THINKING ELECTRONIC INDUSTRIAL CO., LTD.

HEAD OFFICE: 8F-1, No.93, Ta-Shun 1st Rd., Kaohsiung, Taiwan
TEL: 886-7-5577660 FAX: 886-7-5570560

MANUFACTURING SITE

☐ **KAOHSIUNG FACTORY: 21, Lane 373, Min-Tzu 1st Rd., Kaohsiung, Taiwan**
TEL: 886-7-3862591 FAX: 886-7-3866990

R **CHANGZHOU FACTORY: Wujin High & New Tech Ind. Development Zone, Hutang, Wujin, Changzhou City, Jiangsu 213161, China**
TEL:86-519-6556426 FAX:86-519-6558643 ZIP:213161

R **DONG GUAN FACTORY: Chiao-Tou Tsun. Sha-Tao Hsiang. Chang-An Town. Dong-Guan City, Guang-Dong, China**
TEL:86-769-5542016 FAX:86-769-5546890

SPECIFICATION FOR APPROVAL

CUSTOMER	C-CUBEE
MODEL NO.	SCK-084
PART NO.	SCK13084MIA
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	DEC. 21, 2004
REV. NO	
REV. DATE	

FOR CUSTOMER APPROVAL	CHECKED BY
	Chun Chu Tu
	APPROVED BY
	Joseph Hong

REVISED RECORD SHEET

REV. NO	REV. DATE	REVISED CONTENT

Specification of NTC Thermistor for Surge Current Suppression

PART NO . SCK13084MIA

CUSTOMER P/N . _____

1. Part number code

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

Product Code	
SCK	Thinking NTC Thermistor SCK Type

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

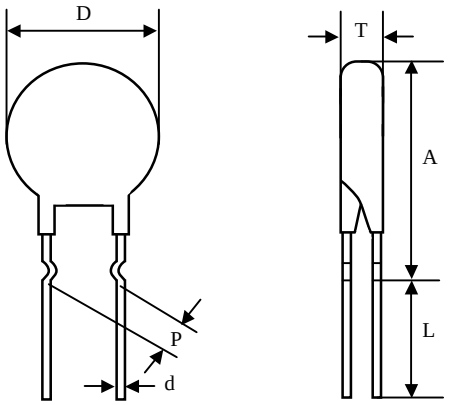
Zero Power Resistance at 25℃ (R_{25})	
0R5	0.5Ω
2R5	2.5Ω
08	8Ω
20	20Ω
120	120Ω

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
SC	Straight Cut Lead
:	:

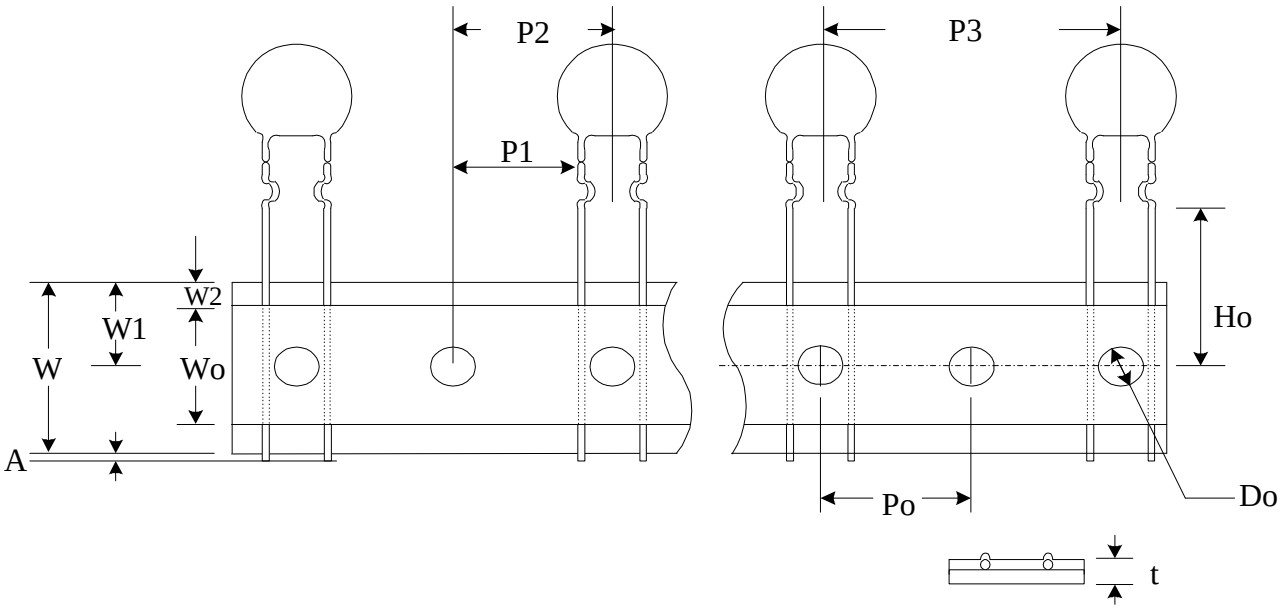
2-1. Dimensions



(unit:mm)

Disc size	D max.	P nor.	d nor.	A max.	L min.	T max.
ϕ 13	14.5	7.5±1	0.8±0.02	20	25	6

2-2 Dimensions (Taping 12.7mm)



ITEM	Po	P3	P1	P2	Ho	Wo	W1	W2	W	A	Do	t
Nor.	12.7	25.4	8.55	12.7	16	12	9	3	18	1	4	0.6
Tol.	±0.5	±0.5	±0.7	±1.3	±0.5	±1	±0.50	±1	±0.5	Max.	±0.2	±0.2

(Unit : mm)

2-3 Material of coating : Silicone resin

2-4 Material of Leads : Tinned copper wires

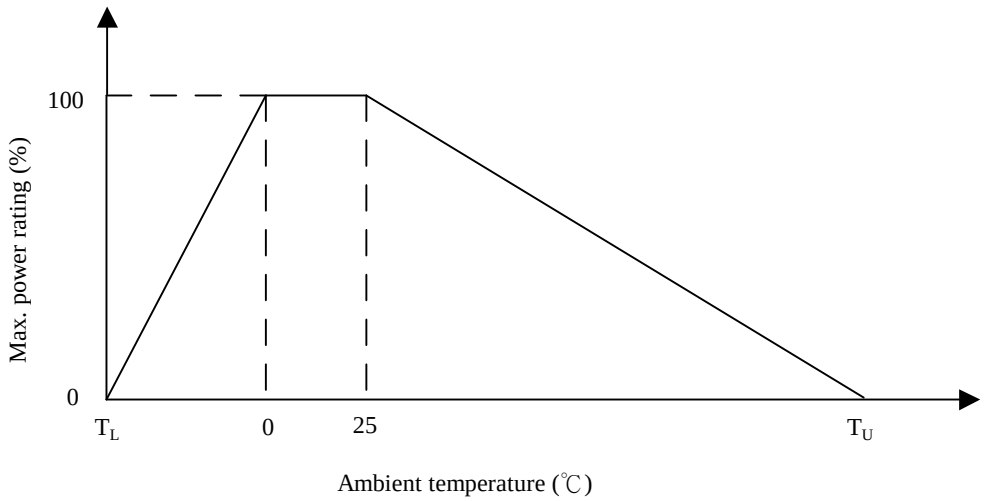
2-5 Color of coating : Green

2-6 Print of Marking : SCK 084

3. Characteristics

Part no.	Zero power resistance at 25℃ (Ω)	Max. Steady State current at 25℃ (A)	Max. power rating at 25℃ (W)	Thermal dissipation constant (mW/℃)	Thermal time Constant (sec.)	Capacitance at 240Vac (μF)	Operating temperature range (℃)
SCK13084MIA	8±20%	4	3.1	18	66	470	-40 ~+200 ℃

4. Maximum power rating (Pmax)



Note: T_L = Minimum Temp. of Operating Temp. Range (℃)

T_U = Maximum Temp. of Operating Temp. Range (℃)

5. Approvals

* UL 1434 / cUL recognized (File # E138827)

* CSA recognized (File # 97495)

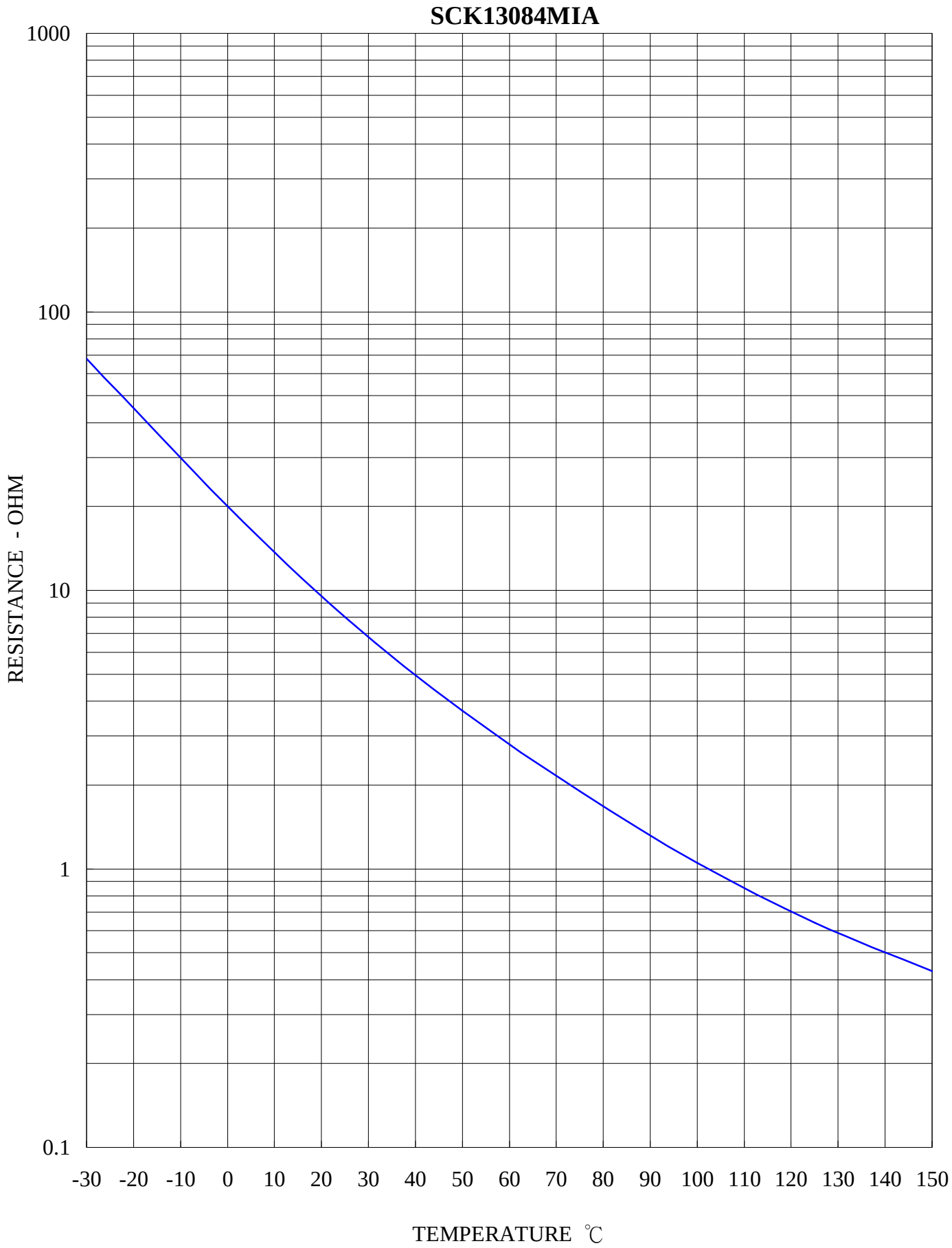
* TUV recognized (File # R 50050155)

6. Reliability Test

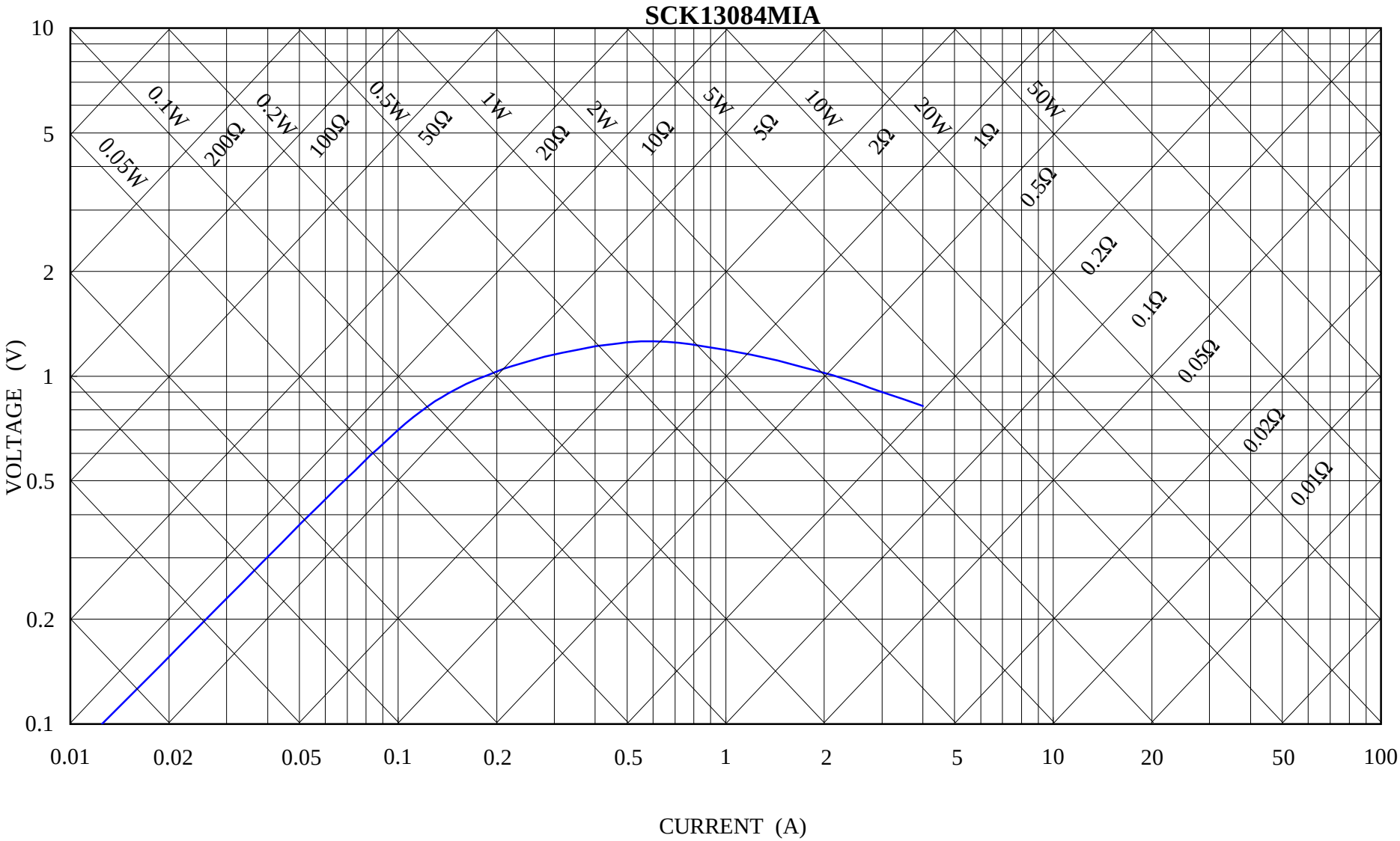
<table>
<tr><th>Item</th><th>Standard</th><th>Test conditions / Methods</th><th>Specifications</th></tr>
<tr><td>Tensile Strength of Terminals</td><td>IEC68-2-21</td><td>Gradually applying the force specified below to each terminal and keeping the unit fixed for 10±1 sec.
<table><tr><th>Terminal diameter (mm)</th><th>Force (kg)</th></tr><tr><td>0.5<d≦0.8</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>Bending Strength of Terminals</td><td>IEC68-2-21</td><td>Hanging the force specified below to each terminal and gradually bending each terminal by 90° in one direction, then 90° in the opposite direction, and again back to the origin.
<table><tr><th>Terminal diameter (mm)</th><th>Force (kg)</th></tr><tr><td>0.5<d≦0.8</td><td>0.5</td></tr><tr><td>0.8<d≦1.25</td><td>1.0</td></tr></table></td><td>No visible damage</td></tr>
<tr><td>Solderability</td><td>IEC68-2-20</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>IEC68-2-20</td><td>350 ±5℃ , 3.5 ±0.5 sec</td><td>No visible damage
｜△R/R｜≦ 10 %</td></tr>
<tr><td>High Temperature Storage</td><td>IEC68-2-2
UL1434</td><td>Tmax ±5℃ x 1000HRS</td><td>No visible damage
｜△R/R｜≦ 20 %</td></tr>
<tr><td>Damp Heat</td><td>IEC68-2-3
UL1434</td><td>40 ± 2℃ , 9 0 ~ 95 % RH , 1000 ±24 HRS</td><td>No visible damage
｜△R/R｜≦ 20 %</td></tr>
<tr><td>Thermal Shock</td><td>IEC68-2-14
UL1434</td><td>The thermal shock 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>Tmin±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>Tmax±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
｜△R/R｜≦ 20</td></tr>
<tr><td>Life Test</td><td>CNS5550</td><td>25 ±5℃, Imax. x 1000 HRS</td><td>No visible damage
｜△R/R｜≦ 20 %</td></tr>
<tr><td>Endurance</td><td>UL1434</td><td>25 ±5℃,Imax. , C_T , 1min ON / 5 min OFF x1000 cycles
C_T=Capacitance at 240Vac</td><td>No visible damage
｜△R/R｜≦ 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>

Products have been tested at Thinking Electronic Industrial Co., Ltd. Laboratory recognized by UL (Underwriters Laboratories Inc.) under CTDP (Client Test Data Program).

7. R-T characteristic curve

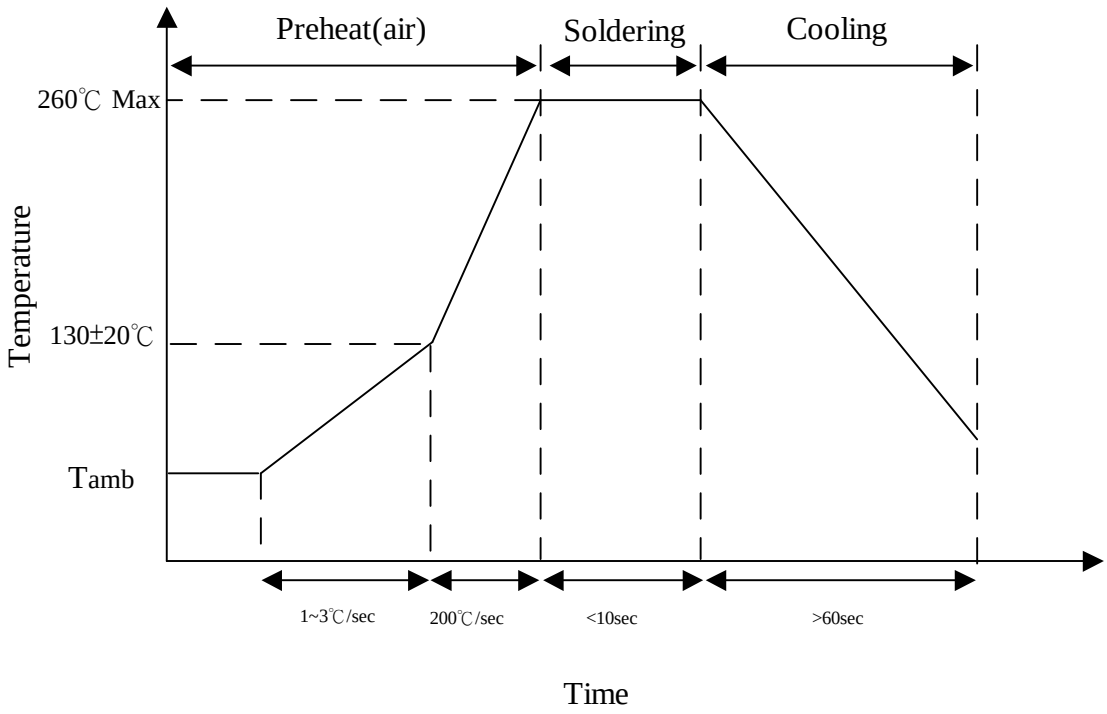


8. V-I characteristic curve (Ambient Ta=25℃)



9. Wave Flow

■ Recommended Wave Soldering Profile



■ Recommended Reworking Conditions With Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	360℃ (max.)
Soldering Time	2 sec (max.)
Distance from coating	6 mm (min.)

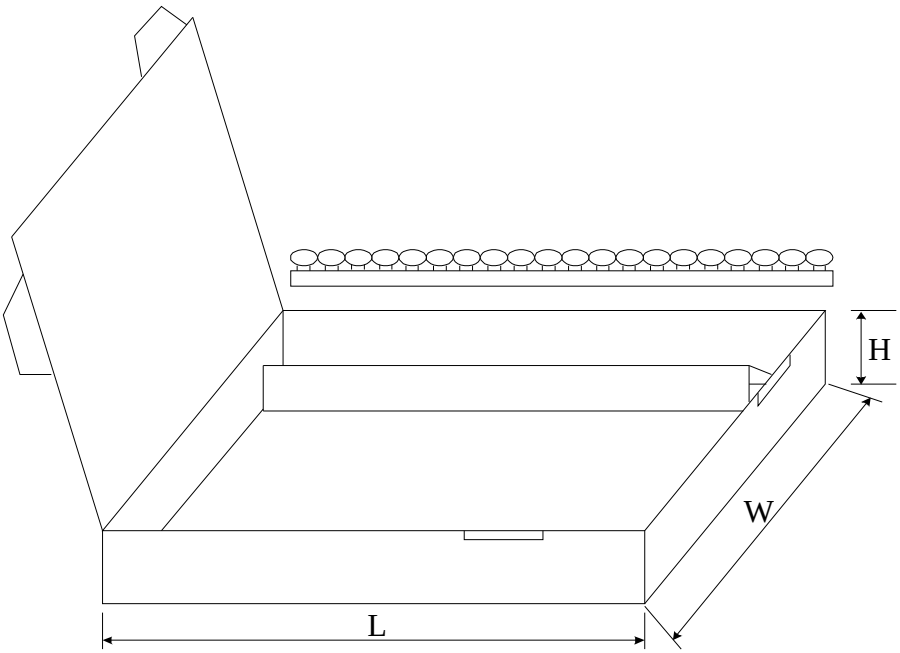
10. SCK 13f - SERIES PACKING SPECIFICATION

(一) ：500 PCS (TAPE) In The Box， See Figure(一)

(二) ： Box Dimensions

L x W x H

348 x 275 x 50 (Unit:mm)



See Figure(一)

11. certificate

Northbrook, Illinois (847) 272-8800
Melville, New York (631) 271-6200
Santa Clara, California (408) 985-2400
Research Triangle Park
North Carolina (919) 549-1400
Camas, Washington (360) 817-5500

Underwriters Laboratories Inc.®

THINKING ELECTRONIC INDUSTRIAL CO LTD
MS A CHANG
21 LANE 373 MINTSU 1ST RD
SAN-MING DIST
KAOHSIUNG 80759 TAIWAN

RE: Project Number(s) - 00NK40419

Your most recent listing is shown below. Please review this information and report any inaccuracies to the UL Engineering staff member who handled your project.

For information on placing an order for UL Listing Cards in a 3 x 5 inch format, please refer to the enclosed ordering information.

XGPU2 October 19, 2000
Thermistor Type Devices - Component

THINKING ELECTRONIC INDUSTRIAL CO LTD E138827
21 LANE 373 MINTSU 1ST RD SAN-MING DIST, KAOHSIUNG
80759 TAIWAN

Negative temperature coefficient (NTC) thermistor, Type SCK followed by -037, -052, -053, -054, -055, -056, -057, -075, -087, -080, -084, -101, -102, -103, -104, 105, -122, -164, -184, -202, -203, -204, -253, -401, -473, -501X, -1103, -2R55A, -2R56, -2R58.
Type SCK followed by -034, -035, -044, -046, 065, -085, -086, -123, -124, -125, -132, -133, -152X, -153, -154, 162, 162X, -163, -188, -252, -302, -303, -472, -502, -601, -802X, -1001, -1201, -1202, -1R53, -1R58, -2R55, -5R53.
Temperature sensing, Type TTC followed by -102, -103, -123, -152, -202, -222, -252, 302, -332, -352, -402, -472, -502, -602, -682, -802.
Marking: "E138827", UL Recognition Mark and type designation marked on the surface of the thermistor or on the outside container

---

See General Information Preceding These Recognitions
For use only in equipment where the acceptability of the combination is determined by Underwriters Laboratories Inc.

A not-for-profit organization
dedicated to public safety and
committed to quality service

11. certificate

Underwriters Laboratories Inc.

XGPU8.E138827
Thermistor Type Devices Certified for Canada - Component

Page Bottom Questions? Previous Page

Thermistor Type Devices Certified for Canada - Component

Guide Information

THINKING ELECTRONIC INDUSTRIAL CO LTD E138827
21 LANE 373 MINTSU 1ST RD
SAN-MING DIST
KAOHSIUNG 80759, TAIWAN

Inrush Limiting NTC:

Model No.	Voltage (V)	Current (A)		Max Load Capacitance (uF)	CA
		Imax	Iss		
Type SCK, followed by -037	240	8.4	7.0	470	1(200),4,#
-052	240	2.4	2.0	100	1(150),4,#
-053	240	3.6	3.0	100	1(170),4,#
-054	240	4.8	4.0	220	1(170),4,#
-055	240	6.0	5.0	150	1(200),4,#
-056	240	7.2	6.0	470	1(200),4,#
-057	240	8.4	7.0	470	1(200),4,#
-075	240	6.0	5.0	470	1(200),4,#
-082	240	2.4	2.0	100	1(170),4,#
-083	240	3.6	3.0	220	1(170),4,#
-084	240	4.8	4.0	330	1(200),4,#
-101	240	1.2	1.0	100	1(150),4,#
-102	240	2.4	2.0	100	1(170),4,#
-103	240	3.6	3.0	330	1(170),4,#
-104	240	4.8	4.0	330	1(200),4,#

11. certificate

CSA INTERNATIONAL

Certification Record No: 097495 0 000
Class No: 9073 31

	SCK-083	8	3
	SCK-103	10	3
	SCK-122	12	2
	SCK-202	20	2
	SCK-501X	50	1.5
13	SCK-2R55	2.5	5
	SCK-2R56	2.5	6
	SCK-055	5	5
	SCK-084	8	4
	SCK-104	10	4
	SCK-203	20	3
15	SCK-1R38	1.3	8
	SCK-2R58	2.5	8
	SCK-037	3	7
	SCK-056	5	6
	SCK-057	5	7
	SCK-075	7	5
	SCK-105	10	5
	SCK-164	16	4
	SCK-184	18	4
	SCK-204	20	4
	SCK-253	25	3
	SCK-403	40	3
	SCK-473	47	3

Notes:

1. SCK denotes "Surge Current Killer".
2. XX denotes zero power resistance at 25C.
3. Y denotes max steady state current at 25C.
4. Tests performed: (a) Cold Resistance (b) Temperature Test (c) Endurance Test and (d) Limited Short Circuit Test.
5. The CSA Component Acceptance Mark may appear on the device or shipping tube.
6. The subject components are Certified as a component parts for use in other Certified equipment where the suitability of the combination is to be determined by the CSA International.

DQD No. 548 99/04/08

Page 2

11. certificate

Zertifikat *Certificate*

TÜV

Zertifikat Nr. *Certificate No.*
R 50050155

Blatt *Page*
0003

Ihr Zeichen *Client Reference*	Unser Zeichen *Our Reference*	Ausstellungsdatum	*Date of Issue (day/mo/yr)*
12025159/AC	ZTW2-KLL- 11002377 001	11.10.2004	

Genehmigungsinhaber *License Holder*
Thinking Electronic Industrial
Co., Ltd.
No. 21, Lane 373, Min-Tzu 1st Rd.
San-Ming Dist., Kaohsiung 807
Taiwan, R.O.C.

Fertigungsstätte *Manufacturing Plant*
Thinking Electronic Industrial
Co., Ltd.
No. 21, Lane 373, Min-Tzu 1st Rd.
San-Ming Dist., Kaohsiung 807
Taiwan, R.O.C.

Prüfzeichen *Test Mark*
TÜV Rheinland Product Safety | BAUART GEPRÜFT / TYPE APPROVED

Geprüft nach *Tested acc. to*
EN 60539-1:2002
EN 60730-1:2000

Zertifiziertes Produkt (Geräteidentifikation) *Certified Product (Product Identification)*

Lizenzentgelte - Einheit *License Fee - Unit*

Kaltleiter (NTC Thermistor)

Wie Blatt (As Page) 01, Fortsetzung (Continuation)

X4 steht für (stands for)	: 012, 013, 1R37, 2R55, 2R56, 045, 4R74, 055, 074, 084, 104, 124, 153, 163, 183 oder (or) 203	1
X5 steht für (stands for)	: 0R78A, 016, 1R38, 1R58, 028, 2R57, 2R58, 037, 046, 4R77, 056, 057, 065, 075, 076, 085, 086, 096, 105, 125, 154, 164, 184, 204, 224, 253, 303, 333, 403, 473, 802X oder (or) 1202	1
Y steht für (stands for)	: 003, 005, 007, 010, 015, 020, 025, 045, 047, 050, 060, 085, 090, 101, 121, 131, 151, 181, 201, 221, 251, 301, 351, 471, 501, 561, 681, 701, 102, 152, 202, 222, 252, 302, 332, 352, 402, 472, 502, 602, 682, 802, 103, 123, 153, 203, 253, 303, 403, 473, 503, 683, 104, 154, 204, 224 oder (or) 474	1

Fortsetzung auf Blatt (Continued on Page) 04

TÜV Rheinland Product Safety GmbH – TÜV Rheinland – Zertifizierungsstelle

3

ANLAGE (Appendix): 1

Dem Zertifikat liegt unsere Prüf- und Zertifizierungsordnung zugrunde. Das Produkt entspricht den o.g. Anforderungen, die Herstellung wird überwacht. This certificate is based on our Testing and Certification Regulation. The product fulfills above-mentioned-requirements, the production is subject to surveillance.

Zertifizierungsstelle

TÜV Rheinland Product Safety GmbH, Am Grauen Stein, D-51105 Köln
Tel.:(+49/221)8 06 - 13 71 Fax:(+49/221)8 06 - 39 35 e-mail: Althoff@de.tuv.com

Dipl.-Ing. M. Kröger

NSF-ISR

NSF International Strategic Registrations, Ltd.

NSF-ISR

A Subsidiary of NSF International
789 North Dixboro Road, Ann Arbor, Michigan 48105
(888) NSF 9000

Certificate of Registration

This certifies that the Quality Management System of

THINKING ELECTRONIC INDUSTRIAL CO., LTD.

No.21, Lane 373, Min Tzu 1st Rd.,
San-Ming Dist, Kaohsiung, Taiwan

has been assessed by NSF-ISR and found to be in compliance to the following standard(s):

ISO 9001:1994 (with QS-9000:1998)*

**Audited in accordance with QS-9000: 1998 Appendix B Code of Practice for Quality System Registrars*

NSF

Quality System Registered to
ISO 9001:1994 (with QS-9000:1998)

ANSI-RAB ACCREDITED

Scope of Registration:
The Development, Manufacturing and Sales of Thermistor's and Varistor's Electronic Units
[Supplier Code(s): Ford- N/A / GM-N/A /Daimler Chrysler-N/A]

Industrial Classification:
IAF: 19
SIC: 36
NACE: DL 32.1

Certificate Number: 0623-01
Certificate Issue Date: 05/29/2002
Date of Initial Registration*: 05/29/2002

Kevan P. Lawlor
NSF-ISR President