Chip Power NTC Thermistor – SPNT Series

Operating Temp. : -55℃~+125℃

FEATURES

- Chip ceramic monolithic structure, small size, large power and strong capability of surge current suppression
- Longevity of service, high reliability, small residual resistance
- Big material constant (B value), fast response to surge current
- Excellent security, totally composed of fireproof inorganic material
- Excellent solderability, suitable for surface mounted technology
- Integral series, extensive operating range

APPLICATIONS

- Slim power supply, slim charger
- Conversation Power-supply, switch power, UPS power
- Electronic energy-saving lamps, all kinds of electric heaters
- LED TV and all kinds of displays
- LED lighting and other lighting lamps

PRODUCT IDENTIFICATION

SPNT	451616	X	101	K	4100	H	T
①	②	③	④	⑤	⑥	⑦	⑧

①

Type	
SPNT	Chip Power NTC Thermistor

②

External Dimensions (L×W×H) (mm)	
451616[180606]	4.5×1.6×1.6
453216[181206]	4.5×3.2×1.6
453232[181212]	4.5×3.2×3.2
565020[222008]	5.6×5.0×2.0
565040[222016]	5.6×5.0×4.0
806320[312308]	8.0×6.3×2.0
806340[312316]	8.0×6.3×4.0
1008020[393108]	10.0×8.0×2.0
1008040[393116]	10.0×8.0×4.0

③

Internal Code
X

④

Zero-power Resistance	
Example	Nominal Value
050	5Ω
101	100Ω

⑤

Tolerance of Resistance	
K	±10%
L	±15%
M	±20%

⑥

B Constant (25-50℃)	
Example	Nominal Value
4100	4100K

⑦

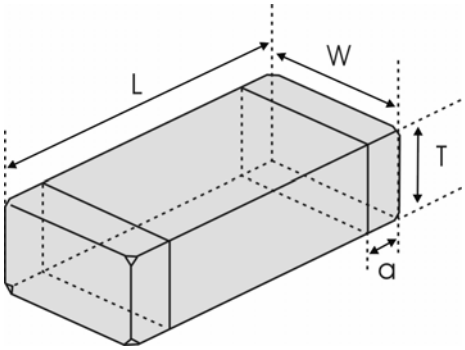
Tolerance of B Constant	
F	±1%
H	±3%

⑧

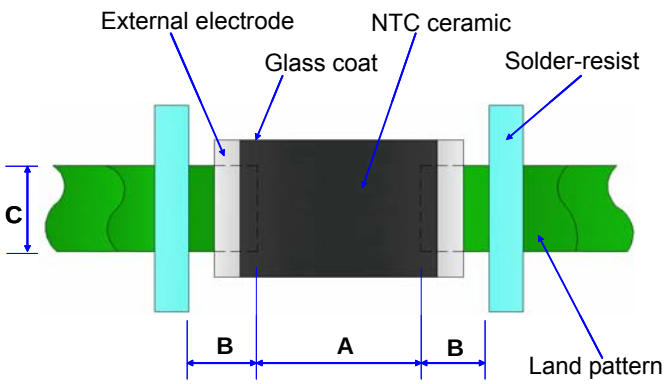
Packing	
T	Tape & Reel

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SHAPE AND DIMENSIONS



Recommended PCB pattern for reflow soldering



Unit: mm [inch]

Type	L	W	T	a	A	B	C
451616 [180606]	4.5±0.25 [.177±.010]	1.6±0.25 [.063±.010]	1.6±0.25 [.063±.010]	0.91±0.04 [.036±.002]	2.8~3.0	1.5~1.8	3.3~3.6
453216 [181206]	4.5±0.25 [.177±.010]	3.2±0.25 [.126±.010]	1.6±0.25 [.063±.010]	0.91±0.04 [.036±.002]	2.8~3.0	1.5~1.8	3.3~3.6
453232 [181212]	4.5±0.25 [.177±.010]	3.2±0.25 [.126±.010]	3.2±0.25 [.126±.010]	0.91±0.04 [.036±.002]	2.8~3.0	1.5~1.8	3.3~3.6
565020 [222008]	5.6±0.25 [.220±.010]	5.0±0.25 [.197±.010]	2.0±0.25 [.079±.010]	0.95±0.04 [.037±.002]	4.0~4.2	1.8~2.0	5.2~5.5
565040 [222016]	5.6±0.25 [.220±.010]	5.0±0.25 [.197±.010]	4.0±0.25 [.157±.010]	0.95±0.04 [.037±.002]	4.0~4.2	1.8~2.0	5.2~5.5
806320 [312308]	8.0±0.25 [.315±.010]	6.3±0.25 [.248±.010]	2.0±0.25 [.079±.010]	0.97±0.04 [.038±.002]	5.8~6.2	1.8~2.2	6.4~6.8
806340 [312316]	8.0±0.25 [.315±.010]	6.3±0.25 [.248±.010]	4.0±0.25 [.157±.010]	0.97±0.04 [.038±.002]	5.8~6.2	1.8~2.2	6.4~6.8
1008020 [393108]	10.0±0.25 [.394±.010]	8.0±0.25 [.315±.010]	2.0±0.25 [.079±.010]	1.21±0.04 [.048±.002]	7.6~8.0	2.2~2.6	8.0~8.4
1008040 [393116]	10.0±0.25 [.394±.010]	8.0±0.25 [.315±.010]	4.0±0.25 [.157±.010]	1.21±0.04 [.048±.002]	7.6~8.0	2.2~2.6	8.0~8.4

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SPECIFICATIONS

SPNT4516 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max.Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Max. Permissive Capacitance @AC220V	Max. Permissive Capacitance @AC110V
Units	Ω	K	A	sec.	mW/℃	μF	μF
Symbol	R25	B25/50	Imax	t	C		
SPNT451616X050□4100◎T	5	4100	2.0	<10	10	22	88
SPNT451616X100□4100◎T	10	4100	1.5			22	88
SPNT451616X150□4100◎T	15	4100	1.5			22	88
SPNT451616X200□4100◎T	20	4100	1.3			22	88
SPNT451616X300□4100◎T	30	4100	1.2			33	132
SPNT451616X500□4100◎T	50	4100	1.0			33	132
SPNT451616X101□4100◎T	100	4100	0.4			33	132

SPNT4532 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max.Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Max. Permissive Capacitance @AC220V	Max. Permissive Capacitance @AC110V
Units	Ω	K	A	sec.	mW/℃	μF	μF
Symbol	R25	B25/50	Imax	t	C		
SPNT453216X050□4100◎T	5	4100	2.0	<20	15	150	600
SPNT453216X100□4100◎T	10	4100	2.0			150	600
SPNT453216X150□4100◎T	15	4100	2.0			150	600
SPNT453216X200□4100◎T	20	4100	1.5			150	600
SPNT453216X300□4100◎T	30	4100	1.5			150	600
SPNT453216X500□4100◎T	50	4100	1.0			150	600
SPNT453216X101□4100◎T	100	4100	0.8			150	600
SPNT453232X050□4100◎T	5	4100	3.0	<25	17	220	880
SPNT453232X100□4100◎T	10	4100	2.5			220	880
SPNT453232X150□4100◎T	15	4100	2.5			220	880
SPNT453232X200□4100◎T	20	4100	2.0			220	880
SPNT453232X300□4100◎T	30	4100	2.0			220	880
SPNT453232X500□4100◎T	50	4100	1.5			220	880
SPNT453232X101□4100◎T	100	4100	1.0			220	880

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SPECIFICATIONS

SPNT5650 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max.Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Max. Permissive Capacitance @AC220V	Max. Permissive Capacitance @AC110V
Units	Ω	K	A	sec.	mW/℃	μF	μF
Symbol	R25	B25/50	Imax	t	C		
SPNT565020X050□4100◎T	5	4100	3.1	<25	18	220	880
SPNT565020X100□4100◎T	10	4100	2.0			220	880
SPNT565020X150□4100◎T	15	4100	1.5			220	880
SPNT565020X200□4100◎T	20	4100	1.5			220	880
SPNT565020X300□4100◎T	30	4100	1.0			220	880
SPNT565020X500□4100◎T	50	4100	1.0			220	880
SPNT565020X101□4100◎T	100	4100	0.8			220	880
SPNT565040X050□4100◎T	5	4100	4.0	<30	20	330	1320
SPNT565040X100□4100◎T	10	4100	3.0			330	1320
SPNT565040X150□4100◎T	15	4100	2.0			330	1320
SPNT565040X200□4100◎T	20	4100	2.0			330	1320
SPNT565040X300□4100◎T	30	4100	1.5			330	1320
SPNT565040X500□4100◎T	50	4100	1.5			330	1320
SPNT565040X101□4100◎T	100	4100	1.0			330	1320

SPNT8063 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max.Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Max. Permissive Capacitance @AC220V	Max. Permissive Capacitance @AC110V
Units	Ω	K	A	sec.	mW/℃	μF	μF
Symbol	R25	B25/50	Imax	t	C		
SPNT806320X050□4100◎T	5	4100	4.0	<40	20	220	880
SPNT806320X100□4100◎T	10	4100	3.0			220	880
SPNT806320X150□4100◎T	15	4100	2.0			220	880
SPNT806320X200□4100◎T	20	4100	2.0			220	880
SPNT806320X300□4100◎T	30	4100	1.5			220	880
SPNT806320X500□4100◎T	50	4100	1.5			220	880
SPNT806320X101□4100◎T	100	4100	1.0			220	880
SPNT806340X050□4100◎T	5	4100	5.0	<45	22	330	1320
SPNT806340X100□4100◎T	10	4100	4.0			330	1320
SPNT806340X150□4100◎T	15	4100	3.0			330	1320
SPNT806340X200□4100◎T	20	4100	3.0			330	1320
SPNT806340X300□4100◎T	30	4100	2.0			330	1320
SPNT806340X500□4100◎T	50	4100	2.0			330	1320
SPNT806340X101□4100◎T	100	4100	1.5			330	1320

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SPECIFICATIONS

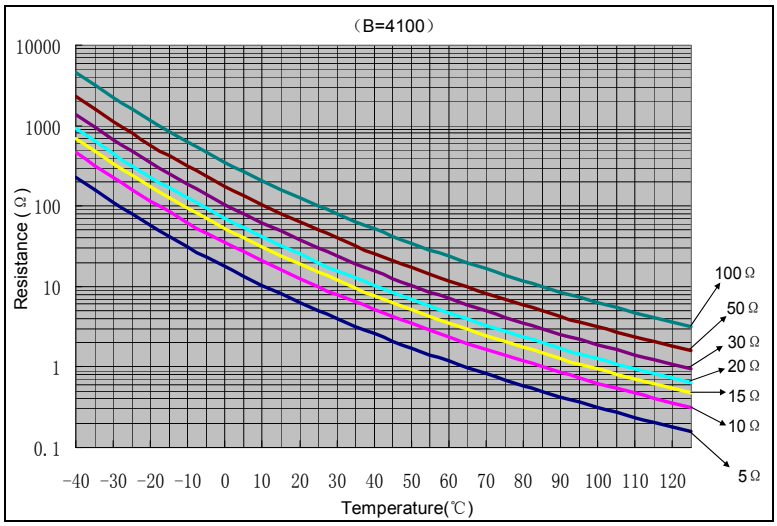
SPNT10080 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max.Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Max. Permissive Capacitance @AC220V	Max. Permissive Capacitance @AC110V
Units	Ω	K	A	sec.	mW/℃	μF	μF
Symbol	R25	B25/50	Imax	t	C		
SPNT1008020X050□4100◎T	5	4100	5.0	<50	23	330	1320
SPNT1008020X100□4100◎T	10	4100	4.0			330	1320
SPNT1008020X150□4100◎T	15	4100	3.0			330	1320
SPNT1008020X200□4100◎T	20	4100	3.0			330	1320
SPNT1008020X300□4100◎T	30	4100	2.0			330	1320
SPNT1008020X500□4100◎T	50	4100	2.0			330	1320
SPNT1008020X101□4100◎T	100	4100	1.5			330	1320
SPNT1008040X050□4100◎T	5	4100	6.0	<55	25	470	1880
SPNT1008040X100□4100◎T	10	4100	5.0			470	1880
SPNT1008040X150□4100◎T	15	4100	4.0			470	1880
SPNT1008040X200□4100◎T	20	4100	4.0			470	1880
SPNT1008040X300□4100◎T	30	4100	3.0			470	1880
SPNT1008040X500□4100◎T	50	4100	3.0			470	1880
SPNT1008040X101□4100◎T	100	4100	2.0			470	1880

※□: Please specify the resistance tolerance code (K=±10%, L=±15%, M=±20%).
※◎: Please specify the B value tolerance code (F=±1%, H=±3%).
And products with other electrical characteristics can be provided upon customer's request. Please contact your local sales.

TYPICAL ELECTRICAL CHARACTERISTICS

R-T Characteristic Curves (representative)



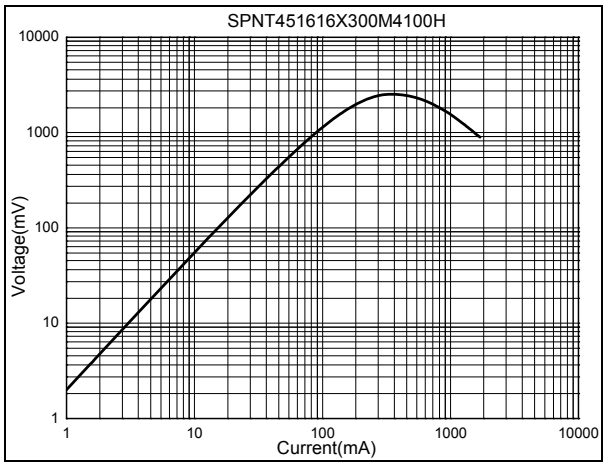
Residual Resistance Comparison

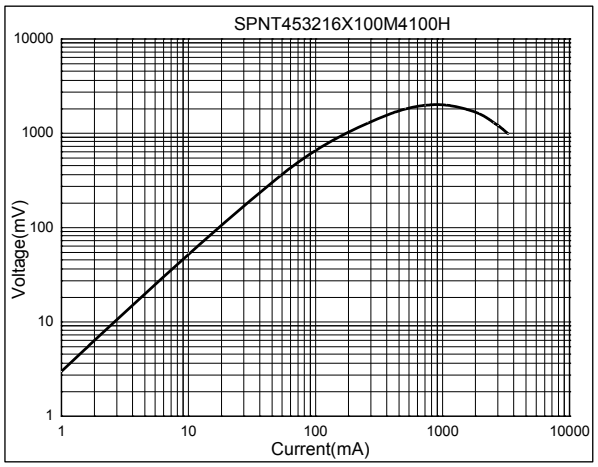
R25 (Ω)	5	10	15	20	30	50	100
Residual resistance (Ω)	0.18	0.36	0.54	0.72	1.08	1.80	2.60

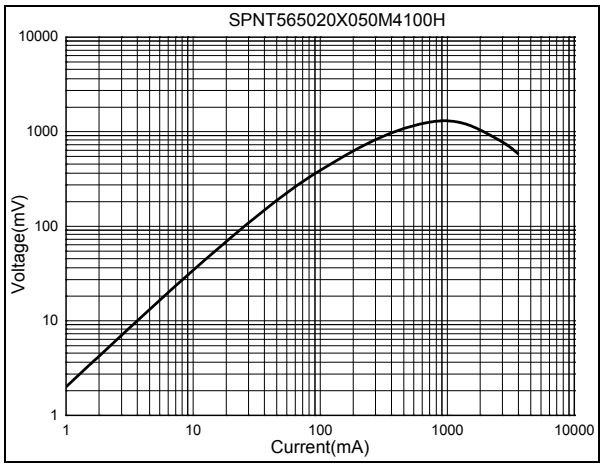
Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

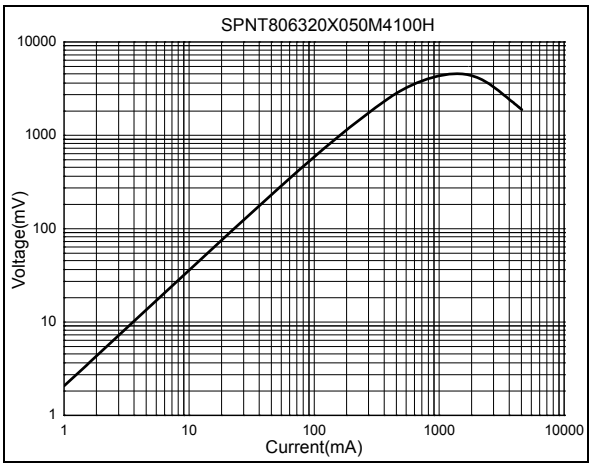
TYPICAL ELECTRICAL CHARACTERISTICS

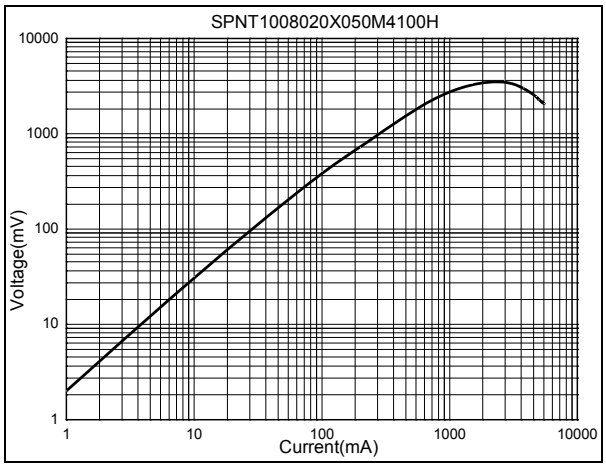
V-I Characteristic Curves (representative)











I-T Characteristics (representative)

Temperature (℃) / Current (A)	40	50	60	70	80	90	100	110	120
SPNT451616X300M4100HT	0.1	0.2	0.4	0.6	0.7	0.9	1.0	1.1	1.2
SPNT453216X100M4100HT	0.2	0.5	0.7	1.0	1.3	1.5	1.8	1.9	2.0
SPNT565020X050M4100HT	0.3	0.6	1.0	1.4	1.7	2.1	2.4	2.8	3.1
SPNT806320X050M4100HT	0.5	0.9	1.3	1.8	2.4	2.9	3.5	3.8	4.0
SPNT1008020X050M4100HT	0.7	1.5	2.1	2.7	3.3	3.8	4.4	4.8	5.0

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

Chip Temp. Sensing NTC Thermistor – SDNT Series

Operating Temp. : -55℃~+125℃

FEATURES

- SMD type suitable for high density mounting
- Series of B constant for various applications
- Excellent solderability

APPLICATIONS

- Telecommunication equipments such as cellular phone, automobile phone, cordless phone, etc.
- Office automation such as printer, facsimile, word processor, etc.
- Consumer electronics such as VCR, DVD, CD players, etc.

PRODUCT IDENTIFICATION

SDNT	1005	X	103	F	3380	F	T	F
①	②	③	④	⑤	⑥	⑦	⑧	⑨

①

Type	
SDNT	Chip NTC Thermistor

②

External Dimensions (L×W) (mm)	
0603 [0201]	0.6×0.3
1005 [0402]	1.0×0.5
1608 [0603]	1.6×0.8
2012 [0805]	2.0×1.25

③

Internal Code
X

④

Zero-power Resistance	
Example	Nominal Value
101	0.1kΩ
103	10kΩ

⑤

Tolerance of Resistance	
F	±1%
H	±3%
J	±5%
K	±10%

⑥

B Constant (25-50℃)	
Example	Nominal Value
3380	3380K
4250	4250K

⑦

Tolerance of B Constant	
F	±1%
H	±3%

⑧

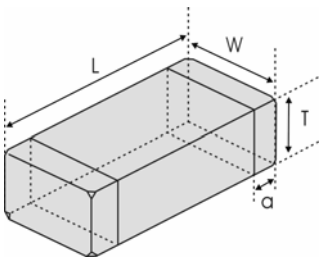
Packing	
T	Tape & Reel

⑨

Hazardous Substance Free Products
F

SHAPE AND DIMENSIONS

Unit: mm [inch]



Type	L	W	T	a
SDNT0603 [0201]	0.6±0.05 [.024±.002]	0.3±0.05 [.012±.002]	0.3±0.05 [.012±.002]	0.15±0.05 [.006±.002]
SDNT1005 [0402]	1.0±0.15 [.039±.006]	0.5±0.15 [.020±.006]	0.5±0.15 [.020±.006]	0.25±0.1 [.010±.004]
SDNT1608 [0603]	1.6±0.15 [.063±.006]	0.8±0.15 [.031±.006]	0.8±0.15 [.031±.006]	0.3±0.2 [.012±.008]
SDNT2012 [0805]	2.0±0.2 [.079±.008]	1.25±0.2 [.049±.008]	0.85±0.2 [.033±.008]	0.5±0.3 [.020±.012]

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SPECIFICATIONS

SDNT0603 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max. Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Rated Electric Power
Units	kΩ	K	mA	sec	mW/℃	mW
Symbol	R25	B25/50	Imax	t	C	P
SDNT0603X103□3380◎TF	10	3380	0.31	<3sec	1.0	100
SDNT0603X683□4150◎TF	68	4150	0.11			
SDNT0603X683□4250◎TF	68	4250	0.11			
SDNT0603X104□4150◎TF	100	4150	0.10			
SDNT0603X104□4250◎TF	100	4250	0.10			

SDNT1005 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max. Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Rated Electric Power
Units	kΩ	K	mA	sec	mW/℃	mW
Symbol	R25	B25/50	Imax	t	C	P
SDNT1005X220□3380◎TF	0.022	3380	6.7	<3sec	1.0	100
SDNT1005X400□3380◎TF	0.040	3380	5.0			
SDNT1005X101□3380◎TF	0.10	3380	3.1			
SDNT1005X151□3380◎TF	0.15	3380	2.5			
SDNT1005X221□3450◎TF	0.22	3450	2.1			
SDNT1005X331□3450◎TF	0.33	3450	1.7			
SDNT1005X471□3450◎TF	0.47	3450	1.4			
SDNT1005X681□3450◎TF	0.68	3450	1.2			
SDNT1005X102□3450◎TF	1.0	3450	1.0			
SDNT1005X152□3950◎TF	1.5	3950	0.81			
SDNT1005X222□3950◎TF	2.2	3950	0.67			
SDNT1005X332□3950◎TF	3.3	3950	0.55			
SDNT1005X472□3500◎TF	4.7	3500	0.44			
SDNT1005X472□3950◎TF	4.7	3950	0.46			
SDNT1005X682□3950◎TF	6.8	3950	0.38			
SDNT1005X103□3380◎TF	10	3380	0.31			
SDNT1005X103□3950◎TF	10	3950	0.33			
SDNT1005X103□4050◎TF	10	4050	0.33			
SDNT1005X153□3450◎TF	15	3450	0.25			
SDNT1005X223□3950◎TF	22	3950	0.23			
SDNT1005X333□3500◎TF	33	3500	0.14			
SDNT1005X473□4050◎TF	47	4050	0.12			
SDNT1005X473□4100◎TF	47	4100	0.12			
SDNT1005X503□4100◎TF	50	4100	0.12			
SDNT1005X683□4150◎TF	68	4150	0.11			
SDNT1005X683□4250◎TF	68	4250	0.11			
SDNT1005X104□4150◎TF	100	4150	0.10			
SDNT1005X104□4250◎TF	100	4250	0.10			
SDNT1005X154□4150◎TF	150	4150	0.08			
SDNT1005X224□4250◎TF	220	4250	0.06			
SDNT1005X334□4300◎TF	330	4300	0.05			
SDNT1005X474□4350◎TF	470	4350	0.04			
SDNT1005X684□4400◎TF	680	4400	0.03			

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

SPECIFICATIONS

SDNT1608 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max. Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Rated Electric Power
Units	kΩ	K	mA	sec	mW/℃	mW
Symbol	R25	B25/50	Imax	t	C	P
SDNT1608X101□3380◎TF	0.10	3380	3.1	<5sec	1.0	100
SDNT1608X151□3380◎TF	0.15	3380	2.5			
SDNT1608X221□3450◎TF	0.22	3450	2.1			
SDNT1608X331□3450◎TF	0.33	3450	1.7			
SDNT1608X471□3450◎TF	0.47	3450	1.4			
SDNT1608X681□3450◎TF	0.68	3450	1.2			
SDNT1608X102□3450◎TF	1.0	3450	1.0			
SDNT1608X152□3450◎TF	1.5	3450	0.81			
SDNT1608X222□3950◎TF	2.2	3950	0.67			
SDNT1608X302□3950◎TF	3.0	3950	0.55			
SDNT1608X332□3950◎TF	3.3	3950	0.55			
SDNT1608X472□3500◎TF	4.7	3500	0.44			
SDNT1608X472□3950◎TF	4.7	3950	0.46			
SDNT1608X502□3950◎TF	5.0	3950	0.44			
SDNT1608X682□3950◎TF	6.8	3950	0.38			
SDNT1608X103□3380◎TF	10	3380	0.31			
SDNT1608X103□3450◎TF	10	3450	0.31			
SDNT1608X103□3950◎TF	10	3950	0.33			
SDNT1608X153□3950◎TF	15	3950	0.25			
SDNT1608X223□3950◎TF	22	3950	0.21			
SDNT1608X223□4050◎TF	22	4050	0.21			
SDNT1608X333□4050◎TF	33	4050	0.17			
SDNT1608X473□4050◎TF	47	4050	0.14			
SDNT1608X473□4150◎TF	47	4150	0.14			
SDNT1608X503□4150◎TF	50	4150	0.13			
SDNT1608X683□4150◎TF	68	4150	0.12			
SDNT1608X104□4250◎TF	100	4250	0.10			
SDNT1608X154□4300◎TF	150	4300	0.08			
SDNT1608X224□4350◎TF	220	4350	0.06			
SDNT1608X334□4400◎TF	330	4400	0.05			
SDNT1608X474□4500◎TF	470	4500	0.04			
SDNT1608X684□4500◎TF	680	4500	0.03			
SDNT1608X135□4700◎TF	1300	4700	0.02			

SDNT2012 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max. Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Rated Electric Power
Units	kΩ	K	mA	sec	mW/℃	mW
Symbol	R25	B25/50	Imax	t	C	P
SDNT2012X101□3380◎TF	0.10	3380	4.0	<5sec	2.0	200
SDNT2012X151□3380◎TF	0.15	3380	3.5			
SDNT2012X221□3450◎TF	0.22	3450	3.0			
SDNT2012X331□3450◎TF	0.33	3450	2.5			
SDNT2012X471□3450◎TF	0.47	3450	2.0			

Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

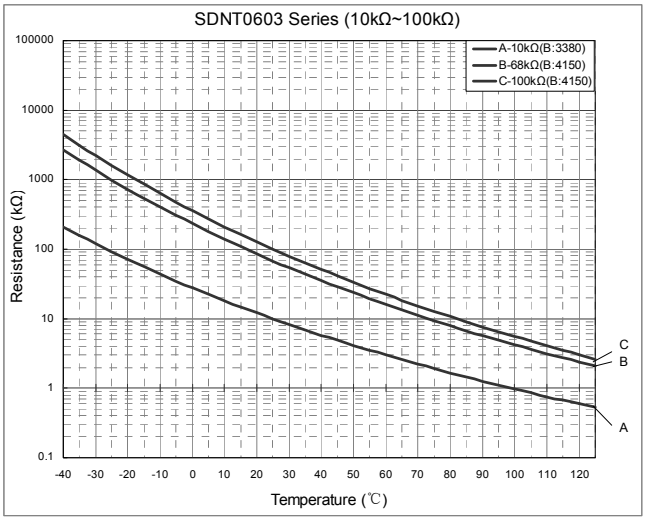
SPECIFICATIONS

SDNT2012 TYPE

Part Number	Resistance at 25℃	B Constant (25-50℃)	Max. Permissive Operating Current (25℃)	Thermal Time Constant	Dissipation Factor	Rated Electric Power
Units	kΩ	K	mA	sec	mW/℃	mW
Symbol	R25	B25/50	Imax	t	C	P
SDNT2012X681□3450◎TF	0.68	3450	1.7	<5sec	2.0	200
SDNT2012X102□3450◎TF	1.0	3450	1.4			
SDNT2012X152□3950◎TF	1.5	3950	1.2			
SDNT2012X202□3950◎TF	2.0	3950	1.0			
SDNT2012X222□3950◎TF	2.2	3950	0.90			
SDNT2012X332□3950◎TF	3.3	3950	0.72			
SDNT2012X472□3500◎TF	4.7	3500	0.63			
SDNT2012X472□3950◎TF	4.7	3950	0.65			
SDNT2012X502□3950◎TF	5.0	3950	0.60			
SDNT2012X682□3950◎TF	6.8	3950	0.50			
SDNT2012X103□3450◎TF	10	3450	0.40			
SDNT2012X103□3950◎TF	10	3950	0.44			
SDNT2012X153□3500◎TF	15	3500	0.32			
SDNT2012X223□4050◎TF	22	4050	0.31			
SDNT2012X333□4050◎TF	33	4050	0.24			
SDNT2012X473□4050◎TF	47	4050	0.20			
SDNT2012X473□4150◎TF	47	4150	0.20			
SDNT2012X503□4150◎TF	50	4150	0.18			
SDNT2012X683□4150◎TF	68	4150	0.16			
SDNT2012X104□4250◎TF	100	4250	0.14			
SDNT2012X154□4300◎TF	150	4300	0.11			
SDNT2012X224□4350◎TF	220	4350	0.08			
SDNT2012X334□4400◎TF	330	4400	0.06			
SDNT2012X474□4500◎TF	470	4500	0.05			
SDNT2012X684□4500◎TF	680	4500	0.04			
SDNT2012X135□4700◎TF	1300	4700	0.03			

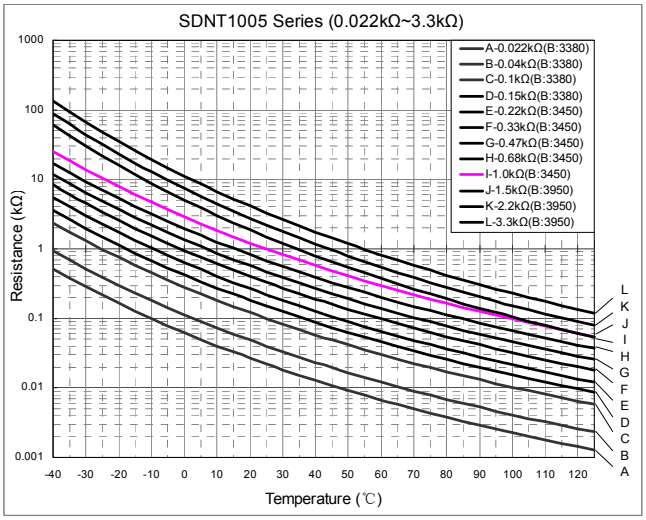
※□: Please specify the resistance tolerance code (F=±1%, H=±3%, J=±5%, K=±10%).
※◎: Please specify the B value tolerance code (F=±1%, H=±3%).
And products with other electrical characteristics can be provided upon customer's request. Please contact your local sales.

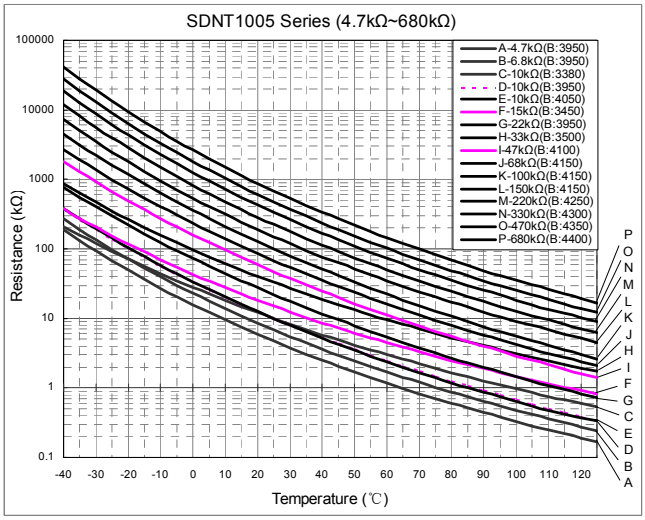
TYPICAL ELECTRICAL CHARACTERISTICS

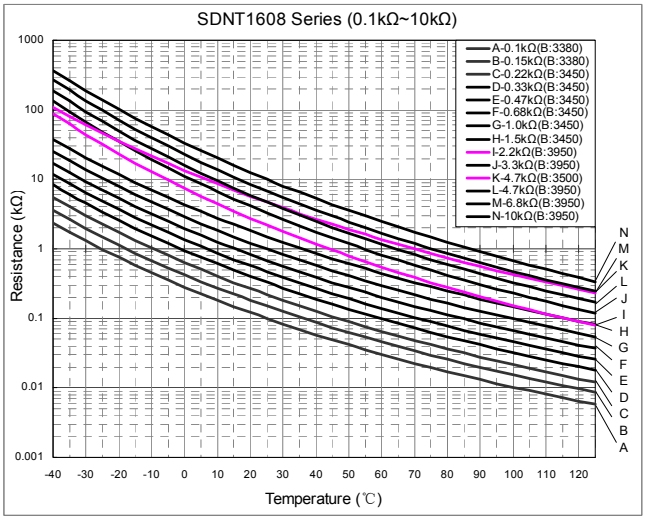


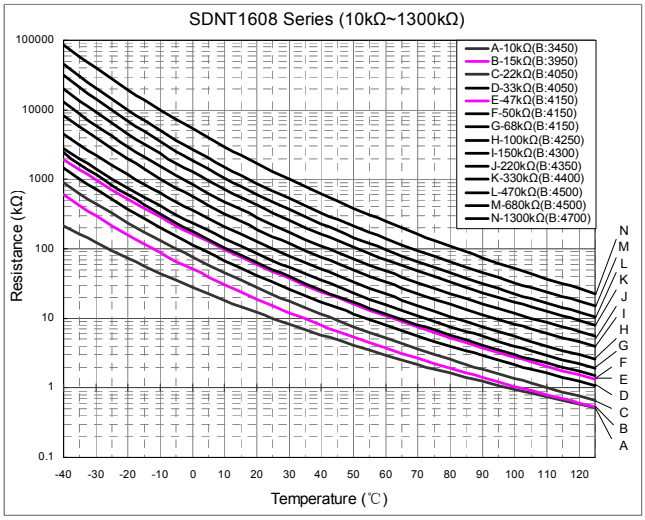
Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com

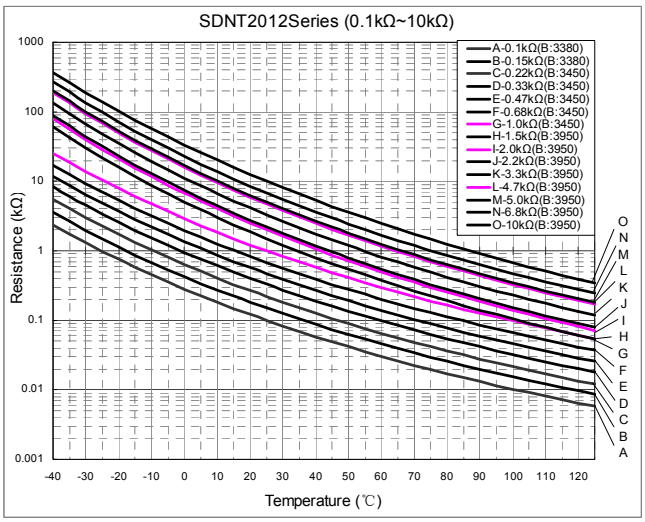
TYPICAL ELECTRICAL CHARACTERISTICS

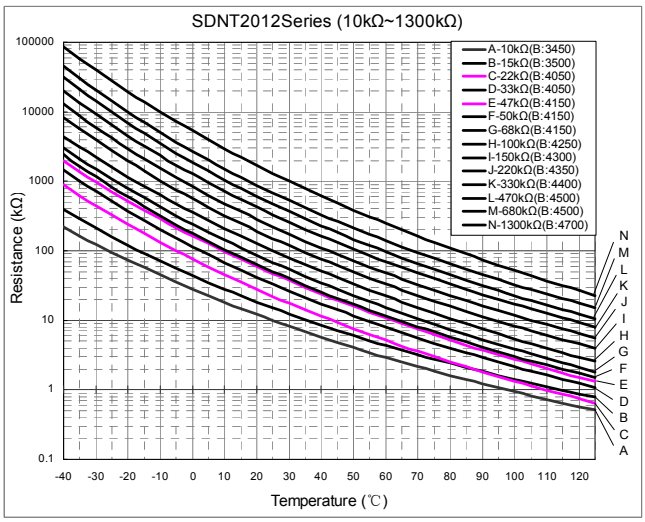












Sunlord Industrial Park, Dafuyuan Industrial Zone, Guanlan, Shenzhen, China 518110 **Tel**: 0086-755-29832660 **Fax**: 0086-755-82269029 **E-Mail**: sunlord@sunlordinc.com