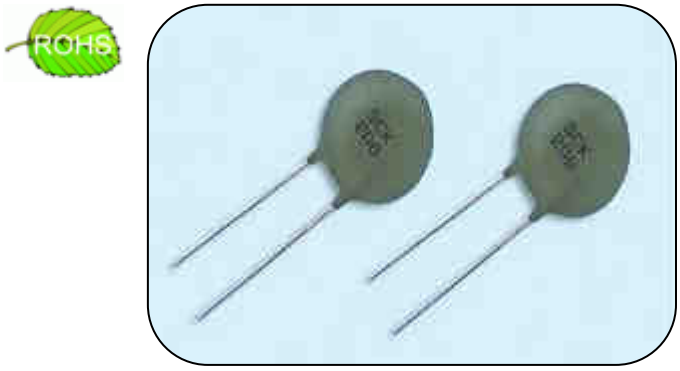
NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

■ Features



1. RoHS compliant
2. Body size Φ5mm~ Φ 30mm
3. Radial lead resin coated
4. High power rating
5. Wide resistance range
6. Cost effective
7. Operating temperature range：
   Φ5mm：-40~+150℃
   Φ8~Φ10mm：-40~+170℃
   Φ13mm~Φ30mm：-40~+200℃
8. Agency recognition: UL /cUL/TUV /CSA/CQC

■ Recommended Applications

1. Switch mode power supply
2. Electric motor
3. Transformer
4. Adapter
5. Projector
6. Halogen lamp

■ Part Number Code

● Φ 5mm~ Φ 15mm

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Product Type	
SCK	Thinking NTC thermistor SCK type

Body Size	
05	Φ 5mm
08	Φ 8mm
10	Φ 10mm
13	Φ 13mm
15	Φ 15mm

Zero Power Resistance at 25℃ (R_{25})	
0R5	0.5Ω
2R5	2.5Ω
08	8Ω
20	20Ω
120	120Ω

Max Steady State Current at 25℃	
X3	0.3A
2X	2.5A
8	8A
10	10A

Tolerance of R_{25}	
L	±15%
M	±20%
N	±25%

Appearance	
S	Straight lead
I	Inner kink lead
F	Y kink lead

Optional Suffix	
Y	RoHS compliant

● Φ 20mm~ Φ 30mm

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Product Type	
SCK	Thinking NTC thermistor SCK type

Body Size	
20	Φ 20mm
25	Φ 25mm
30	Φ 30mm

Zero Power Resistance at 25℃ (R_{25})
R_{25}＜10Ω 0R7:0.7Ω 2R5:2.5Ω
R_{25}≧10Ω 100:10Ω 470:47Ω 471:470Ω

Tolerance of R_{25}	
L	±15%
M	±20%
N	±25%

Appearance	
S	Straight lead
I	Inner kink lead
F	Y kink lead

Packaging	
B	Bulk

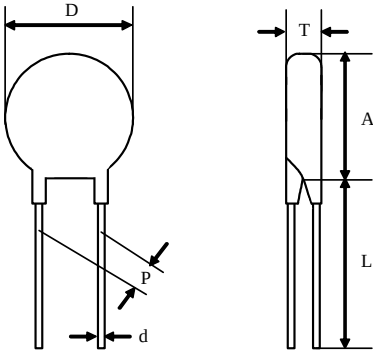
Optional Suffix	
Y	RoHS compliant

NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

■ Structure and Dimensions

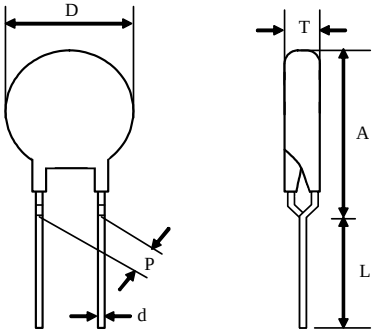
S Type (Straight lead)



(Unit:mm)

Body Size	Dmax.	P.	d	Amax.	Lmin.	Tmax.
ϕ05	6.5	4±0.6	0.8±0.02	6.5	31	5
ϕ08	9.5	5±0.8	0.8±0.02	9.5	31	5
ϕ10	11.5	5±0.8	0.8±0.02	11.5	31	5
ϕ13	14.5	7.5±1	0.8±0.02	14.5	30	6
ϕ15	16.5	7.5±1	1.0±0.02	16.5	29	6
ϕ20	21.5	7.5±1	1.0±0.02	21.5	26	6
ϕ25	29	7.5±1	1.0±0.02	29	25	7
ϕ30	36	7.5±1	1.0±0.02	36	23	8

F Type (Y kink lead)



(Unit:mm)

Body Size	Dmax.	P	d	Amax.	Lmin.	Tmax.
ϕ08	9.5	5±0.8	0.8±0.02	13	29	5
ϕ10	11.5	5±0.8	0.8±0.02	15	29	5
ϕ13	14.5	7.5±1	0.8±0.02	17.5	27	6
ϕ15	16.5	7.5±1	1±0.02	20	26	6
ϕ20	21.5	7.5±1	1±0.02	28	25	6
ϕ25	29	7.5±1	1±0.02	35	22	7
ϕ30	36	7.5±1	1±0.02	42	22	8

I Type (Inner kink lead)

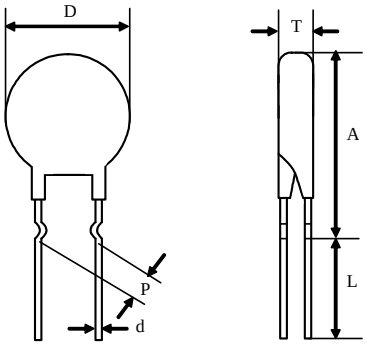


Figure A

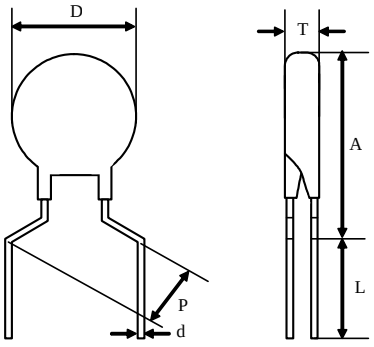


Figure B

(Unit:mm)

Body Size	Dmax.	P	d	Amax.	Lmin.	Tmax.	Figure
ϕ05	6.5	5±0.8	0.8±0.02	10	29	5	B
ϕ08	9.5	5±0.8	0.8±0.02	16	25	5	A
ϕ10	11.5	5±0.8	0.8±0.02	17	25	5	A
ϕ13	14.5	7.5±1	0.8±0.02	20	25	6	A
ϕ15	16.5	7.5±1	1±0.02	23	25	6	A
ϕ20	21.5	7.5±1	1±0.02	28	24	6	A
ϕ25	29	7.5±1	1±0.02	35	22	7	A
ϕ30	36	7.5±1	1±0.02	42	22	8	A

NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

■ Electrical Characteristics

Part No.	Zero Power Resistance at 25℃	Max. Steady State Current at 25℃	Residual Resistance at 25℃ Imax	Max. Power Rating at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals				
								UL	cUL	CSA	TUV	CQC
	R_{25}(Ω)	I_{max}(A)	R_{Imax}(Ω)	P_{max}(W)	δ(mW/℃)	τ(Sec.)	T_L~T_U(℃)					
SCK05052□	5	2	0.429	1.8	Approx. 15	Approx. 17	-40 ~ +150	√	√	√	√	√
SCK05081□	8	1	1.089					√	√		√	√
SCK05101□	10	1	1.126					√	√	√	√	√
SCK05121□	12	1	1.184					√	√		√	√
SCK0520X3□	20	0.3	5.560					√	√	√	√	√
SCK08042□	4	2	0.441	2.3	Approx. 16	Approx. 38	-40 ~ +170	√	√	√	√	√
SCK084R72□	4.7	2	0.445					√	√	√	√	√
SCK08053□	5	3	0.261					√	√	√	√	√
SCK08063□	6	3	0.283					√	√	√	√	√
SCK08073□	7	3	0.287					√	√		√	√
SCK08082□	8	2	0.520					√	√	√	√	√
SCK08102□	10	2	0.542					√	√	√	√	√
SCK08152□	15	2	0.548					√	√	√	√	√
SCK08201□	20	1	1.544					√	√	√	√	√
SCK0830X□	30	0.5	4.094					√	√	√	√	√
SCK10015□	1	5	0.091	2.4	Approx. 17	Approx. 43	-40 ~ +170	√	√		√	√
SCK101R35□	1.3	5	0.095					√	√		√	√
SCK101R55□	1.5	5	0.101					√	√		√	√
SCK102R55A□	2.5	5	0.120					√	√	√	√	√
SCK10035□	3	5	0.127					√	√	√	√	√
SCK10044□	4	4	0.161					√	√	√	√	√
SCK10054□	5	4	0.180					√	√	√	√	√
SCK106R83□	6.8	3	0.270					√	√	√	√	√
SCK10083□	8	3	0.278					√	√	√	√	√
SCK10103□	10	3	0.297					√	√	√	√	√
SCK10123□	12	3	0.301					√	√	√	√	√
SCK10133□	13	3	0.356					√	√	√	√	√
SCK10152X□	15	2.5	0.442					√	√	√	√	√
SCK10162X□	16	2.5	0.471					√	√	√	√	√
SCK10202□	20	2	0.646					√	√	√	√	√
SCK10222□	22	2	0.659					√	√		√	√
SCK10252□	25	2	0.674					√	√	√	√	√
SCK10302□	30	2	0.700					√	√	√	√	√
SCK10472□	47	2	0.720					√	√	√	√	√
SCK10502□	50	2	0.813					√	√	√	√	√
SCK10801□	80	1	2.236					√	√	√	√	√
SCK101001□	100	1	2.318					√	√	√	√	√
SCK101201□	120	1	2.406					√	√	√	√	√
SCK13013□	1	3	0.174	3.1	Approx . 18	Approx. 66	-40 ~ +200	√	√		√	√
SCK131R37□	1.3	7	0.070					√	√		√	√
SCK132R56□	2.5	6	0.094					√	√	√	√	√
SCK13045□	4	5	0.132					√	√		√	√
SCK134R74□	4.7	4	0.168					√	√		√	√
SCK13055□	5	5	0.166					√	√	√	√	√
SCK13074□	7	4	0.184					√	√		√	√
SCK13084□	8	4	0.206					√	√	√	√	√
SCK13104□	10	4	0.217					√	√	√	√	√
SCK13124□	12	4	0.230					√	√	√	√	√
SCK13153□	15	3	0.343					√	√	√	√	√
SCK13163□	16	3	0.348					√	√	√	√	√
SCK13183□	18	3	0.365					√	√	√	√	√
SCK13203□	20	3	0.410					√	√	√	√	√

NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

Part No.	Zero Power Resistance at 25℃	Max. Steady State Current at 25℃	Residual Resistance at 25℃ Imax	Max. Power Rating at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals				
								UL	cUL	CSA	TUV	CQC
	R_{25}(Ω)	I_{max}(A)	R_{Imax}(Ω)	P_{max}(W)	δ(mW/℃)	τ(Sec.)	T_L~T_U(℃)					
SCK150R78A□	0.7	8	0.051	3.6	Approx. 21	Approx. 75	-40 ~ +200	√	√		√	√
SCK15018□	1	8	0.054					√	√			
SCK151R38□	1.3	8	0.064					√	√	√	√	√
SCK151R58□	1.5	8	0.068					√	√	√	√	√
SCK15028□	2	8	0.078					√	√		√	√
SCK152R58□	2.5	8	0.086					√	√	√	√	√
SCK15037□	3	7	0.091					√	√	√	√	√
SCK15046□	4	6	0.117					√	√	√	√	√
SCK15056□	5	6	0.121					√	√	√	√	√
SCK15065□	6	5	0.159					√	√	√	√	√
SCK15075□	7	5	0.161					√	√	√	√	√
SCK15085□	8	5	0.165					√	√		√	√
SCK15105□	10	5	0.178					√	√	√	√	√
SCK15125□	12	5	0.185					√	√	√	√	√
SCK15154□	15	4	0.261					√	√	√	√	√
SCK15164□	16	4	0.265					√	√	√	√	√
SCK15184□	18	4	0.273					√	√	√	√	√
SCK15204□	20	4	0.283					√	√	√	√	√
SCK15224□	22	4	0.308					√	√		√	√
SCK15253□	25	3	0.425					√	√	√	√	√
SCK15303□	30	3	0.461					√	√	√	√	√
SCK15333□	33	3	0.484					√	√		√	√
SCK15403□	40	3	0.511					√	√	√	√	√
SCK15473□	47	3	0.517					√	√	√	√	√
SCK15802X□	80	2.5	0.693					√	√	√	√	√
SCK151202□	120	2	1.010					√	√	√	√	√
SCK200R7□	0.7	15	0.035	4.9	Approx. 28	Approx. 113	-40~+200	√	√			√
SCK201R0□	1	13	0.034					√	√			√
SCK201R5□	1.5	10.5	0.041					√	√			√
SCK202R0□	2	10	0.062					√	√			√
SCK202R5□	2.5	9	0.083					√	√			√
SCK203R0□	3	8.5	0.078					√	√			√
SCK204R0□	4	8	0.080					√	√			√
SCK204R7□	4.7	7.5	0.114					√	√			√
SCK205R0□	5	7.5	0.118					√	√			√
SCK206R0□	6	7	0.120					√	√			√
SCK206R8□	6.8	6.5	0.130					√	√			√
SCK207R0□	7	6.5	0.132					√	√			√
SCK208R0□	8	6	0.161					√	√			√
SCK20100□	10	5.5	0.196					√	√			√
SCK20120□	12	5	0.197					√	√			√
SCK20130□	13	5	0.213					√	√			√
SCK20150□	15	4.5	0.258					√	√			√
SCK20160□	16	4.5	0.276					√	√			√
SCK20180□	18	4	0.280					√	√			√
SCK20200□	20	4	0.306					√	√			√

NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

Part No.	Zero Power Resistance at 25℃	Max. Steady State Current at 25℃	Residual Resistance at 25℃ Imax	Max. Power Rating at 25℃	Dissipation Factor	Thermal Time Constant	Operating Temperature Range	Safety Approvals				
								UL	cUL	CSA	TUV	CQC
	R_{25}(Ω)	I_{max}(A)	R_{Imax}(Ω)	P_{max}(W)	δ(mW/℃)	τ(Sec.)	T_L~T_U(℃)					
SCK251R0□	1	20	0.020	7.0	Approx. 30	Approx. 130	-40 ~ +200	√	√			√
SCK251R5□	1.5	18.5	0.023					√	√			√
SCK252R0□	2	18	0.025					√	√			√
SCK252R5□	2.5	15	0.032					√	√			√
SCK253R0□	3	14.5	0.042					√	√			√
SCK254R0□	4	14	0.044					√	√			√
SCK254R7□	4.7	13	0.052					√	√			√
SCK255R0□	5	12	0.061					√	√			√
SCK256R8□	6.8	10.5	0.082					√	√			√
SCK257R0□	7	10	0.092					√	√			√
SCK258R0□	8	9	0.115					√	√			√
SCK25100□	10	8	0.141					√	√			√
SCK25120□	12	7.5	0.164					√	√			√
SCK25150□	15	6.5	0.210					√	√			√
SCK25180□	18	5.5	0.231					√	√			√
SCK25200□	20	5	0.270					√	√			√
SCK301R0□	1	30	0.016	8.0	Approx. 40	Approx. 190	-40 ~ +200	√	√			√
SCK301R5□	1.5	25	0.020					√	√			√
SCK302R0□	2	23	0.022					√	√			√
SCK302R5□	2.5	18	0.030					√	√			√
SCK303R0□	3	17	0.035					√	√			√
SCK304R0□	4	16	0.048					√	√			√
SCK304R7□	4.7	15	0.055					√	√			√
SCK305R0□	5	14	0.057					√	√			√
SCK306R8□	6.8	12	0.077					√	√			√
SCK307R0□	7	11.5	0.084					√	√			√
SCK308R0□	8	10.5	0.100					√	√			√
SCK30100□	10	10	0.115					√	√			√
SCK30120□	12	9	0.142					√	√			√
SCK30150□	15	8	0.175					√	√			√
SCK30180□	18	7	0.210					√	√			√
SCK30200□	20	6	0.233					√	√			√

Note1 : □ = Tolerance of R_{25}

Note2：UL&cUL file no. E138827

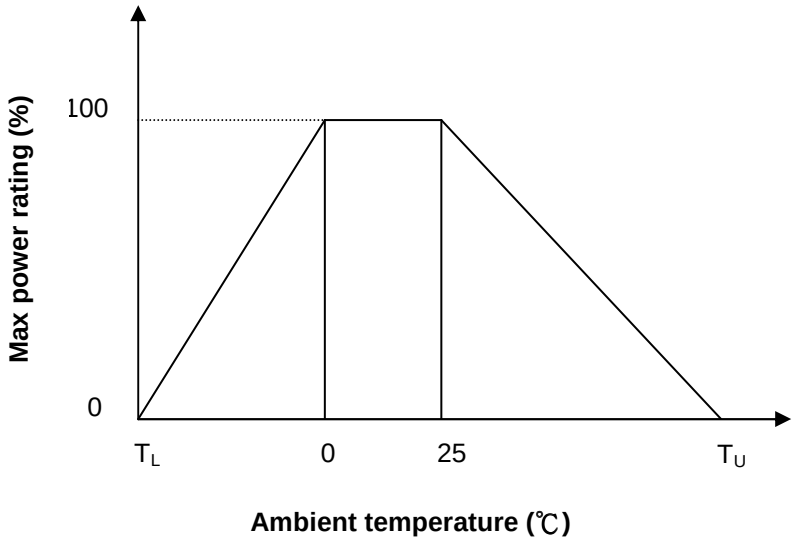
CSA file no. 97495

TUV File no. R 50050155

CQC File no. CQC04001011942~944；CQC04001011963~965；CQC05001011984~985；

CQC05001011988~990；CQC05001011993

■ Power Derating Curve



T_U：Maximum operating temperature (℃)

T_L：Miniimum operating temperature (℃)

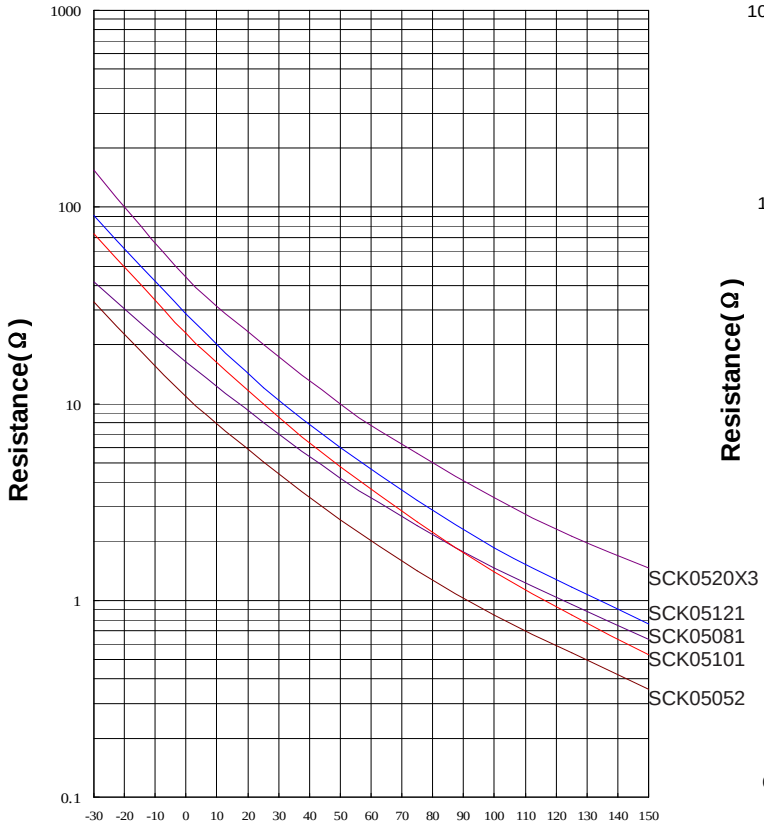
For example：Ambient temperature(Ta)＝55℃

Maximum operating temperature(T_U)＝200℃

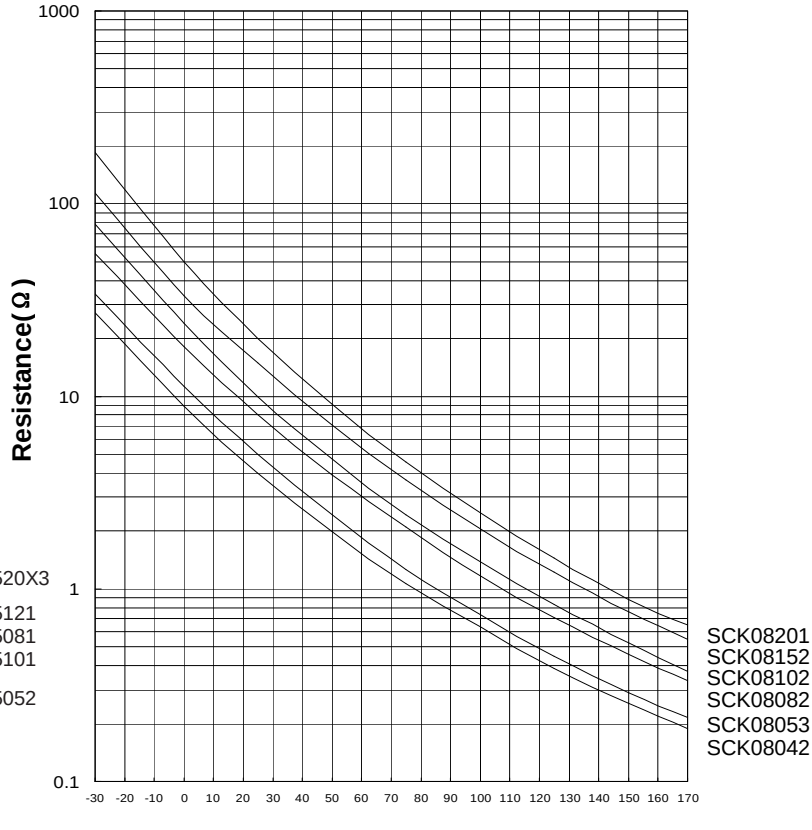
$P_{Ta}=(T_U-Ta)/(T_U-25)\times Pmax \fallingdotseq 82\%\ Pmax$

■ R-T Characteristic Curves (representative)

SCK05052~SCK0520X3



SCK08042~SCK08201

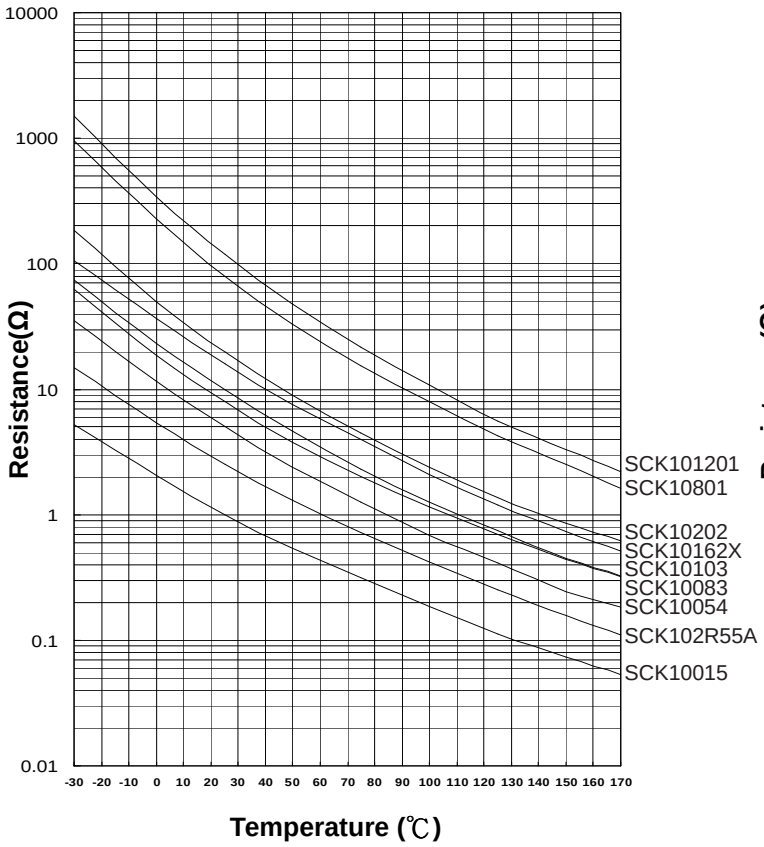


NTC Thermistor：SCK Type

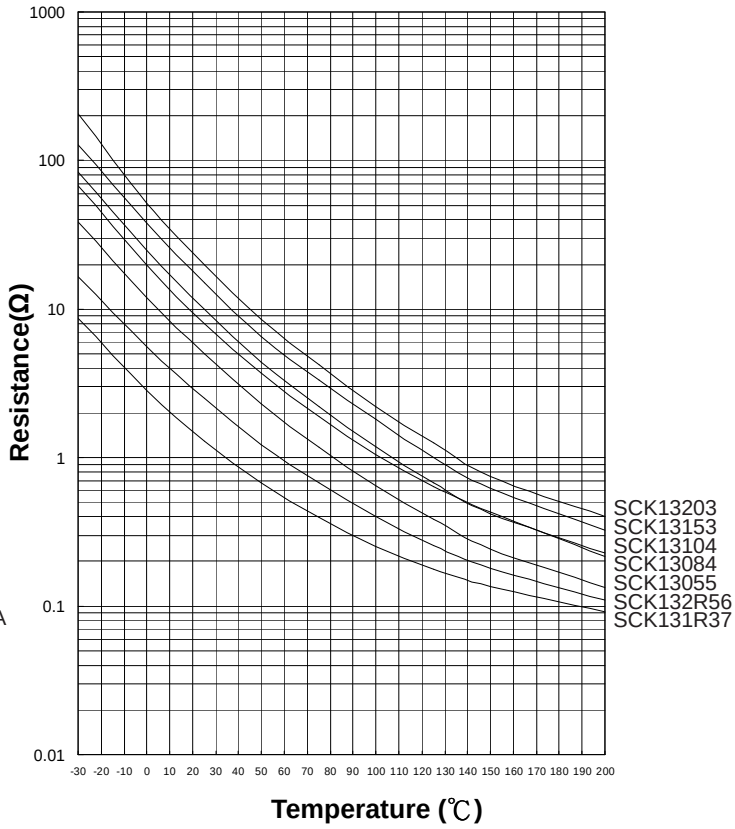
Power Thermistor for Inrush Current Limiter

■ R-T Characteristic Curves (representative)

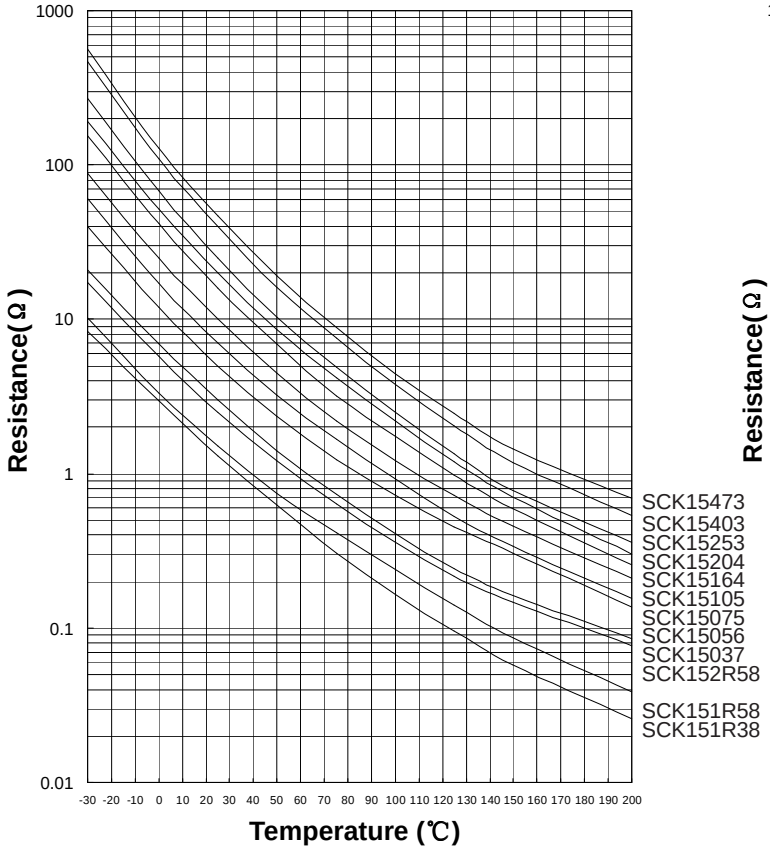
SCK10015~SCK101201



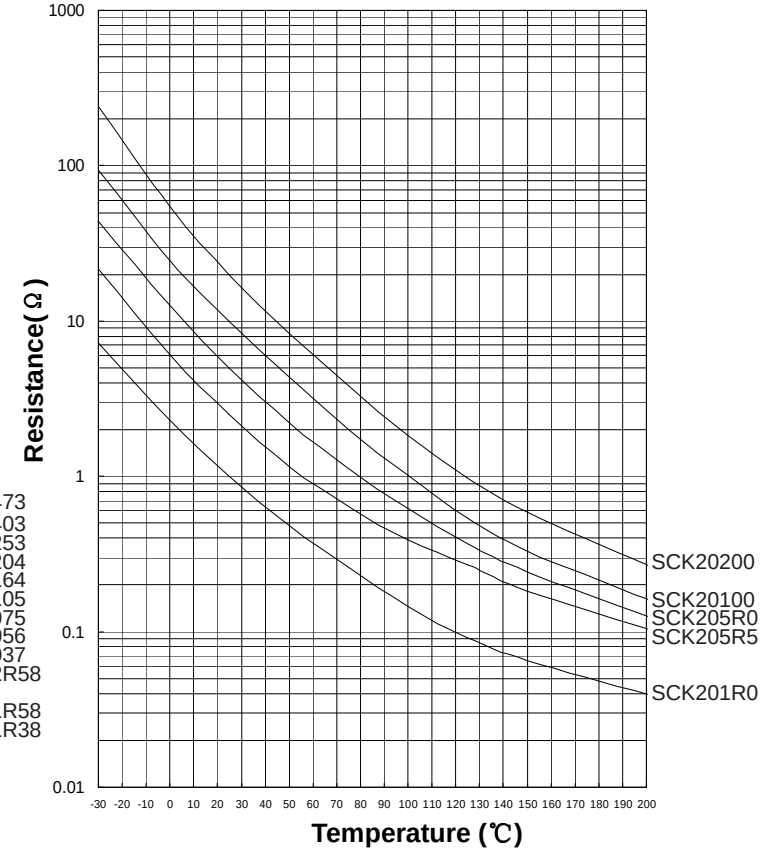
SCK131R37~SCK13203



SCK151R38~SCK15473

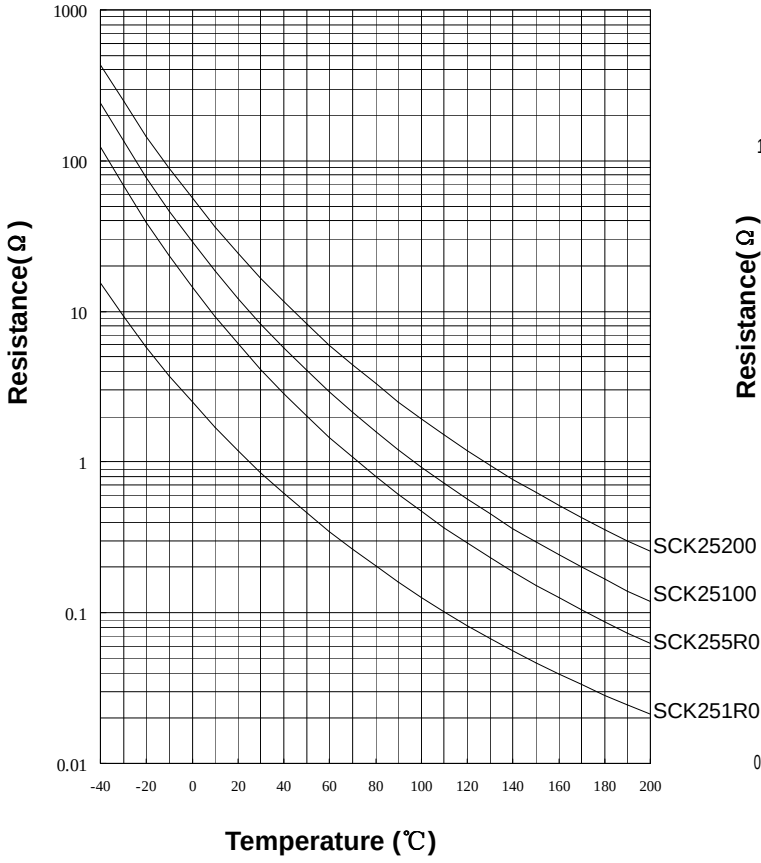


SCK201R0~SCK20200

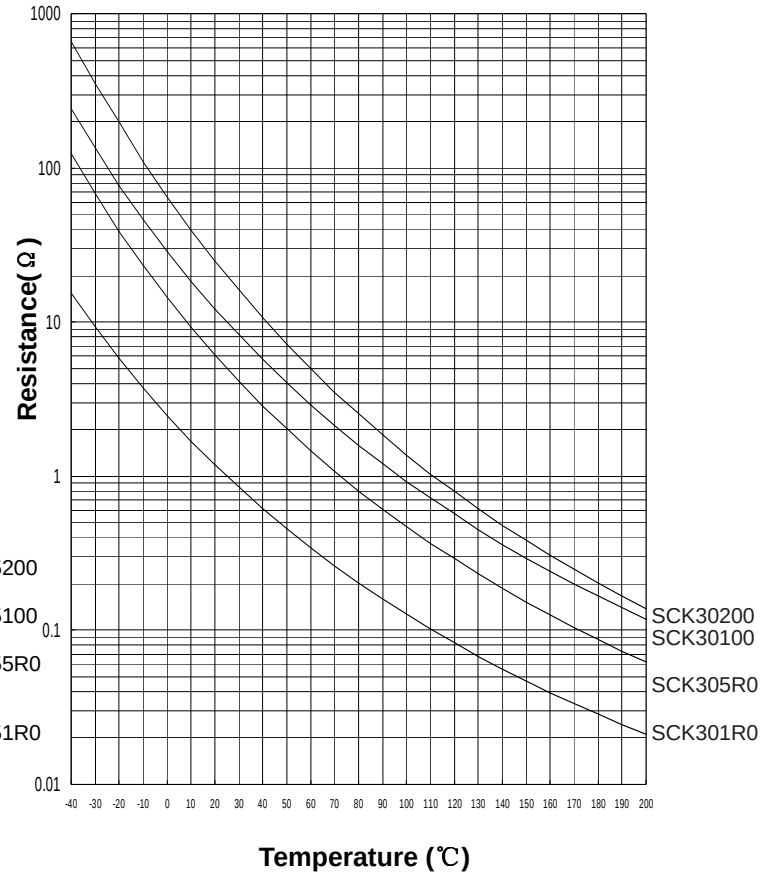


■ R-T Characteristic Curves (representative)

SCK251R0~SCK25200

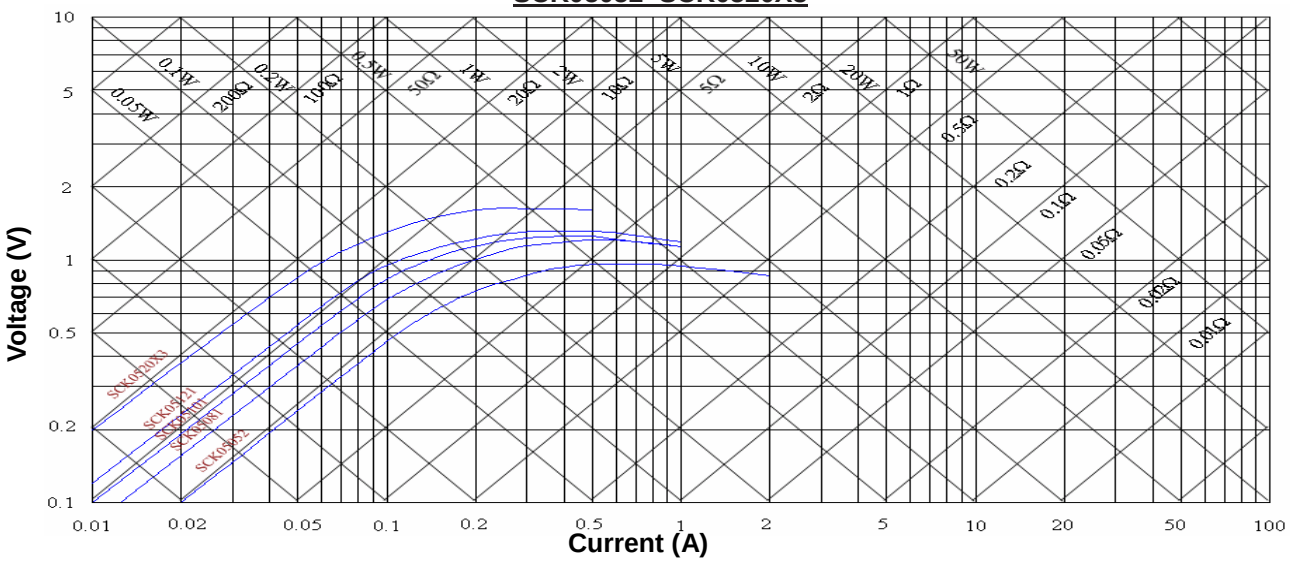


SCK301R0~SCK30200

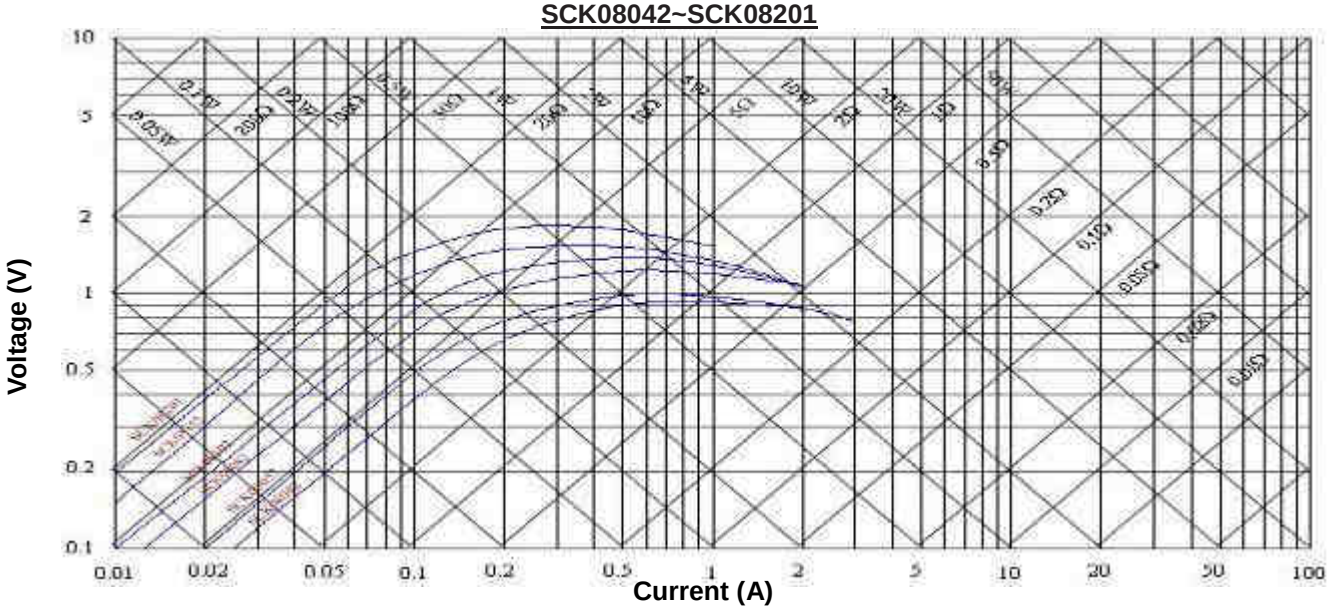


■ **V-I Characteristic Curves (representative)**

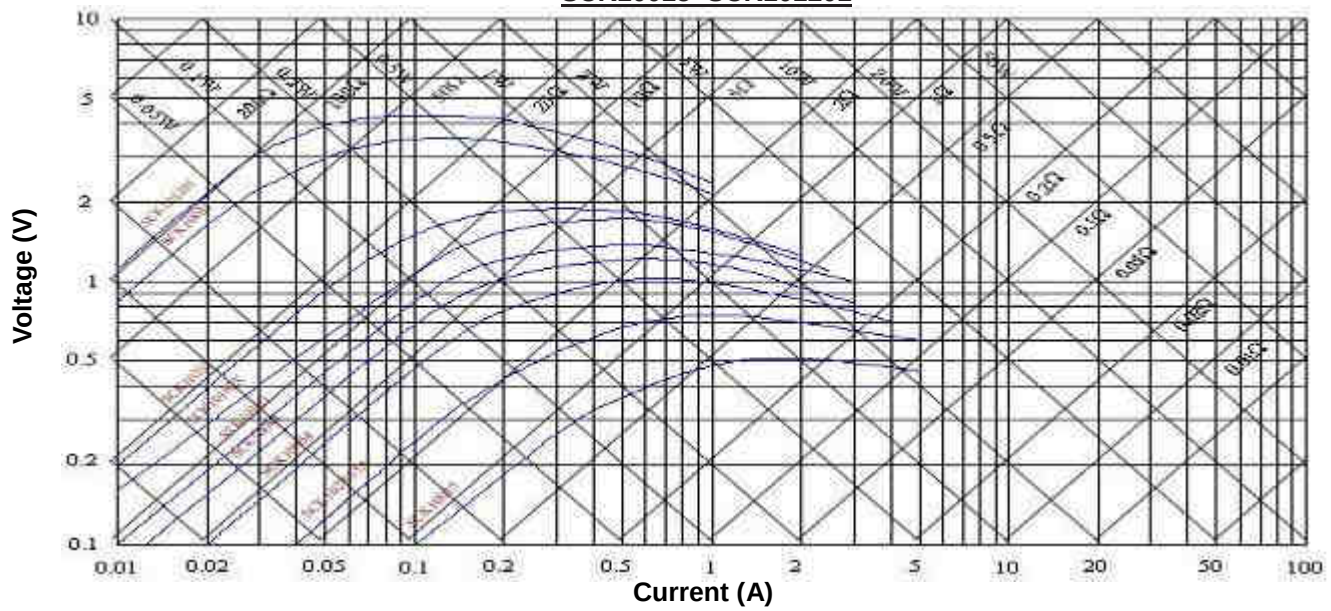
SCK05052~SCK0520X3



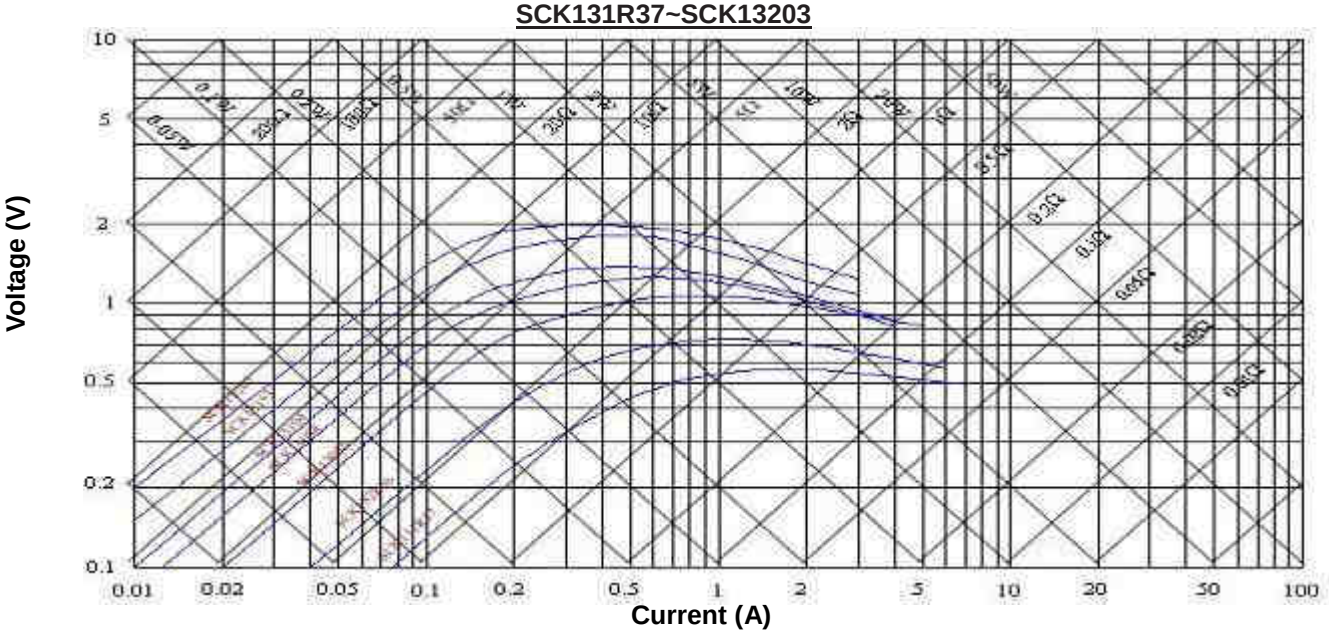
SCK08042~SCK08201



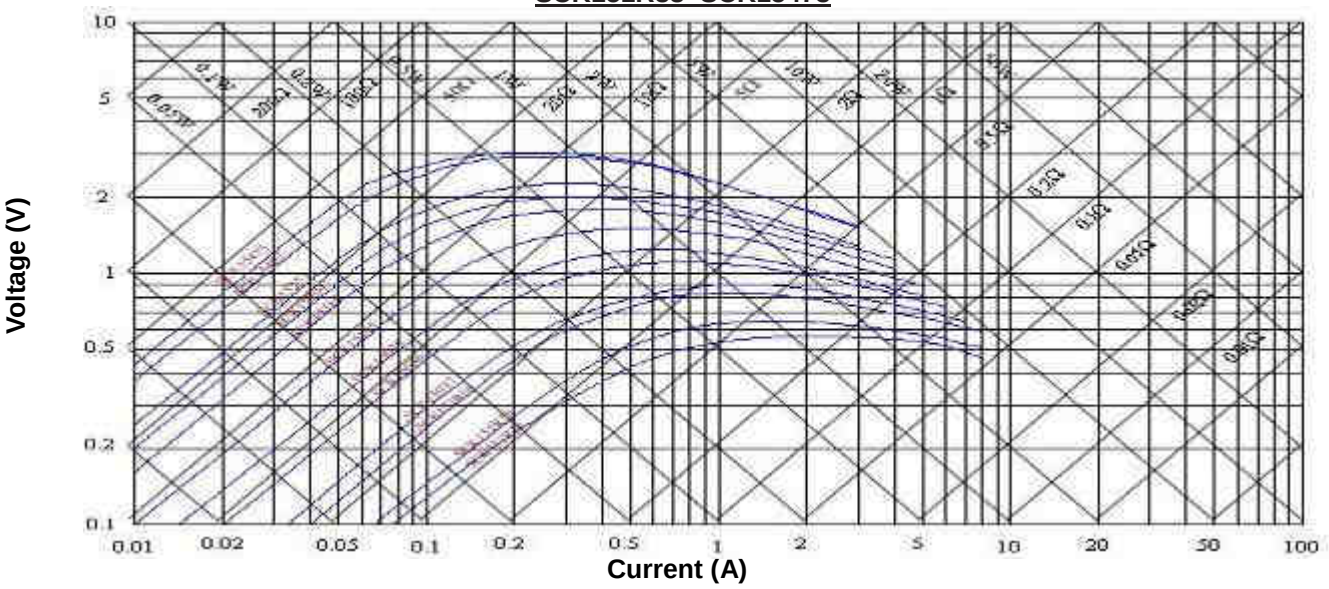
SCK10015~SCK101201



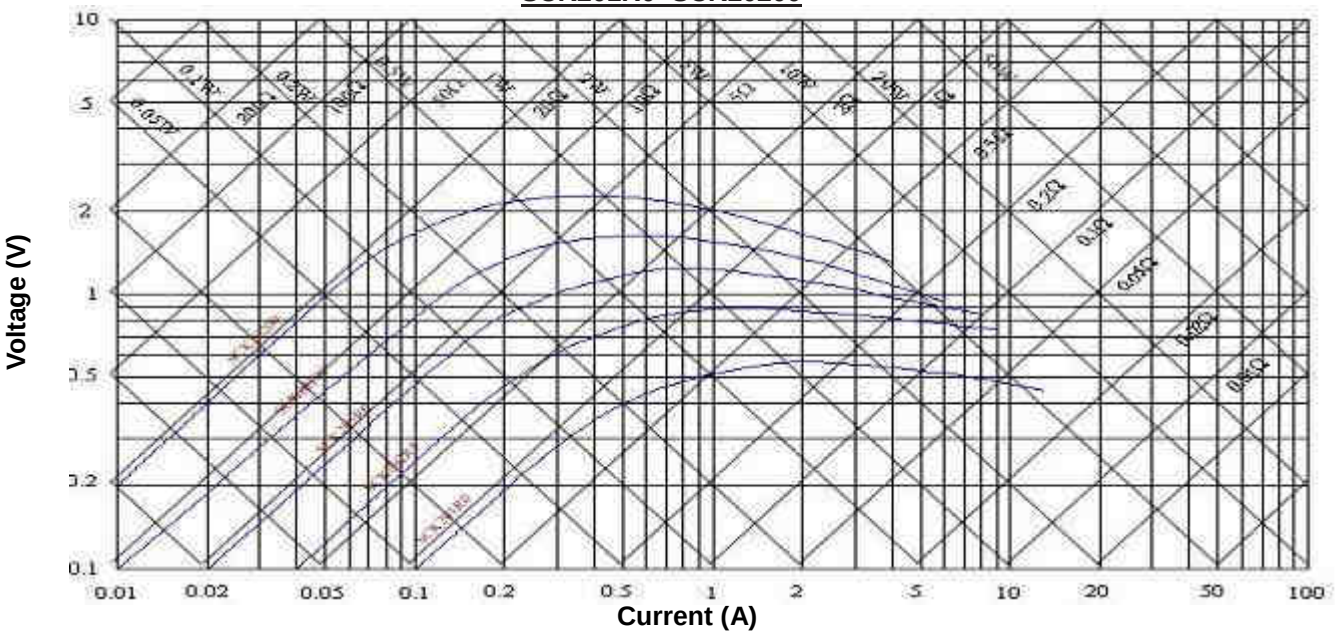
SCK131R37~SCK13203



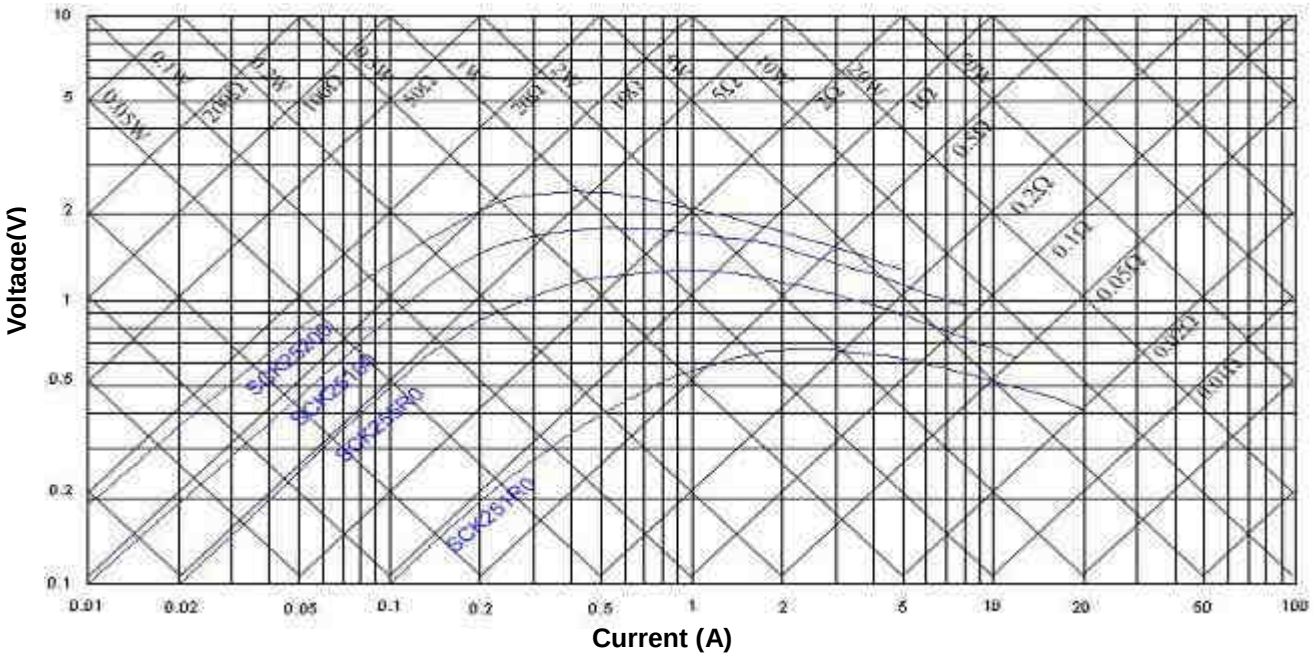
SCK151R38~SCK15473

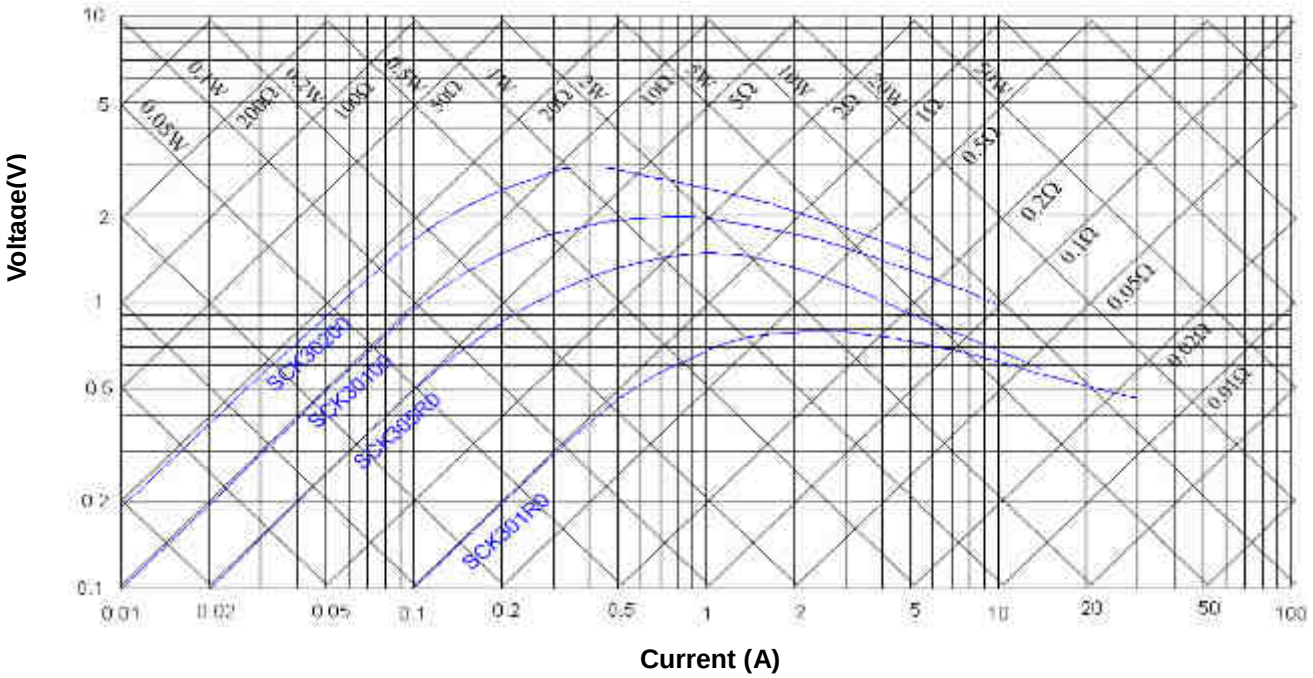


SCK201R0~SCK20200



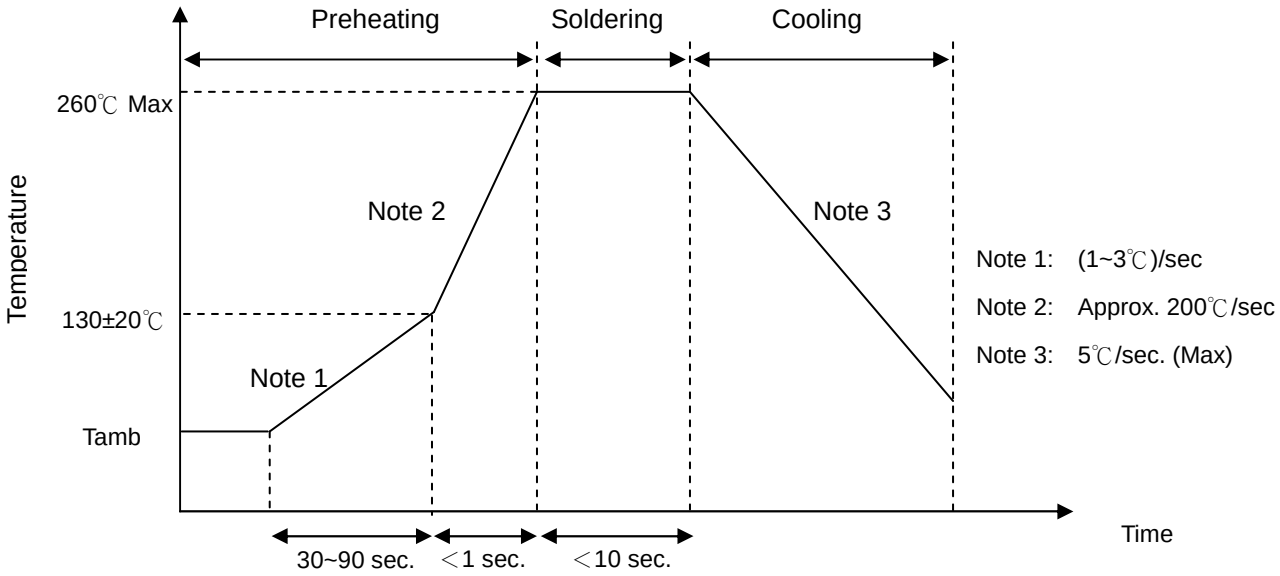
SCK251R0~SCK25200





■ Soldering Recommendation

● Wave Soldering Profile



● Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	3 sec (max.)
Distance from Thermistor	2 mm (min.)

■ Reliability

<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminals</td><td>IEC60068-2-21</td><td>Gradually applying the force specified and keeping the unit fixed for 10±1 sec.
<table><tr><th>Terminal diameter (mm)</th><th>Force (Kg)</th></tr><tr><td>0.5<d≦0.80</td><td>1.0</td></tr><tr><td>0.8<d≦1.25</td><td>2.0</td></tr></table></td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC60068-2-20</td><td>235 ± 5℃， 2 ± 0.5 sec.</td><td>At least 95% of terminal electrode is covered by new solder</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>IEC60068-2-20</td><td>260 ± 5℃， 10 ± 1 sec.</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 10\ \%$</td></tr>
<tr><td>High Temperature Storage</td><td>IEC60068-2-2</td><td>Tu ± 5 ℃ x 1000± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 20\ \%$</td></tr>
<tr><td>Damp Heat, Steady State</td><td>IEC60068-2-3</td><td>40 ± 2℃， 90~95% RH , 1000 ± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 20\ \%$</td></tr>
<tr><td>Rapid Change of Temperature</td><td>IEC60068-2-14</td><td>The conditions shown below shall be repeated 5 cycles
<table><tr><th>Step</th><th>Temperature (℃)</th><th>Period (minutes)</th></tr><tr><td>1</td><td>T_L ± 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 ± 5</td><td>30 ± 3</td></tr><tr><td>4</td><td>Room temperature</td><td>5 ± 3</td></tr></table></td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 20\ \%$</td></tr>
<tr><td>Life Test</td><td>IEC 60539-1</td><td>25 ± 5℃, Imax. x 1000± 24 hrs</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 20\ \%$</td></tr>
<tr><td>Endurance</td><td>UL1434</td><td>25 ± 5℃, Imax. , C_T , 1min ON / 5 mins OFF x 1000 cycles
C_T= Capacitance at 240 Vac</td><td>No visible damage
$|\triangle R_{25}/R_{25}| \leqq 20\ \%$</td></tr>
<tr><td>Insulation Test</td><td>MIL-STD-202F -Method 302</td><td>1000 V_{DC} 1 min</td><td>No visible damage
≧500 MΩ</td></tr>
</table>

■ Packaging

● Taping Specification

For S (Straight lead) type and F (Y kink lead) type

Figure A.

For S lead and F lead Φ 8 to Φ10 Type.

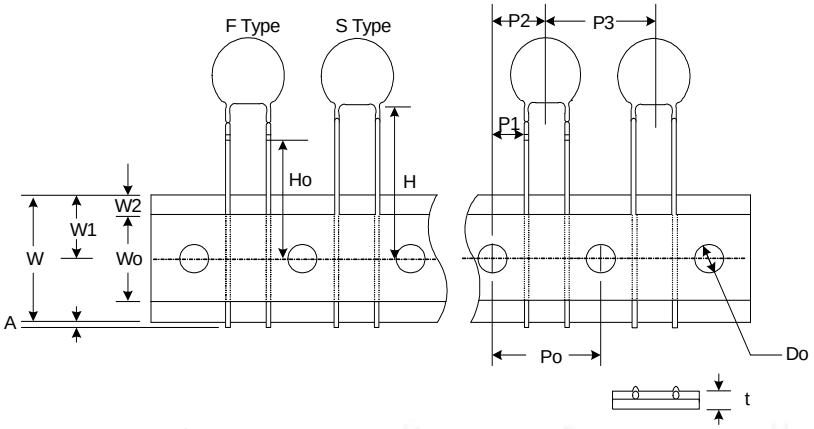


Figure B.

For S lead Φ13 to Φ20 type and F lead Φ13 to Φ20 type

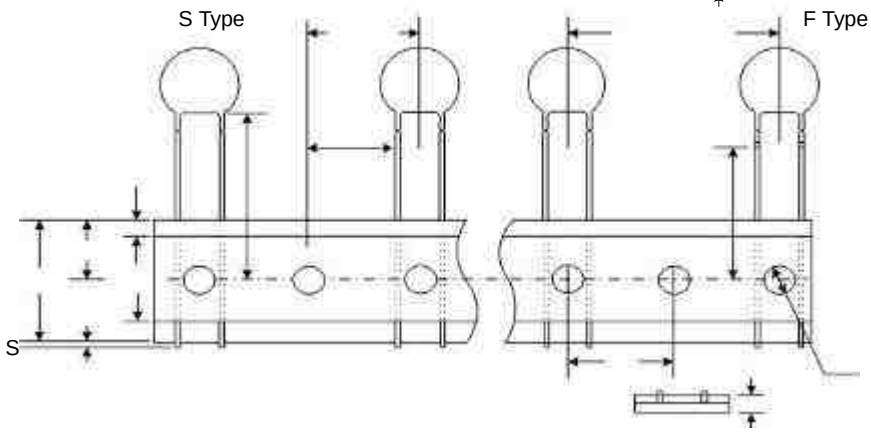
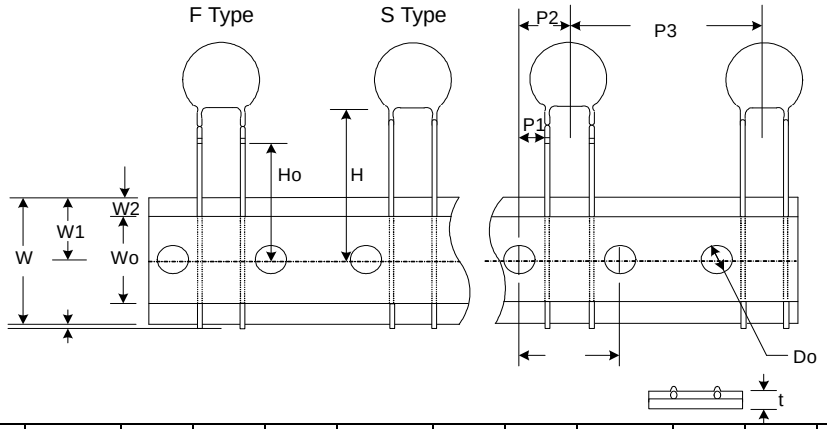


Figure C.

For S lead Φ13 to Φ20 type and F lead Φ13 to Φ20 type



(Unit: mm)

Taping Code	Body Size	P_0 ±0.5	P_1 ±0.7	P_2 ±1.3	P_3 ±0.5	H +2/-0	H_0 ±0.5	W_0 ±1	W_1 ±0.5	W_2 Max.	W ±0.5	A Max.	D_0 ±0.2	t ±0.2	Figure
A (P_0=12.7)	Φ08	12.7	3.45	6.35	12.7	18	16	12	9	3	18	1	4	0.6	A
	Φ10	12.7	3.45	6.35	12.7	18	16	12	9	3	18	1	4	0.6	A
	Φ13	12.7	8.55	12.7	25.4	18	16	12	9	3	18	1	4	0.6	B
	Φ15	12.7	8.45	12.7	25.4	18	16	12	9	3	18	1	4	0.6	B
	Φ20	12.7	8.45	12.7	25.4	18	16	12	9	3	18	1	4	0.6	B
E (P_0=15.0)	Φ08	15	4.6	7.5	15	18	16	12	9	3	18	1	4	0.6	A
	Φ10	15	4.6	7.5	15	18	16	12	9	3	18	1	4	0.6	A
	Φ13	15	3.35	7.5	30	18	16	12	9	3	18	1	4	0.6	C
	Φ15	15	3.25	7.5	30	18	16	12	9	3	18	1	4	0.6	C
	Φ20	15	3.25	7.5	30	18	16	12	9	3	18	1	4	0.6	C

For I Type (Inner kink lead)

Figure A.

For I lead Φ8 to Φ10 type.

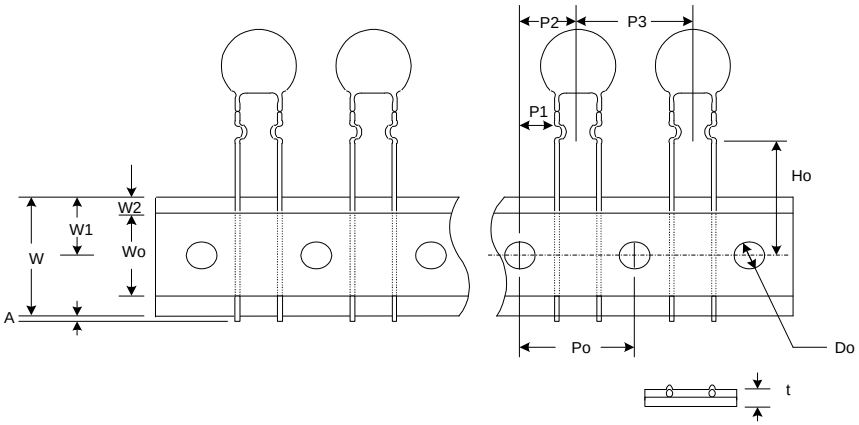


Figure B.

For I lead Φ13 to Φ20 type.

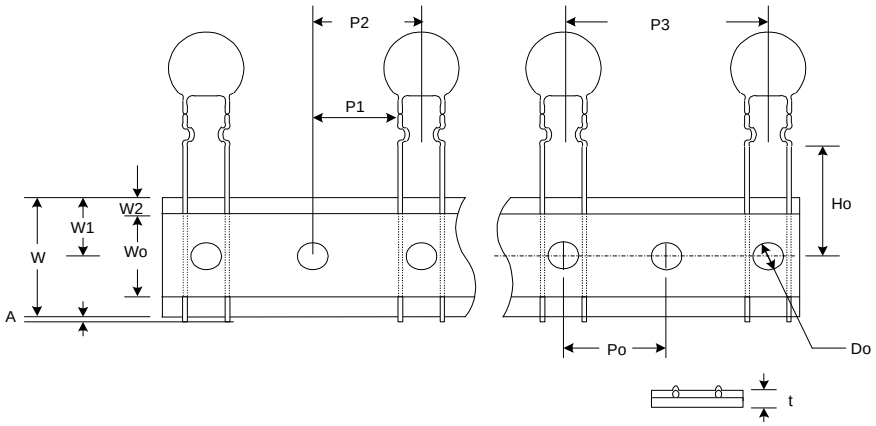


Figure C.

For I lead Φ13 to Φ20 type.

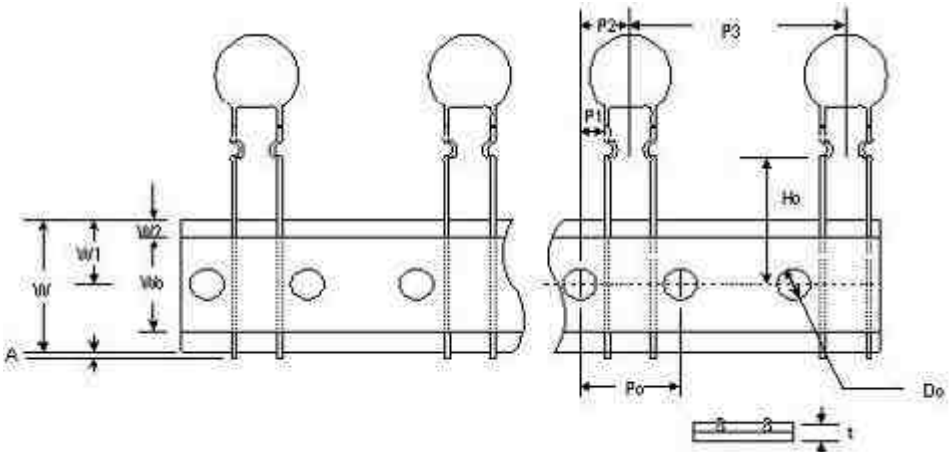
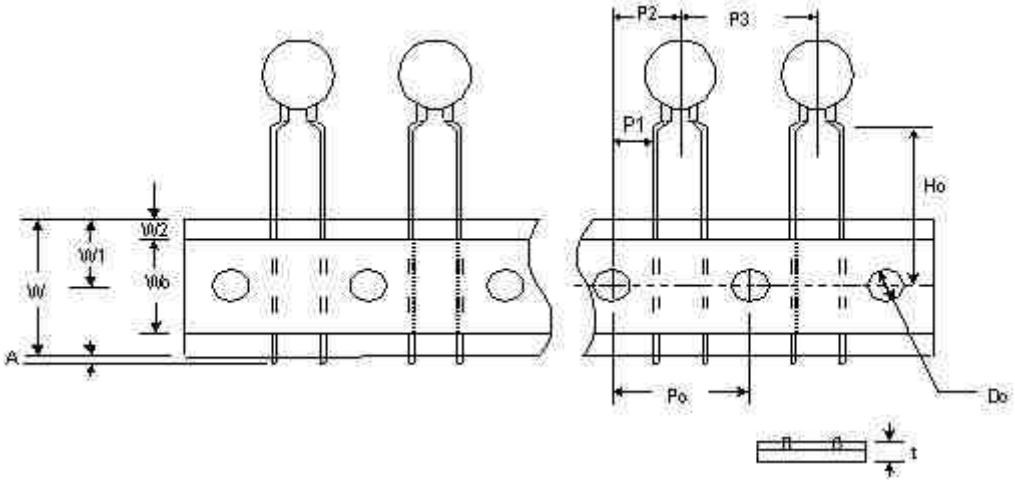


Figure D.

For I lead Φ5 type.



NTC Thermistor：SCK Type

Power Thermistor for Inrush Current Limiter

(Unit: mm)

Taping Code	Body Size	P_0 ±0.5	P_1 ±0.7	P_2 ±1.3	P_3 ±0.5	H_0 ±0.5	W_0 ±1	W_1 ±0.5	W_2 Max.	W ±0.5	A Max.	D_0 ±0.2	t ±0.2	Figure
A (P_0=12.7)	Φ05	12.7	3.45	6.35	12.7	16	12	9	3	18	1	4	0.6	D
	Φ08	12.7	3.45	6.35	12.7	16	12	9	3	18	1	4	0.6	A
	Φ10	12.7	3.45	6.35	12.7	16	12	9	3	18	1	4	0.6	A
	Φ13	12.7	8.55	12.7	25.4	16	12	9	3	18	1	4	0.6	B
	Φ15	12.7	8.45	12.7	25.4	16	12	9	3	18	1	4	0.6	B
	Φ20	12.7	8.45	12.7	25.4	16	12	9	3	18	1	4	0.6	B
E (P_0=15.0)	Φ05	15	4.6	7.5	15	16	12	9	3	18	1	4	0.6	D
	Φ08	15	4.6	7.5	15	16	12	9	3	18	1	4	0.6	A
	Φ10	15	4.6	7.5	15	16	12	9	3	18	1	4	0.6	A
	Φ13	15	3.35	7.5	30	16	12	9	3	18	1	4	0.6	C
	Φ15	15	3.25	7.5	30	16	12	9	3	18	1	4	0.6	C
	Φ20	15	3.25	7.5	30	16	12	9	3	18	1	4	0.6	C

■ Quantity

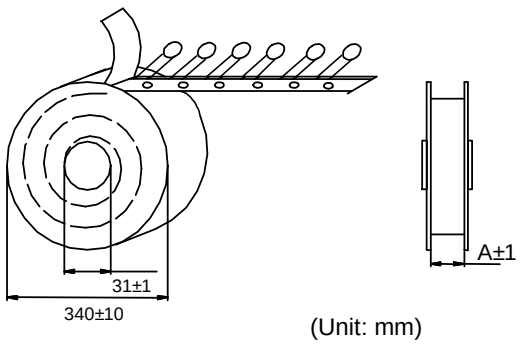
● Bulk Packing

Body Size/mm	Quantity (pcs/bag)
Φ05	200
Φ08	200
Φ10	200
Φ13	100
Φ15	100
Φ20	500 (pcs/ box*)
Φ25	168 (pcs/ box*)
Φ30	168 (pcs/ box*)

* Bulk packaging material in the form of cardboard strips

● Reel Packing

Body Size/mm	Quantity (pcs/reel)
Φ05	2500
Φ08	1500
Φ10	1500
Φ13	750
Φ15	750
Φ20	500

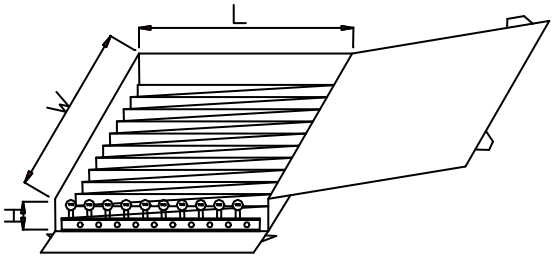


(Unit: mm)

Body Size	Φ05	Φ08~Φ20
A	40mm	55mm

- **Ammo Packing**

Body Size/mm	Quantity (pcs/box)
Φ05	1000
Φ08	1000
Φ10	1000
Φ13(P_0=12.7)	500
Φ13(P_0=15)	1000
Φ15	500



(Unit: mm)

Body Size	W	L	H
Φ5~Φ15	348	275	60

■ Storage Conditions of Products

- Storage Conditions：

  1.Storage Temperature ： -10℃~+40℃

  2.Relative Humidity： ≦75%RH

  3. Keep away from corrosive atmosphere and sunlight.

- Period of Storage ：1 year