



THINKING ELECTRONIC INDUSTRIAL CO., LTD.

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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
	<i>Chun Chu Tu</i>
	APPROVED BY
	<i>Joseph Hong</i>



REVISED RECORD SHEET

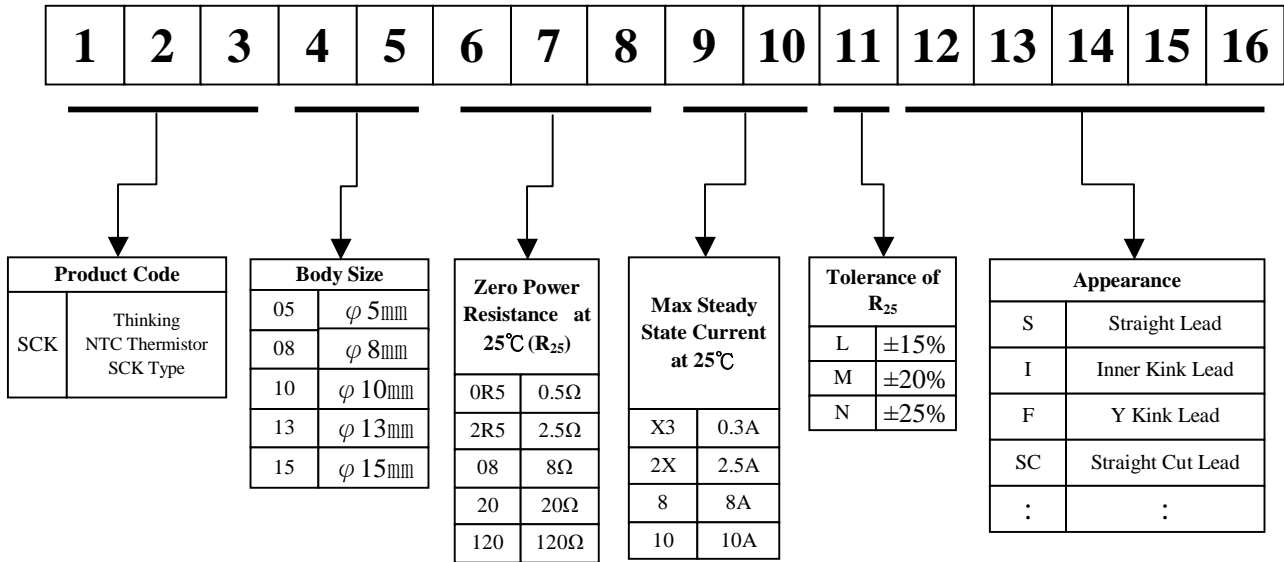
REV. NO	REV. DATE	REVISED CONTENT

Specification of NTC Thermistor for Surge Current Suppression

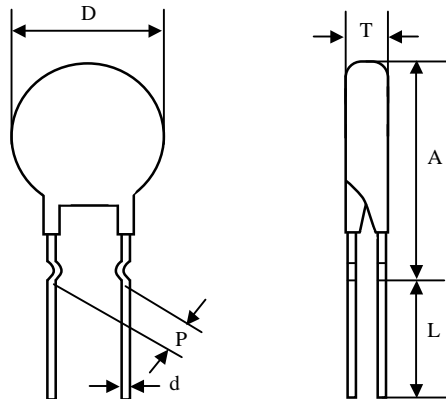
PART NO. SCK13084MIA

CUSTOMER P/N. _____

1. Part number code



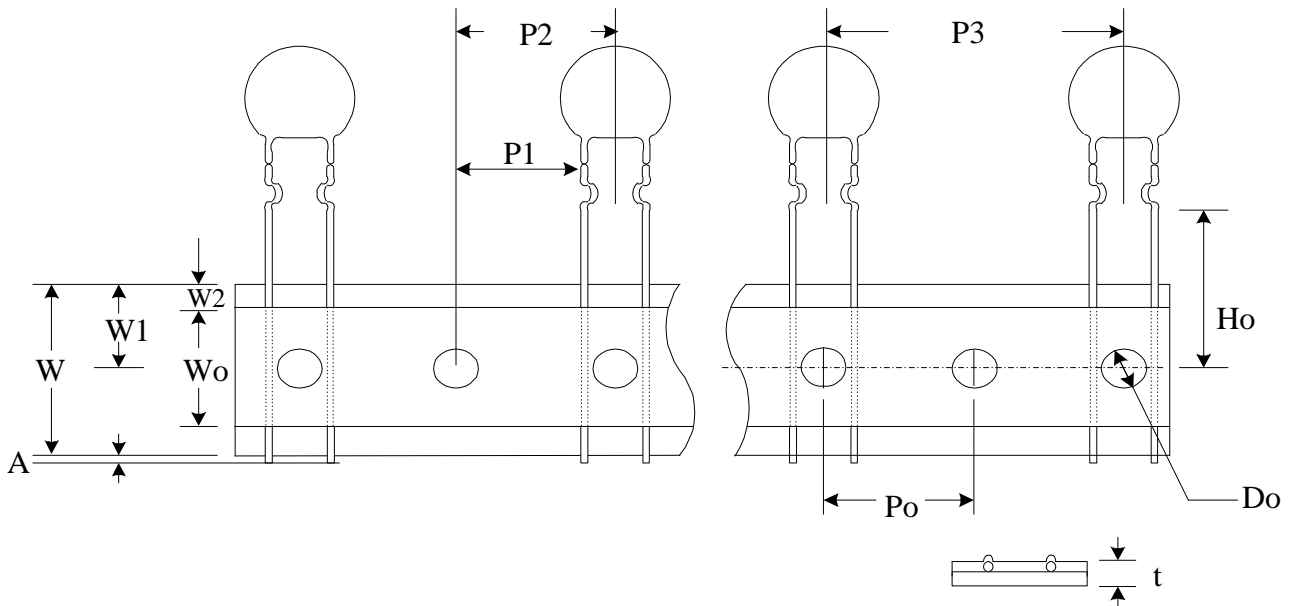
2-1. Dimensions



(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

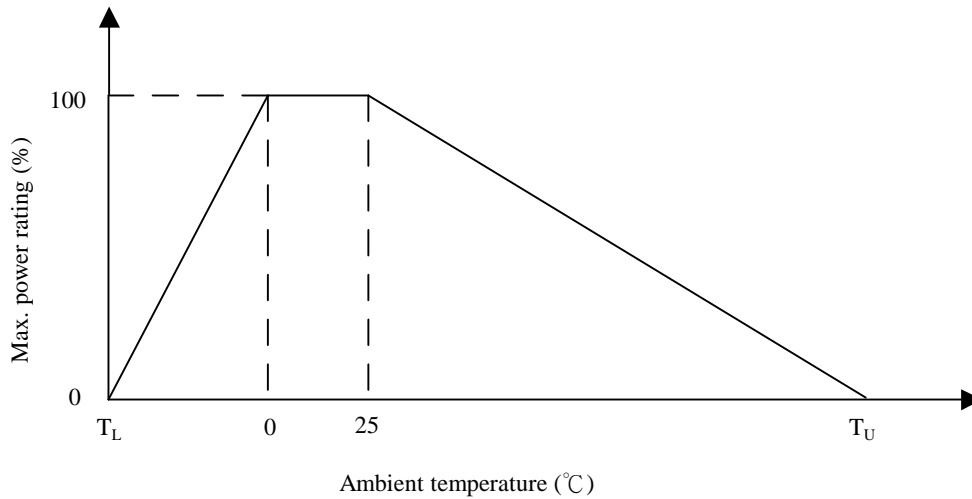
2-5 Color of coating : Green

2-6 Print of Marking : SCK 084

3. Characteristics

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

4. Maximum power rating (Pmax)



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

T_U = Maximum Temp. of Operating Temp. Range (°C)

5. Approvals



* UL 1434 / cUL recognized (File # E138827)



* CSA recognized (File # 97495)



* TÜV recognized (File # R 50050155)

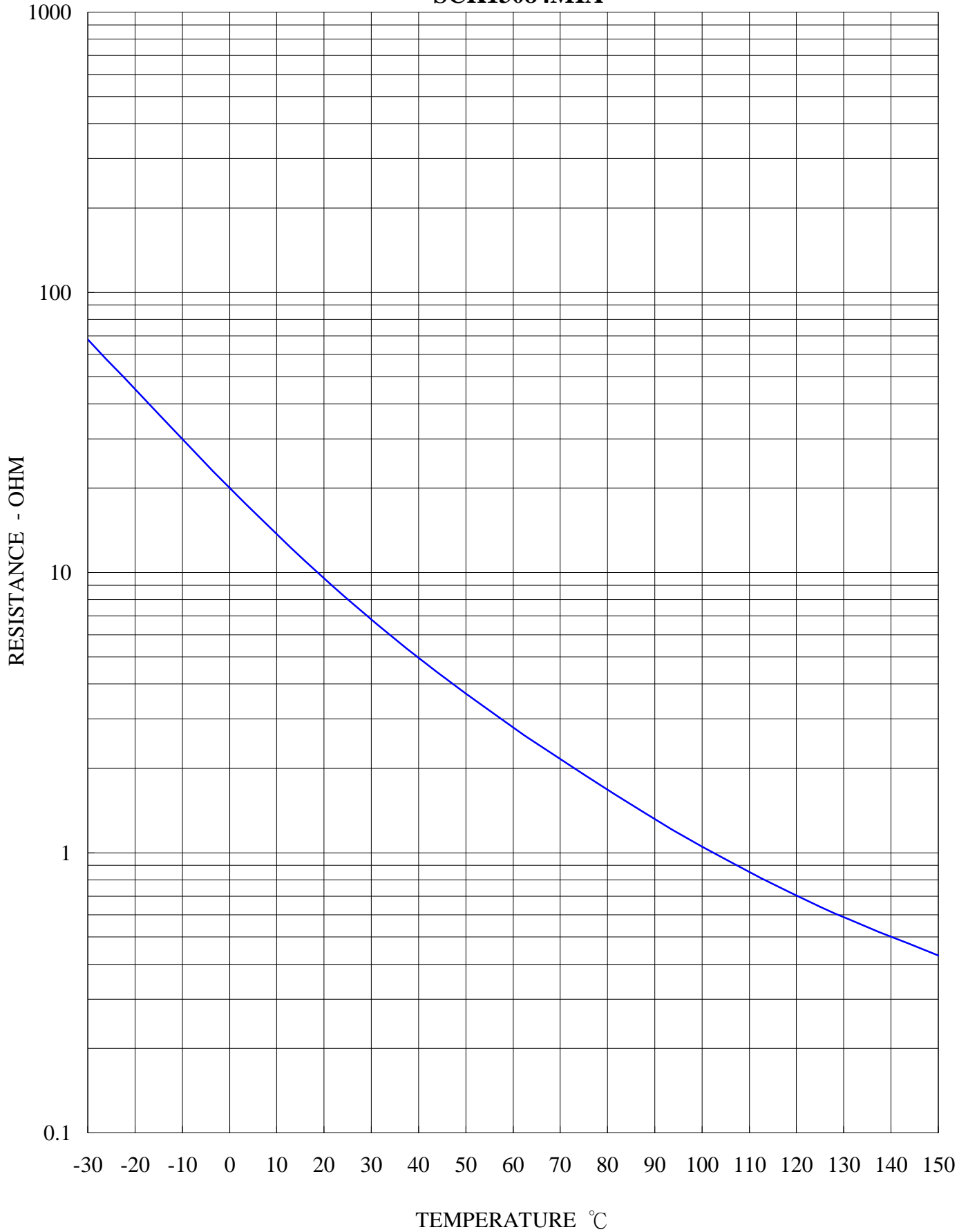
6. Reliability Test

Item	Standard	Test conditions / Methods	Specifications															
Tensile Strength of Terminals	IEC68-2-21	Gradually applying the force specified below to each terminal and keeping the unit fixed for 10±1 sec. <table style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Terminal diameter (mm)</td> <td style="text-align: center;">Force (kg)</td> </tr> <tr> <td style="text-align: center;">$0.5 < d \leq 0.8$</td> <td style="text-align: center;">1.0</td> </tr> <tr> <td style="text-align: center;">$0.8 < d \leq 1.25$</td> <td style="text-align: center;">2.0</td> </tr> </table>	Terminal diameter (mm)	Force (kg)	$0.5 < d \leq 0.8$	1.0	$0.8 < d \leq 1.25$	2.0	No visible damage									
Terminal diameter (mm)	Force (kg)																	
$0.5 < d \leq 0.8$	1.0																	
$0.8 < d \leq 1.25$	2.0																	
Bending Strength of Terminals	IEC68-2-21	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 style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">Terminal diameter (mm)</td> <td style="text-align: center;">Force (kg)</td> </tr> <tr> <td style="text-align: center;">$0.5 < d \leq 0.8$</td> <td style="text-align: center;">0.5</td> </tr> <tr> <td style="text-align: center;">$0.8 < d \leq 1.25$</td> <td style="text-align: center;">1.0</td> </tr> </table>	Terminal diameter (mm)	Force (kg)	$0.5 < d \leq 0.8$	0.5	$0.8 < d \leq 1.25$	1.0	No visible damage									
Terminal diameter (mm)	Force (kg)																	
$0.5 < d \leq 0.8$	0.5																	
$0.8 < d \leq 1.25$	1.0																	
Solderability	IEC68-2-20	235 ±5°C , 2 ± 0.5 sec	At least 95% of terminal electrode is covered by new solder															
Resistance to Soldering Heat	IEC68-2-20	350 ±5°C , 3.5 ±0.5 sec	No visible damage ΔR/R ≤ 10 %															
High Temperature Storage	IEC68-2-2 UL1434	Tmax ±5°C x 1000HRS	No visible damage ΔR/R ≤ 20 %															
Damp Heat	IEC68-2-3 UL1434	40 ± 2°C , 90 ~ 95 % RH , 1000 ±24 HRS	No visible damage ΔR/R ≤ 20 %															
Thermal Shock	IEC68-2-14 UL1434	The thermal shock conditions shown below shall be repeated 5 cycles <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Period (minutes)</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">Tmin±5</td> <td style="text-align: center;">30±3</td> </tr> <tr> <td style="text-align: center;">2</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5±3</td> </tr> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">Tmax±5</td> <td style="text-align: center;">30±3</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">Room temperature</td> <td style="text-align: center;">5±3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Period (minutes)	1	Tmin±5	30±3	2	Room temperature	5±3	3	Tmax±5	30±3	4	Room temperature	5±3	No visible damage ΔR/R ≤ 20 %
Step	Temperature (°C)	Period (minutes)																
1	Tmin±5	30±3																
2	Room temperature	5±3																
3	Tmax±5	30±3																
4	Room temperature	5±3																
Life Test	CNS5550	25 ±5°C , Imax. x 1000 HRS	No visible damage ΔK/K ≥ 20 %															
Endurance	UL1434	25 ±5°C , Imax. , CT , 1min ON / 5 min OFF x1000 cycles CT=Capacitance at 240Vac	No visible damage ΔK/K ≥ 20 %															
Insulation test	MIL-STD-202F-Method 302	1000 VDC 1 min	No visible damage ≥ 500 MΩ															

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

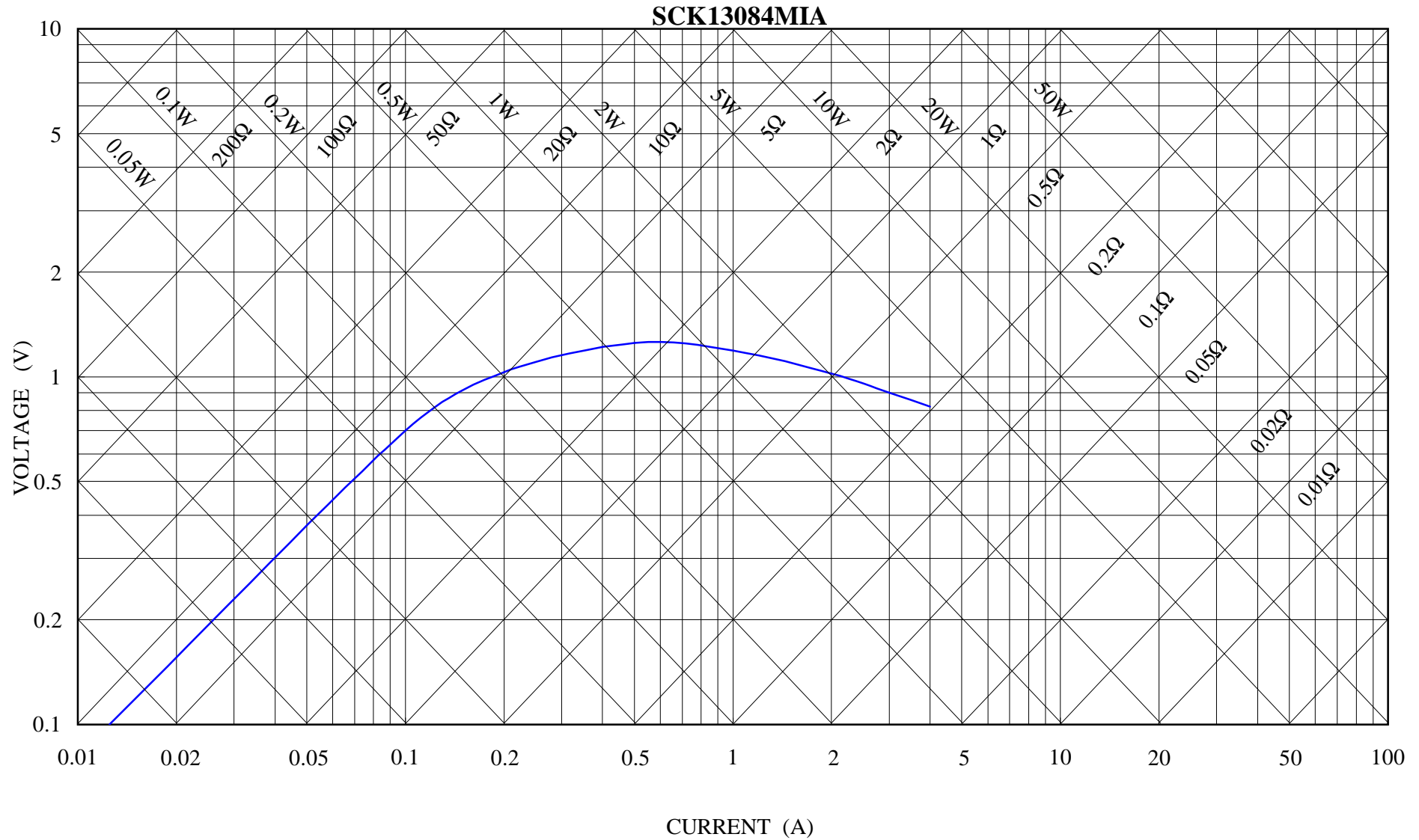
7. R-T characteristic curve

SCK13084MIA



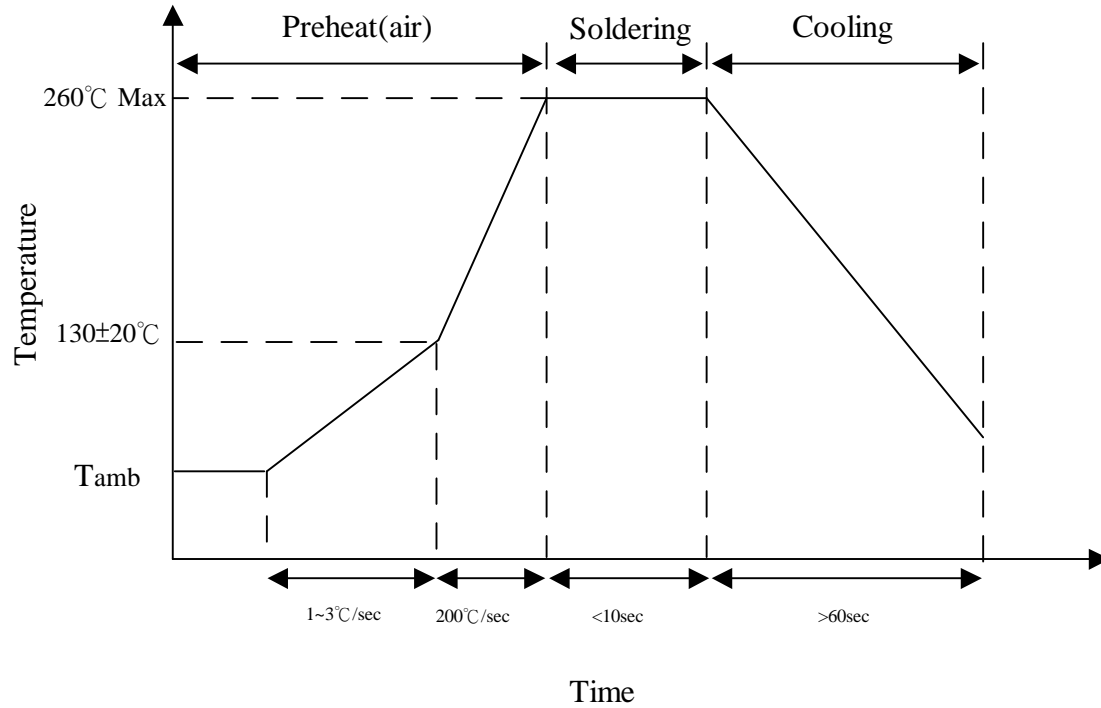


8. V-I characteristic curve (Ambient $T_a=25^\circ\text{C}$)



9. Wave Flow

Recommended Wave Soldering Profile



Recommended Reworking Conditions With Soldering Iron

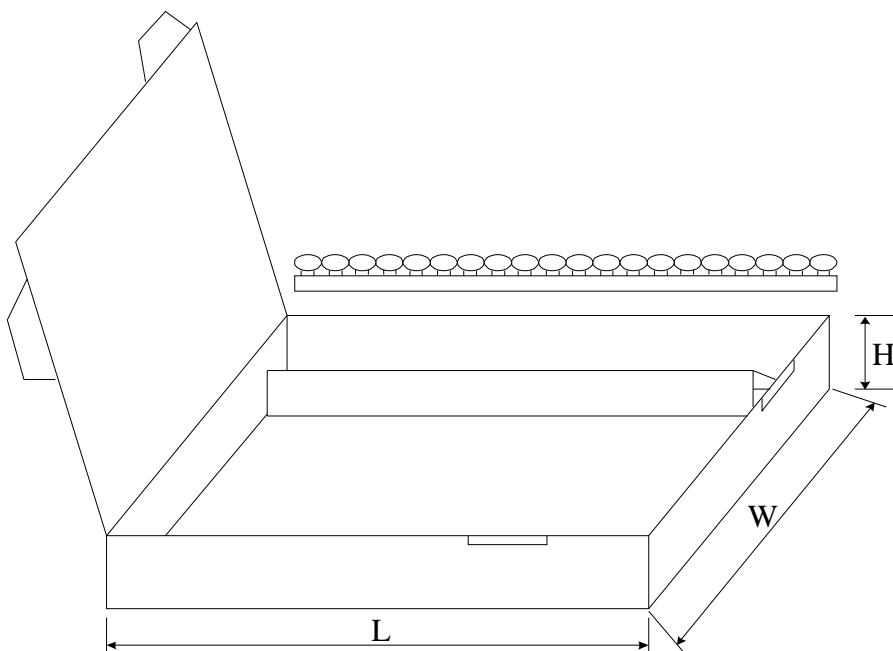
Item	Conditions
Temperature of Soldering Iron-tip	360°C (max.)
Soldering Time	2 sec (max.)
Distance from coating	6 mm (min.)

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 (647) 279-8500
 Merrillville, New York (866) 271-6500
 San Francisco, California (415) 398-6400
 Research Triangle Park
 North Carolina (919) 549-1400
 Camas, Washington (360) 871-5500



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
 Thermistor Type Devices - Component
 October 19, 2000

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

Negative temperature coefficient (NTC) thermistor, Type SCK followed by -037, -052, -253, -054, -065, -056, -057, -075, -067, -080, -084, -101, -102, -103, -104, -125, -122, -164, -184, -202, -203, -204, -253, -401, -473, -501X, -1103, -2R554, -2R56, -2R58
 Type SCK followed by -034, -035, -044, -046, -065, -085, -086, -123, -124, -125, -132, -133, -152X, -153, -154, -162, -162X, -163, -183, -252, -302, -305, -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.

11. certificate



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
 21 LANE 373 MINTSU 1ST RD
 SAN-MING DIST
 KAOHSIUNG 80759, TAIWAN

E138827

Inrush Limiting NTC:

Model No.	Voltage (V)	Current (A)		Max Load Capacitance (uF)	CA
		I _{max}	I _{ss}		
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



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.

11. certificate

Zertifikat

Certificate



Zertifikat Nr. *Certificate No.* Blatt *Page*
 R 50050155 0003

Ihr Zeichen <i>Client Reference</i>	Unser Zeichen <i>Our Reference</i>	Ausstellungsdatum	<i>Date of Issue</i> (day/month/year)
12025159/AC	ZTW2-KLL- 11002377 001	11.10.2004	

Genehmigungsinhaber <i>License Holder</i>	Fertigungsstätte <i>Manufacturing Plant</i>
Thinking Electronic Industrial Co., Ltd. No. 21, Lane 373, Min-Tzu 1st Rd. San-Ming Dist., Kaohsiung 807 Taiwan, R.O.C.	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* Geprüft nach *Tested acc. to*
 EN 60539-1:2002
 EN 60730-1:2000



Zertifiziertes Produkt (Geräteidentifikation) <i>Certified Product (Product Identification)</i>	Lizenzentgelte - Einheit <i>License Fee - Unit</i>
<u>Kaltleiter</u> (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 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.

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

Zertifizierungsstelle

Dipl.-Ing. M. Kröger



NSF International Strategic Registrations, Ltd.

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 Registrations.*



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:

IAP: 19
SIC: 36
NAE: DL32.1

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

Kevan P. Lawlor
NSF-ISR President

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



ANSI-IRAB Registered
Program No. 05-11-11
NSF-ISR, 789 North Dixboro
Road, Ann Arbor, MI
Registration No. 0623-01



NSF-ISR Registration
Program No. 05-11-11
NSF-ISR, 789 North Dixboro
Road, Ann Arbor, MI
Registration No. 0623-01