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**SPECIFICATION FOR APPROVAL**

CUSTOMER	Blume-E.I.S.-Knestel
CERTIFIED	
MODEL/TYPE	
PART NO.	SCH20100MSBY501 (RoHS+HF)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Jun.05.2024
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.: SCH20100MSBY501

REVISED RECORD SHEET

REV. NO	REV. DATE	REVISED CONTENT



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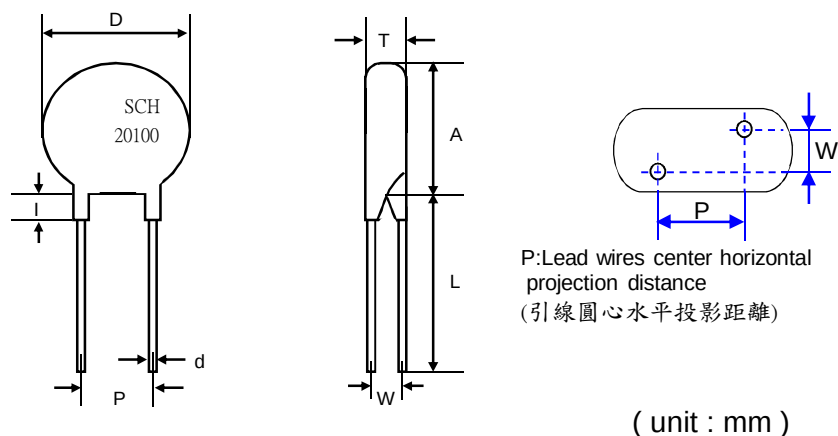
Part Number Code

Example :

SCH **20** **100** **M** **S** **B** **Y501**
 (1) (2) (3) (4) (5) (6) (7)

No.	Item	Digit	Specification
(1)	Product Type	SCH	Thinking NTC thermistor SCH type
(2)	Body Size	20	φ 20 mm
(3)	Zero Power Resistance at 25°C (R ₂₅)	100	$10 \times 10^0 \Omega = 10 \Omega$
(4)	Tolerance of R ₂₅	M	± 20%
(5)	Appearance	S	Straight lead
(6)	Packaging	B	Bulk
(7)	Optional Suffix	Y501	RoHS+HF compliance

Structure and Dimensions



Body Size	D	P	d	I max.	A max.	L min.	T	W
φ 20mm	18~21.5	7.5±0.5	1±0.02	3	21.5	26	3.5~6	3.1±0.5

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)
SCH20100MSBY501	10	20	7.5	0.126	7.1

Part No.	Dissipation Factor	Thermal Time Constant	Capacitance at 240Vac	Operating Temperature Range
	δ (mW/°C)	τ (sec.)	(uF)	T _L ~T _U (°C)
SCH20100MSBY501	Approx. 28	Approx. 113	1200	-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.

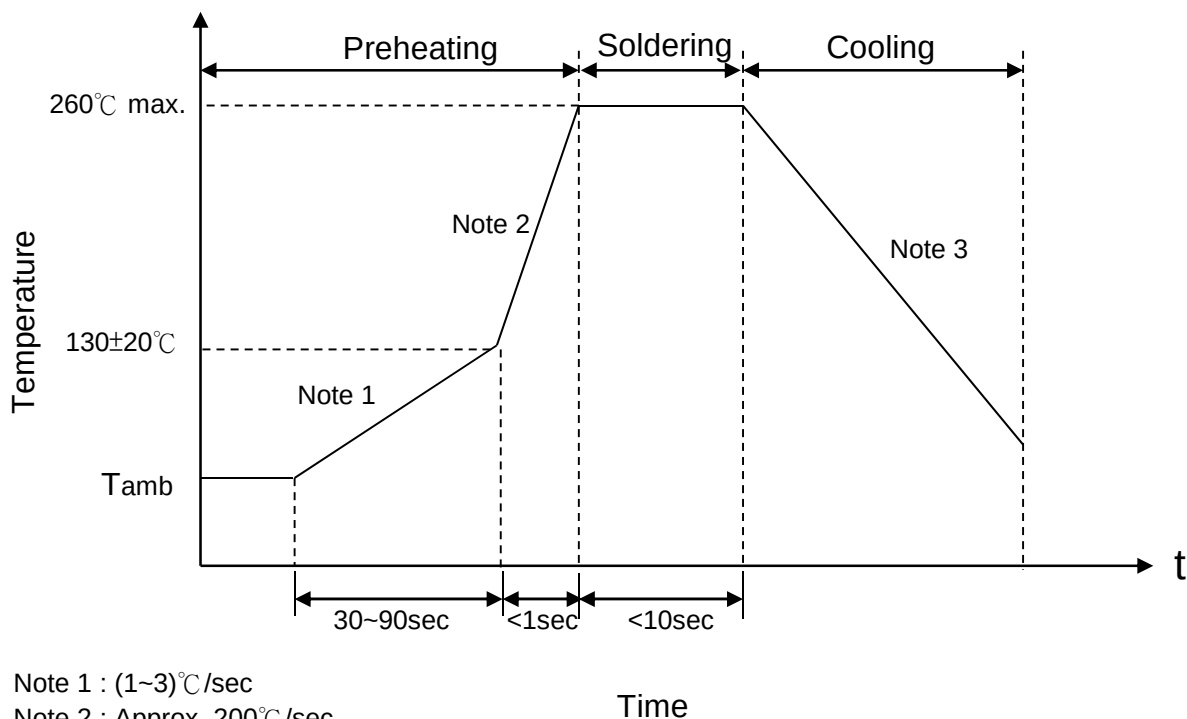
Reliability

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. Terminal diameter (mm) Force (Kg) 0.5<d≤0.81.0 0.8<d≤1.252.0			$ \Delta R_{25}/R_{25} \leq 10\%$															
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 $ \Delta R_{25}/R_{25} \leq 10\%$															
High Temperature Storage	IEC60068-2-2	Tu ± 2 °C , 1000 ± 24 hrs			No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Damp Heat, Steady State	IEC 60068-2-78	40 ± 2°C , 9 0 ~ 95 % RH , 1000 ± 24 hrs			No visible damage $ \Delta R_{25}/R_{25} \leq 20\%$															
Rapid Change of Temperature	IEC60068-2-14	The conditions shown below shall be repeated 5 cycles <table><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>			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 $ \Delta R_{25}/R_{25} \leq 20\%$
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 $ \Delta R_{25}/R_{25} \leq 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 $ \Delta R_{25}/R_{25} \leq 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 CTDP (Client Test Data Program).

Soldering Recommendation

■ Wave Soldering Profile



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

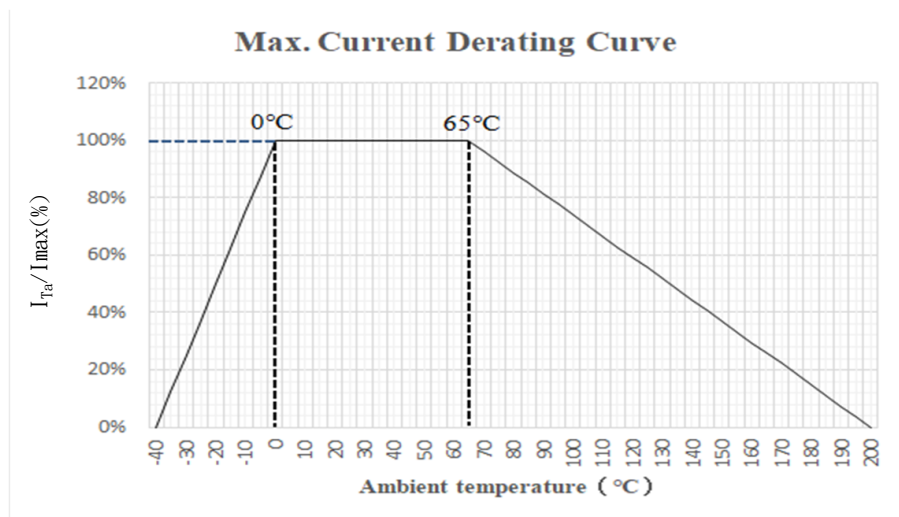
Note 2 : Approx. 200°C/sec

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 (°C)
 T_U = Maximum operating temperature (°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°C ~+40°C
- 2.Relative Humidity : $\leq 75\%RH$
- 3.Keep away from corrosive atmosphere and sunlight.

(II) Period of Storage : 1 year

Certificates

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

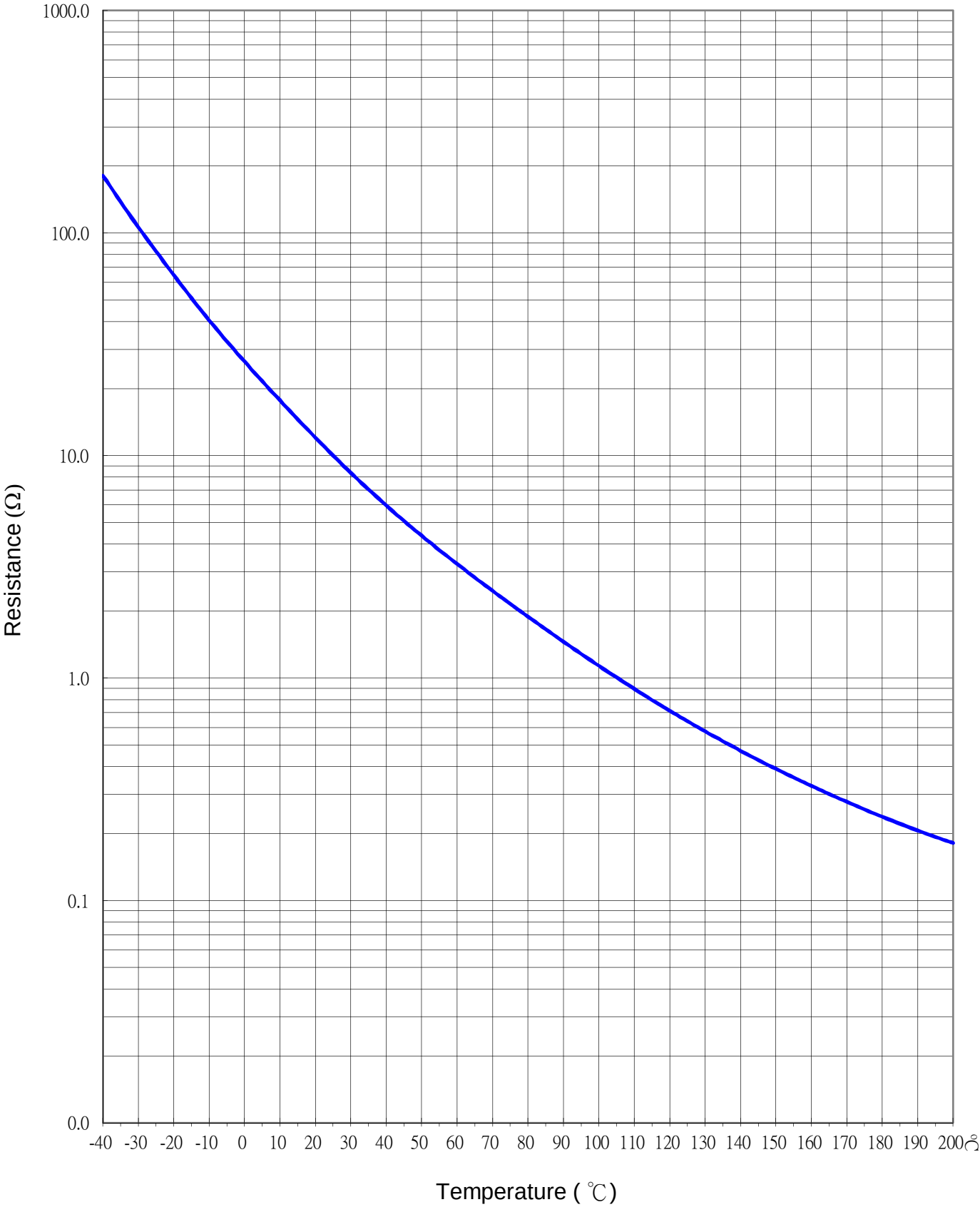
Test Report

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



R-T Characteristic Curve

SCH20100MSBY501



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

SCH20100MSBY501

