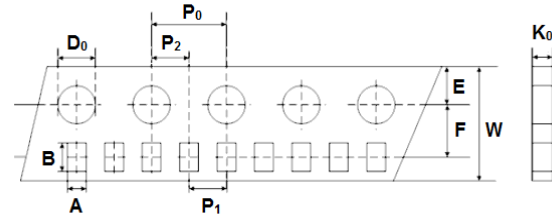
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PACKAGING SPECIFICATIONS

Reel Specification



Tape Specification

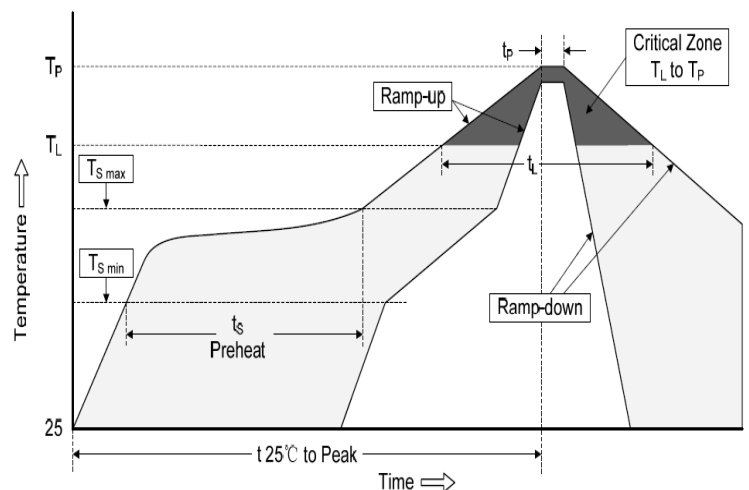


Size	Reel Dimension (mm)							
	Packaging Quantity	Tape Width	Reel Diameter	φA	φB	φC	W	T
0201	15,000	8mm	7"	178.5±1	60±0.5	13.0±0.2	9.0±0.5	12.5±0.15
0402	10,000	8mm	7"	178.5±1	60±0.5	13.0±0.2	9.0±0.5	12.5±0.15
0603	4,000	8mm	7"	178.5±1	60±0.5	13.0±0.2	9.0±0.5	12.5±0.15
0805	3,500	8mm	7"	178.5±1	60±0.5	13.0±0.2	9.0±0.5	12.5±0.15

Size	Tape Dimension (mm)									
	A	B	W	E	F	P ₁	P ₂	P ₀	φD ₀	K ₀
0201	0.38±0.05	0.68±0.12	8±0.2	1.75±0.1	3.5±0.05	2±0.1	2±0.05	4±0.1	1.55±0.1	0.38±0.1
0402	0.62±0.05	1.12±0.12	8±0.2	1.75±0.1	3.5±0.05	2±0.1	2±0.05	4±0.1	1.55±0.1	0.60±0.1
0603	1.1±0.2	1.9±0.2	8±0.2	1.75±0.1	3.5±0.05	4±0.1	2±0.05	4±0.1	1.55±0.1	0.95±0.1
0805	1.5±0.2	2.3±0.2	8±0.2	1.75±0.1	3.5±0.05	4±0.1	2±0.05	4±0.1	1.55±0.1	1.0±0.1

RECOMMENDED SOLDERING PROFILES

Reflow Condition		
Pre Heat	Temp. Min T _{s(min)}	150°C
	Temp. Max T _{s(max)}	200°C
	Time (min. to max.) (t _s)	60~180 seconds
T _{s(max)} to T _L (Ramp-up rate)		3°C/second max.
Average ramp up rate (T _L) to peak		3°C/second max.
Reflow	Temp. (T _L)	217°C
	Time (min. to max.) (t _L)	60~150 seconds
Peak Temperature (T _P)		255°C ~260°C
Time within 5°C of actual peak Temperature (t _p)		20~40 seconds
Ramp-down Rate		6°C/second



*Specifications subject to change without notice.