

THINKING ELECTRONIC INDUSTRIAL CO., LTD.

HEAD OFFICE: 12F, No.93, Dashun 1st Rd., Zuoying Dist., Kaohsiung, Taiwan
TEL: 886-7-5577660 FAX: 886-7-5570560

MANUFACTURING SITE

- ☐ KAOHSIUNG FACTORY: No.6, Xinjian S. Rd., Nanzi Dist., Kaohsiung City 811644, Taiwan
TEL: 886-7-9616668 FAX: 886-7-3866990
- ☐ KAOHSIUNG FACTORY 2: No. 2-2, Xinjian S. Rd., N.E.P.Z., Kaohsiung City 81170, Taiwan
TEL: 886-7-9630001 FAX: 886-7-3635113
- ☒ CHANGZHOU FACTORY: No.6 Longmen Rd., Wujin High & New-Tech Industrial Development Zone, Changzhou, Jiangsu, China 213161
TEL: 86-519-86578999 FAX: 86-519-86558643
- ☐ DONG GUAN FACTORY: No.45, East Rd., Sha-Tao Dist., Chang-An Town, Dongguan City, Guangdong, China 523863
TEL: 86-769-85542016 FAX: 86-769-85546890
- ☐ YICHANG FACTORY: No. 283 Xiaoting Avenue, Xiaoting Dist., Yichang City 443007, Hubei, China
TEL: 86-717-6510010 FAX: 86-717-6511430
- ☐ JIANGXI FACTORY: Tangying Road, Ceramics Industry Garden, Jingdezhen City, Jiangxi, China 333400
TEL: 86-798-2621372 FAX: 86-798-2126372

**SPECIFICATION FOR APPROVAL**

CUSTOMER	Blume-Ecker
CERTIFIED	
MODEL/TYPE	
PART NO.	SCH305R0MSBH501 (RoHS+HF)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Sep.24.2024
REV. NO.	
REV. DATE	

FOR CUSTOMER APPROVAL	CHECKED BY
	<i>Haili Gong</i>
	APPROVED BY
	<i>Huaifang Zhang</i>





NTC Thermistor SCH Type

Part No.: SCH305R0MSBH501

REVISED RECORD SHEET

REV. NO	REV. DATE	REVISED CONTENT



INDEX	Page
■ Part Number Code	1
■ Structure and Dimensions	2
■ Electrical Characteristics	2
■ Reliability	3
■ Soldering Recommendation	4
■ Max. Current Derating Curve	5
■ RoHS Compliant Declaration	5
■ Restriction of Weapon and Military End-Use	5
■ Warehouse Storage Conditions of Products	5
■ Certificates & Test Report	6
■ R-T Characteristic Curve	7
■ V-I Characteristic Curve	8

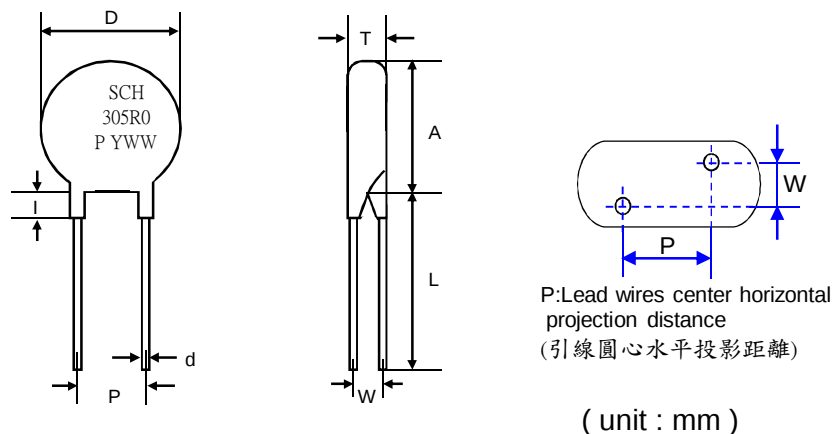
Part Number Code

Example :

SCH **30** **5R0** **M** **S** **B** **H501**
 (1) (2) (3) (4) (5) (6) (7)

No.	Item	Digit	Specification
(1)	Product Type	SCH	Thinking NTC thermistor SCH type
(2)	Body Size	30	φ 30 mm
(3)	Zero Power Resistance at 25°C (R ₂₅)	5R0	5 Ω
(4)	Tolerance of R ₂₅	M	± 20%
(5)	Appearance	S	Straight lead
(6)	Packaging	B	Bulk
(7)	Optional Suffix	H501	RoHS+HF compliance Using Pb base high melting temperature solder(Pb content ≥ 85%wt) I _{max} :20A@65°C

Structure and Dimensions



Body Size	D	P	d	l max.	A max.	L min.	T	W
φ 30mm	30~36	7.5±1	1±0.02	3	36	22	6±1	4.4±0.5

* "Y" is "year" code ; "WW" is "weeks" code .

Electrical Characteristics

Part No.	Zero Power Resistance at 25°C	Tolerance of R ₂₅	Max. Current (0-65°C)	Residual Resistance at 25°C I _{max}	Max. Power Rating at 25°C I _{max} ² *R _I max
	R ₂₅ (Ω)	(± %)	I _{max} (A)	R _I max(Ω)	P _{max} (W)
SCH305R0MSBH501	5	20	20	0.045	12.5

Part No.	Dissipation Factor	Thermal Time Constant	Capacitance at 240Vac	Operating Temperature Range
	δ (mW/°C)	τ (sec.)	(uF)	T _L ~T _U (°C)
SCH305R0MSBH501	Approx. 40	Approx. 190	5209	-40 ~+200

Note: Due to the mechanical force, which is acted on the wire lead, the coating may have cracks worn white and chips. However, it does not affect the performance and reliability of the component.

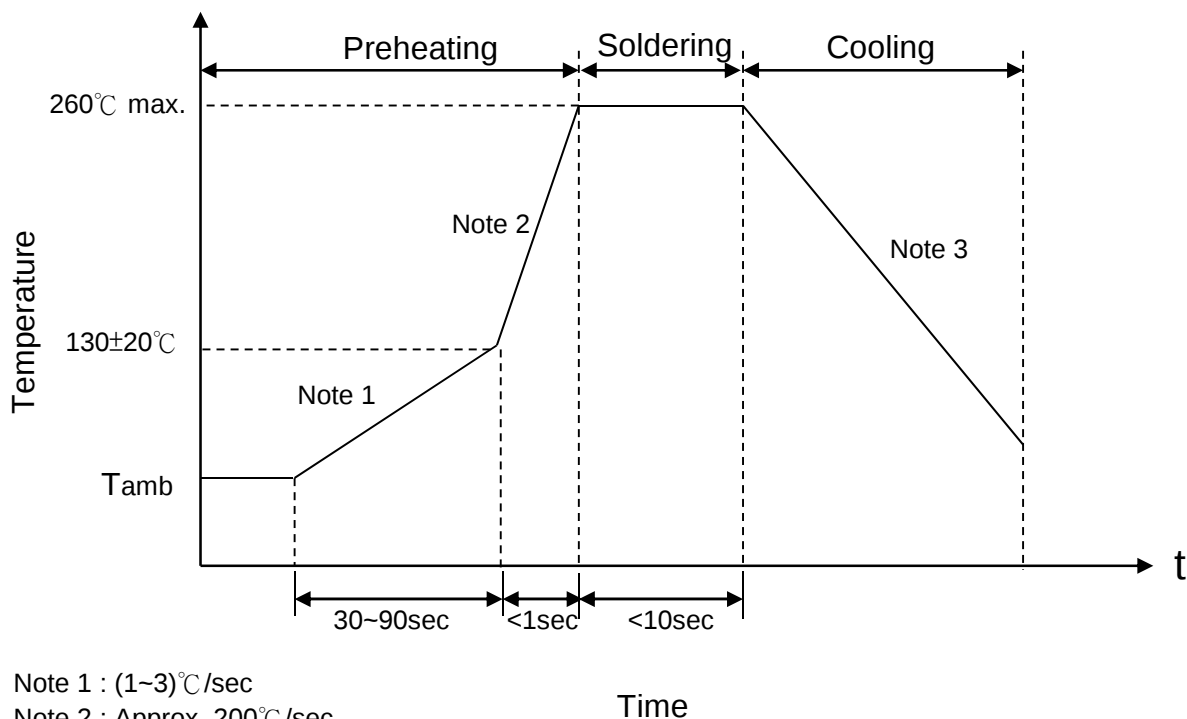
Reliability

Item	Standard	Test conditions / Methods			Specifications																			
Tensile Strength of Terminals	IEC60068-2-21	Gradually applying the force specified and keeping the unit fixed for 10±1 sec. <table><tr><td>Terminal diameter (mm)</td><td>Force (Kg)</td></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>			Terminal diameter (mm)	Force (Kg)	0.5<d≤0.8	1.0	0.8<d≤1.25	2.0	ΔR ₂₅ /R ₂₅ ≤ 10%													
Terminal diameter (mm)	Force (Kg)																							
0.5<d≤0.8	1.0																							
0.8<d≤1.25	2.0																							
Solderability	IEC60068-2-20	245 ± 3 °C , 3 ± 0.3 sec			Inspection shall be carried out with the assistance of a magnifier capable of giving a magnification of 4 x to 10 x . At least 95% of terminal electrode is covered by new solder. The dipped surface shall be covered with a smooth and bright solder coating with no more than small amounts of scattered imperfections such as pin-holes or un-wetted or de-wetted areas. These imperfections shall not be concentrated in one area.																			
Resistance to Soldering Heat	IEC60068-2-20	260 ± 3 °C ,10 ± 1 sec			No visible damage ΔR ₂₅ /R ₂₅ ≤ 10%																			
High Temperature Storage	IEC60068-2-2	Tu ± 2 °C , 1000 ± 24 hrs			No visible damage ΔR ₂₅ /R ₂₅ ≤ 20%																			
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C , 9 0 ~ 95 % RH , 1000 ± 24 hrs			No visible damage ΔR ₂₅ /R ₂₅ ≤ 20%																			
Rapid Change of Temperature	IEC60068-2-14	<table><tr><td colspan="3">The conditions shown below shall be repeated 5 cycles</td></tr><tr><td>Step</td><td>Temperature (°C)</td><td>Period (minutes)</td></tr><tr><td>1</td><td>T_L ± 3</td><td>30 ± 3</td></tr><tr><td>2</td><td>Room temperature</td><td>≤3</td></tr><tr><td>3</td><td>Tu ± 2</td><td>30 ± 3</td></tr><tr><td>4</td><td>Room temperature</td><td>≤3</td></tr></table>			The conditions shown below shall be repeated 5 cycles			Step	Temperature (°C)	Period (minutes)	1	T _L ± 3	30 ± 3	2	Room temperature	≤3	3	Tu ± 2	30 ± 3	4	Room temperature	≤3	No visible damage ΔR ₂₅ /R ₂₅ ≤ 20%	
The conditions shown below shall be repeated 5 cycles																								
Step	Temperature (°C)	Period (minutes)																						
1	T _L ± 3	30 ± 3																						
2	Room temperature	≤3																						
3	Tu ± 2	30 ± 3																						
4	Room temperature	≤3																						
Max. Current	IEC60539-1 4.26.1	25 ± 5 °C , I _{max} , 1000 ± 24 hrs			No visible damage ΔR ₂₅ /R ₂₅ ≤ 20%																			
Endurance Maximum permissible capacitance test	IEC60539-1 5.25.6	Ambient temperature: 25 ±5 °C. Capacitance = C _{test} , Number of cycles: 1000, Cooling time = 5τ.			No visible damage ΔR ₂₅ /R ₂₅ ≤ 20%																			
Insulation	MIL-STD-202F-Method 302	1000 V _{DC} 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).

Soldering Recommendation

Wave Soldering Profile



Note 1 : $(1 \sim 3)^{\circ}\text{C/sec}$

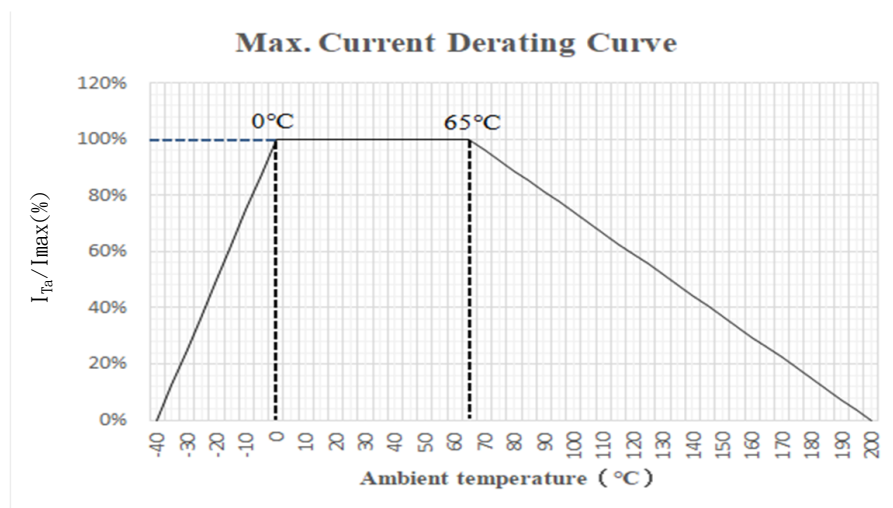
Note 2 : $\text{Approx. } 200^{\circ}\text{C/sec}$

Note 3 : $5^{\circ}\text{C/sec max.}$

Recommended Reworking Conditions with Soldering Iron

Item	Conditions
Temperature of Soldering Iron-tip	$360^{\circ}\text{C (max.)}$
Soldering Time	3 sec (max.)
Distance From Thermistor	2 mm (min.)

Max. Current Derating Curve



Note: T_L = Minimum operating temperature ($^{\circ}\text{C}$)

T_U = Maximum operating temperature ($^{\circ}\text{C}$)

①: When $T_L < T_a < 0^{\circ}\text{C}$ · $I_{Ta} = (1 - T_a/T_L) \times I_{max}$

②: When $65^{\circ}\text{C} < T_a < T_U$ · $I_{Ta} = [1 - (T_a - 65)/(T_U - 65)] \times I_{max}$

For example :

①: When ambient temperature(T_a) = -10°C

Minimum operating temperature(T_L) = -40°C

$I_{Ta} = (1 - T_a/T_L) \times I_{max} = 75\% I_{max}$.

②: When ambient temperature(T_a) = 85°C

Maximum operating temperature(T_U) = 200°C

$I_{Ta} = [1 - (T_a - 65)/(T_U - 65)] \times I_{max} = 85.2\% I_{max}$.

RoHS Compliant Declaration

We hereby declare that the components delivered to your company are compliant with RoHS directive 2015/863/EU.

Restriction of Weapon and Military End-Use

Thinking has established and implemented the fundamental policy on none of our product should be used or sold, through any channels, for use in the design, development, production, utilization, maintenance or operation of, or otherwise contribution to any weapons (Weapons of Mass Destruction [nuclear, chemical or biological weapons or missiles] or conventional weapons) or goods or systems specially designed or intended for military end-use or utilization by military end-users.

Warehouse Storage Conditions of Products

(I) Storage Conditions :

1.Storage Temperature : $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$

2.Relative Humidity : $\leq 75\% \text{RH}$

3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year



Certificates

- (1) IATF 16949 certificate
- (2) ISO 9001 certificate

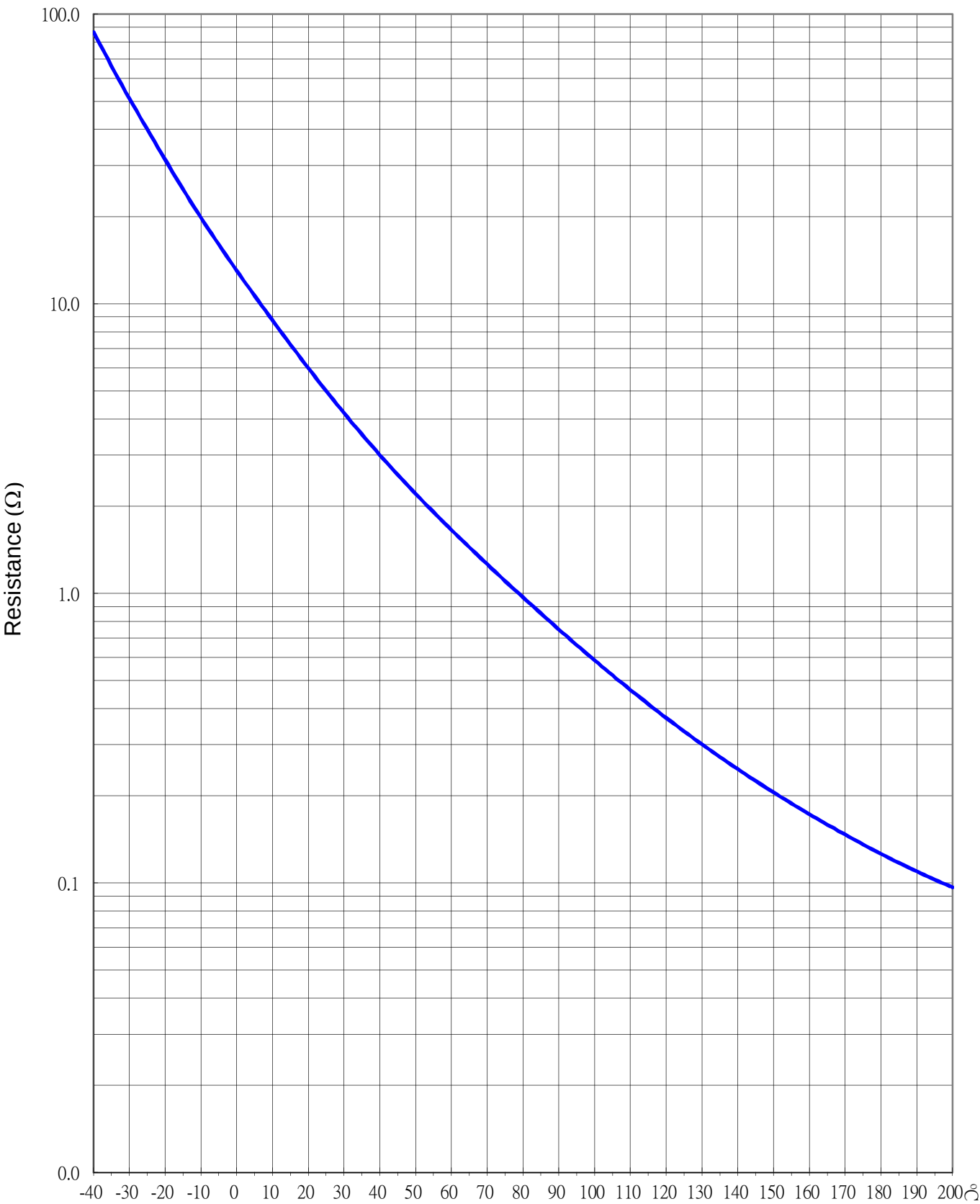
Test Report

- (1) RoHS test report
- (2) Halogen-free test report



R-T Characteristic Curve

SCH305R0MSBH501



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

SCH305R0MSBH501

