



承认书

SPECIFICATION FOR APPROVAL

制造商 corporation

广东至敏电子有限公司

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桂林至敏电子科技有限公司

GUILIN SEMISAM ELECTRONIC TECHNOLOGY CO., LTD

Add:Floor 1-3 building 5 B18 standard workshop Suqiao Industrial ParkGuilin economic

and Technological Development ZoneGuilin City Guangxi Zhuang Autonomous Region

客户名称:

CUSTOMER :

产品名称:

PART NAME : 功率型 NTC 热敏电阻 Power NTC thermistors

认证型号:

CERTIFIED MODEL :

产品编码:

Product code:

产品料号:

PART No. : HNPxxxDxx

客户料号:

CUSTOMER P/N :


其他说明:

REMARK :

编制日期: Compile Date:	20-11-22	修订日期: Revision date:	2022/05/20	版本: Edition:	2.1
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供应商确认 Supplier confirmation			
编制 Editor		日期 Date	
审核 Check		日期 Date	
批准 Approval		日期 Date	
加盖 印章 Affix a seal			

客户确认 Customer confirmation			
编制 Editor		日期 Date	
审核 Check		日期 Date	
批准 Approval		日期 Date	
加盖 印章 Affix a seal			

	产品名称 Product Name	功率型 NTC 热敏电阻 Power NTC thermistors	版本 Edition	2.1
	规格型号 Specification model	HNPxxxDxx	修订日期 Revision date	2022-05-20

■ 特点

characteristics

1. 满足RoHS、HF、REACH要求
(Meet the requirements of RoHS, HF and REACH)
2. 本体尺寸(Body size) $\Phi 5\text{mm} \sim \Phi 30\text{mm}$
3. 径向引线硅树脂封装 (Silicone package for radial lead)
4. 高额定功率、低工作功耗
(High rated power, low power consumption)
5. 较宽的阻值范围 (Wide resistance range)
6. 高性价比 (High cost performance)
7. 工作温度范围 (Operating temperature range)
 - $\Phi 5\text{mm}$: $-40 \sim +150^\circ\text{C}$
 - $\Phi 7 \sim \Phi 11\text{mm}$: $-40 \sim +170^\circ\text{C}$
 - $\Phi 13\text{mm} \sim \Phi 30\text{mm}$: $-40 \sim +200^\circ\text{C}$



■ 用途


Recommended Applications

1. 电源供应器、逆变电源、UPS电源(Power supply, inverter power supply, UPS power supply)
2. 变压器、适配器、充电器(Transformer, adapter, charger)
3. 家用电器、影音设备(Household electrical appliances, AUDIO-visual equipment)
4. 通信、电子马达、照明 (Communications, electronic motors, lighting)

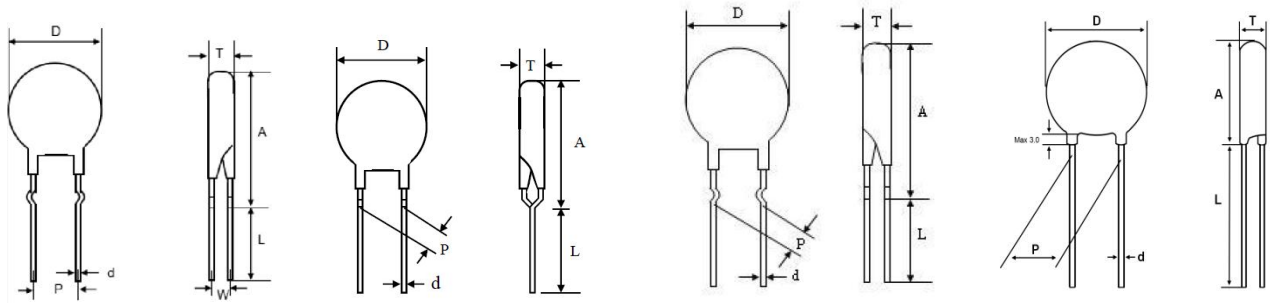
■ 产品物料编码规则 Part Number Code

● $\Phi 5\text{mm} \sim \Phi 30\text{mm}$

H	N	P	1	2	0	D	1	3	M	S	C	C	3	0					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Product Type			25°C zero power resistance			Chip shape	Body size		R ₂₅ resistance tolerance		Lead style		Pin pitch		Packing		Cutting lead length		Special control
SEMISAM thermistor HNP series			0R5	0.5 Ω		D:Disk	5	φ5mm	L	±15%	S	Straight lead	A	2.5mm	C	Cutting leads	30	3.0mm	
			2R5	2.5 Ω			7	φ7mm	M	±20%	O	Out lead	B	5.0mm	AB	Taping 12.7mm and Box	35	3.5mm	
			8	8 Ω			9	φ9mm	N	±25%	I	Inner lead	C	7.5mm	DB	Taping 15.0mm and Box			
			20	20 Ω			11	φ11mm			Y	Y kink	D	10.0mm	R	Taping and Reel			
			120	120 Ω			13	φ13mm					4	4.0mm	Blank	Bulk			
							15	φ15mm					6	6.0mm					
							30	φ30mm											

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2、尺寸与电性参数 Dimension and general electrical data



O 型 O Kink

Y 型 Y Kink

I 型 I Kink

S 型 S Kink

备注: 其他脚型/脚距产品可根据需求提供

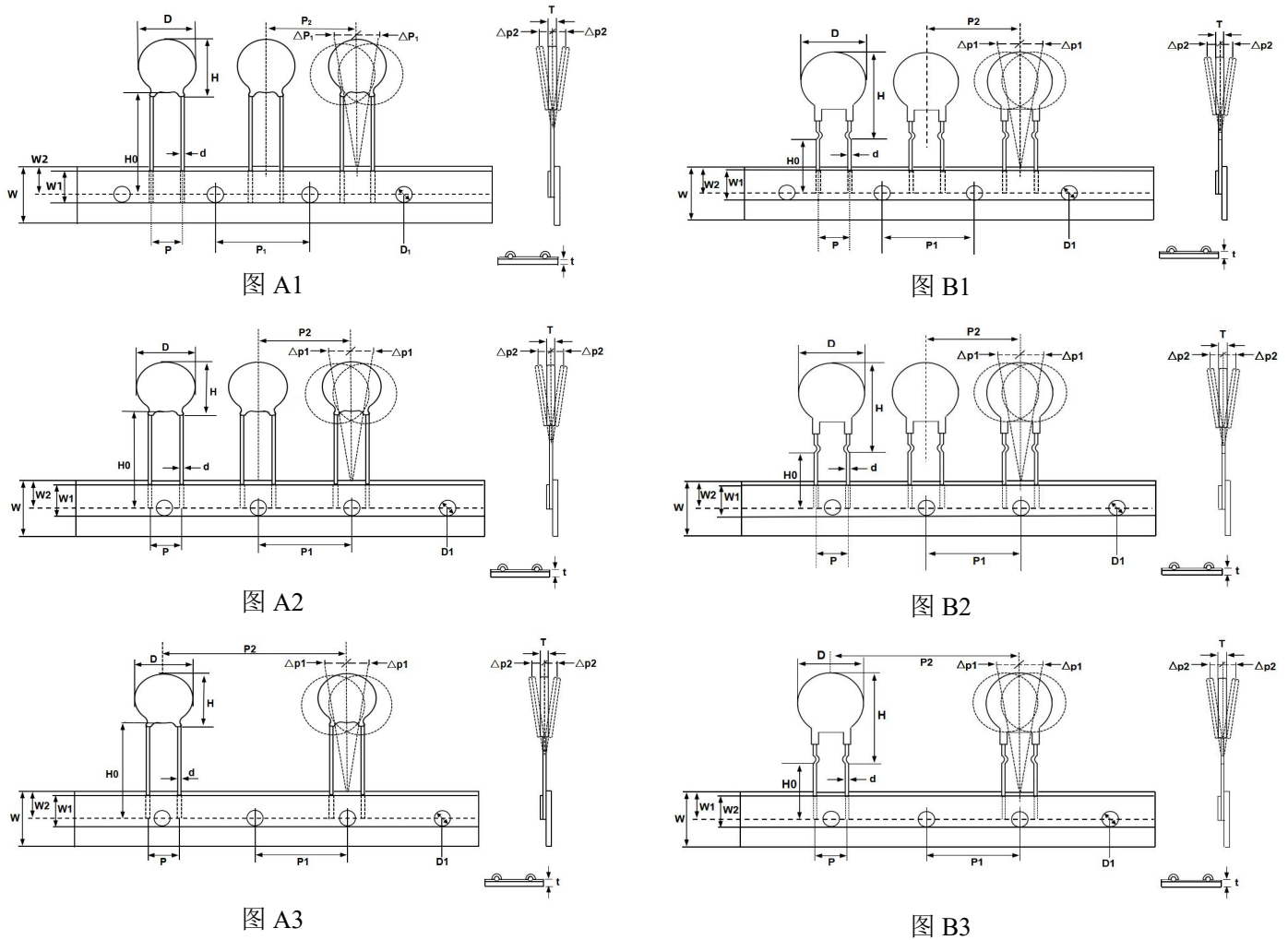
Remark: alternative lead/lead spacing configurations available on request

序号 No.	系列 Series	直径 D_{max} D, Max. diameter (mm)	厚度 T_{max} T, Max. thickness (mm)	间距 P P, Lead spacing (mm)	脚径 d d, Lead diameter (mm)	弯脚高度 Bending height A_{max} Max.height (mm)	直脚高度 Straight leg height A_{max} Max.height (mm)	脚长 L_{min} L, Min. Lead length (mm)	耗散系数 δ_{th} δ_{th} , Dissipation factor (mW/K)	热时常数 τ_c τ_c , Thermal constant (s)	工作温度范围 $T_L \sim T_U$, Working temperature range ($^{\circ}C$)
1	D5	7	5	5 ± 0.5	0.6 ± 0.05	12.5	10	3	7 ± 3	20 ± 6	-40 ~ +150
2	D7	8.5	5	5 ± 0.5	0.6 ± 0.05	14.5	11.5	3	8 ± 3	30 ± 9	-40 ~ +170
3	D9	9.5	5	5 ± 0.5	0.8 ± 0.05	15.5	12.5	3	9 ± 3	40 ± 12	-40 ~ +170
4	D11	12	6	5 ± 0.5	0.8 ± 0.05	18	15	3	11 ± 4	60 ± 18	-40 ~ +170
5	D13	13	6	7.5 ± 0.5	0.8 ± 0.05	19	16	3	12 ± 4	70 ± 21	-40 ~ +200
6	D15	16	6	7.5 ± 0.5	0.8 ± 0.05	22	19	3	17 ± 5	80 ± 24	-40 ~ +200
7	D18	19	7	7.5 ± 0.8	1.0 ± 0.05	25	21	3	25 ± 8	90 ± 27	-40 ~ +200
8	D20	23	7	7.5 ± 1.0	1.0 ± 0.05	29	26	3	30 ± 9	100 ± 30	-40 ~ +200
9	D25	28	8	7.5 ± 1.0	1.0 ± 0.05	34	31	3	40 ± 12	125 ± 38	-40 ~ +200
10	D30	34	8	7.5 ± 1.0	1.0 ± 0.05	40	37	3	50 ± 12	170 ± 51	-40 ~ +200



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12.7mm 编带尺寸图 (以直脚和内弯脚举例)



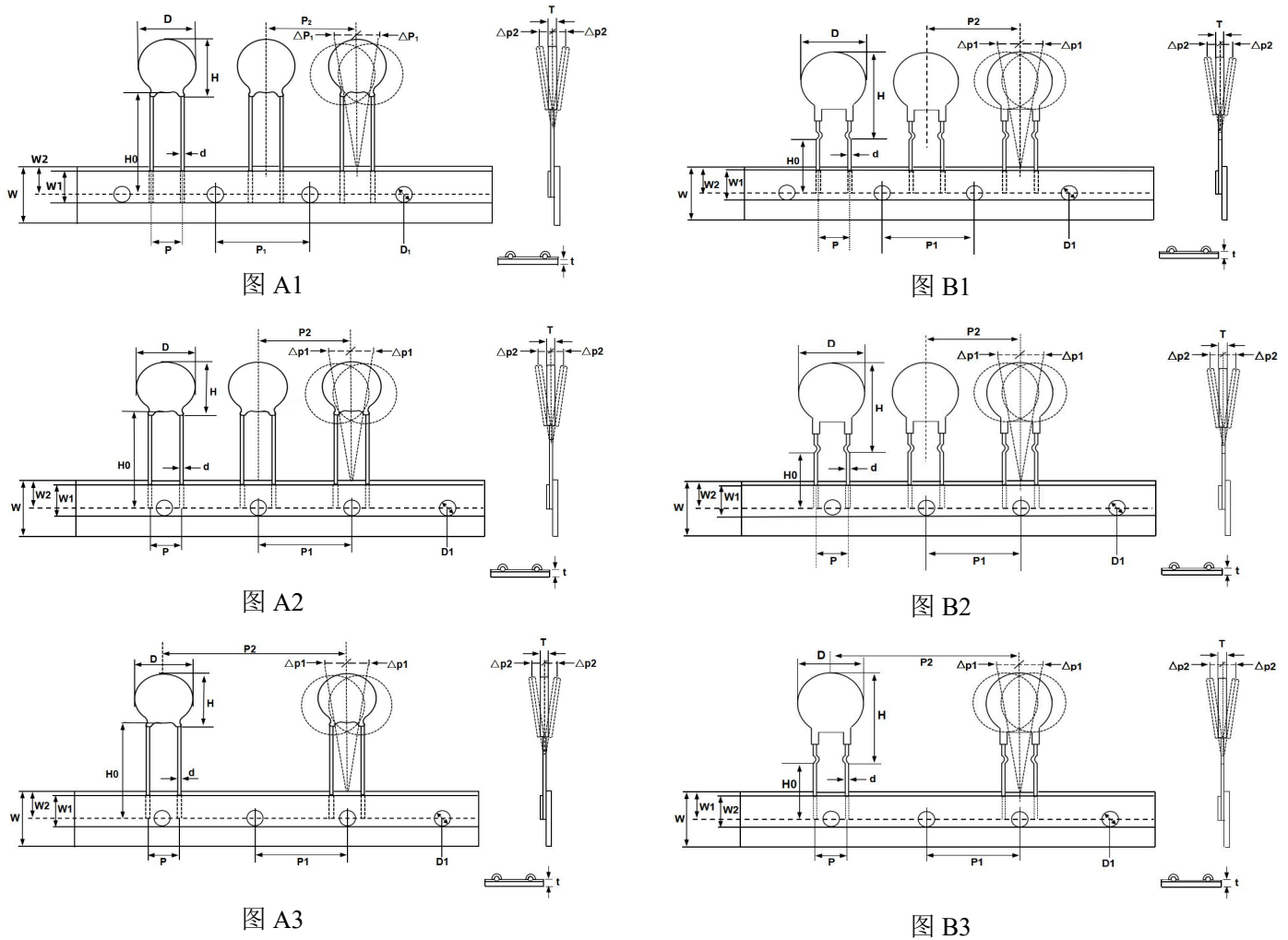
(Unit:mm)

系列	P1 ±0.5	P2 ±1.0	W ±1.0	W1 ±1.0	W2 ±0.5	△P1 Max.	△P2 Max.	D1 ±0.2	t ±0.2	H0 ±1.0		P	图形	
										直脚	内弯		直脚	内弯
D5	12.7	12.7	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
D7	12.7	12.7	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
D9	12.7	12.7	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
												7.5±0.5	A2	B2
D11	12.7	12.7	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
												7.5±0.5	A2	B2
D13	12.7	12.7	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.5	A2	B2
D15	12.7	25.4	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.5	A3	B3
D18	12.7	25.4	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.8	A3	B3
D20	12.7	25.4	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±1.0	A3	B3




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15.0mm 编带尺寸图 (以直脚和内弯脚举例)



(Unit:mm)

系列	P1 ±0.5	P2 ±1.0	W ±1.0	W1 ±1.0	W2 ±0.5	ΔP1 Max.	ΔP2 Max.	D1 ±0.2	t ±0.2	H0 ±1.0		P	图形	
										直脚	内弯		直脚	内弯
D5	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
D7	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
D9	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
												7.5±0.5	A2	B2
D11	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	5.0±0.5	A1	B1
												7.5±0.5	A2	B2
D13	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.5	A2	B2
D15	15.0	15.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.5	A2	B2
D18	15.0	30.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±0.8	A3	B3
D20	15.0	30.0	18.0	8.0	9.0	2.0	2.0	4.0	0.5	20.0	17.5	7.5±1.0	A3	B3

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3、型号与电性规格 Types and electrical specification

No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
1	HNP3D5	3	±20%	2.5	2500	±5%	100
2	HNP4D5	4	±20%	2	2500	±5%	100
3	HNP4R7D5	4.7	±20%	2	2550	±5%	100
4	HNP5D5	5	±20%	2	2550	±5%	100
5	HNP6D5	6	±20%	2	2550	±5%	100
6	HNP8D5	8	±20%	1.5	2600	±5%	100
7	HNP10D5	10	±20%	1.5	2650	±5%	100
8	HNP12D5	12	±20%	1.5	2650	±5%	100
9	HNP16D5	16	±20%	1.2	2700	±5%	100
10	HNP20D5	20	±20%	1	2700	±5%	100
11	HNP1R5D7	1.5	±20%	4	2500	±5%	150
12	HNP2R5D7	2.5	±20%	4	2550	±5%	150
13	HNP3D7	3	±20%	3	2550	±5%	150
14	HNP4D7	4	±20%	3	2600	±5%	150
15	HNP5D7	5	±20%	3	2600	±5%	150
16	HNP6D7	6	±20%	3	2650	±5%	150
17	HNP7D7	7	±20%	2.5	2650	±5%	150
18	HNP8D7	8	±20%	2.5	2700	±5%	150
19	HNP10D7	10	±20%	2	2700	±5%	150
20	HNP12D7	12	±20%	2	2700	±5%	150
21	HNP15D7	15	±20%	1.5	2750	±5%	150
22	HNP16D7	16	±20%	1.5	2750	±5%	150
23	HNP20D7	20	±20%	1.5	2800	±5%	150
24	HNP30D7	30	±20%	1	2850	±5%	150
25	HNP1D9	1	±20%	5	2500	±5%	220
26	HNP1R5D9	1.5	±20%	4.5	2500	±5%	220
27	HNP2D9	2	±20%	4.5	2550	±5%	220
28	HNP2R5D9	2.5	±20%	4.5	2550	±5%	220
29	HNP3D9	3	±20%	4	2600	±5%	220
30	HNP4D9	4	±20%	3.5	2650	±5%	220
31	HNP5D9	5	±20%	3.5	2650	±5%	220
32	HNP6D9	6	±20%	3.5	2700	±5%	220
33	HNP7D9	7	±20%	3	2700	±5%	220
34	HNP8D9	8	±20%	3	2700	±5%	220
35	HNP10D9	10	±20%	2.5	2750	±5%	220
36	HNP12D9	10	±20%	2.5	2800	±5%	220



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No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
37	HNP15D9	15	±20%	2	2800	±5%	220
38	HNP16D9	16	±20%	2	2800	±5%	220
39	HNP20D9	20	±20%	2	2850	±5%	220
40	HNP25D9	20	±20%	1.5	2900	±5%	220
41	HNP30D9	30	±20%	1.5	2950	±5%	220
42	HNP0R7D11	0.7	±20%	6 (6.5)	2500	±5%	330 (470)
43	HNP1D11	1	±20%	6 (6.5)	2500	±5%	330 (470)
44	HNP1R3D11	1.3	±20%	5.5 (6)	2550	±5%	330 (470)
45	HNP1R5D11	1.5	±20%	5.5 (6)	2550	±5%	330 (470)
46	HNP2R5D11	2.5	±20%	5 (5.5)	2600	±5%	330 (470)
47	HNP3D11	3	±20%	5 (5.5)	2650	±5%	330 (470)
48	HNP4D11	4	±20%	4 (4.5)	2650	±5%	330 (470)
49	HNP5D11	5	±20%	4 (4.5)	2700	±5%	330 (470)
50	HNP6R8D11	6.8	±20%	3.3 (3.5)	2750	±5%	330 (470)
51	HNP7D11	7	±20%	3.3 (3.5)	2750	±5%	330 (470)
52	HNP8D11	8	±20%	3.3 (3.5)	2750	±5%	330 (470)
53	HNP10D11	10	±20%	3 (3.2)	2800	±5%	330 (470)
54	HNP12D11	12	±20%	3 (3.2)	2800	±5%	330 (470)
55	HNP13D11	13	±20%	2.5 (3.2)	2850	±5%	330 (470)
56	HNP15D11	15	±20%	2.5 (2.8)	2850	±5%	330 (470)
57	HNP16D11	16	±20%	2.5 (2.8)	2850	±5%	330 (470)
58	HNP20D11	20	±20%	2.2 (2.5)	2900	±5%	330 (470)
59	HNP22D11	22	±20%	2 (2.5)	2950	±5%	330 (470)
60	HNP25D11	25	±20%	2 (2.2)	2950	±5%	330 (470)
61	HNP30D11	30	±20%	2 (2.2)	3050	±5%	330 (470)
62	HNP33D11	33	±20%	2 (2.2)	3050	±5%	330 (470)
63	HNP47D11	47	±20%	1.5 (2)	3150	±5%	330 (470)
64	HNP50D11	50	±20%	1.5 (2)	3150	±5%	330 (470)
65	HNP80D11	80	±20%	1.3 (1.5)	3200	±5%	330 (470)
66	HNP100D11	100	±20%	1.2 (1.3)	3300	±5%	330 (470)
67	HNP120D11	120	±20%	1 (1.2)	3400	±5%	330 (470)
68	HNP0R7D13	0.7	±20%	7	2500	±5%	500
69	HNP1D13	1	±20%	7	2550	±5%	500
70	HNP1R3D13	1.3	±20%	7	2550	±5%	500
71	HNP1R5D13	1.5	±20%	7	2550	±5%	500
72	HNP2D13	2	±20%	6	2600	±5%	500
73	HNP2R5D13	2.5	±20%	6	2650	±5%	500
74	HNP3D13	3	±20%	6	2650	±5%	500



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No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
75	HNP4D13	4	±20%	5	2700	±5%	500
76	HNP4R7D13	4.7	±20%	5	2700	±5%	500
77	HNP5D13	5	±20%	5	2750	±5%	500
78	HNP6R8D13	6.8	±20%	4	2800	±5%	500
79	HNP7D13	7	±20%	4	2800	±5%	500
80	HNP8D13	8	±20%	4	2800	±5%	500
81	HNP10D13	10	±20%	4	2850	±5%	500
82	HNP12D13	12	±20%	4	2850	±5%	500
83	HNP15D13	15	±20%	3	2900	±5%	500
84	HNP16D13	16	±20%	3	2900	±5%	500
85	HNP18D13	18	±20%	3	2950	±5%	500
86	HNP20D13	20	±20%	3	3000	±5%	500
87	HNP22D13	22	±20%	3	3000	±5%	500
88	HNP25D13	25	±20%	2.5	3050	±5%	500
89	HNP30D13	30	±20%	2.5	3100	±5%	500
90	HNP33D13	33	±20%	2.5	3150	±5%	500
91	HNP47D13	47	±20%	2.3	3200	±5%	500
92	HNP50D13	50	±20%	2.3	3200	±5%	500
93	HNP80D13	80	±20%	2	3300	±5%	500
94	HNP100D13	100	±20%	1.5	3400	±5%	500
95	HNP120D13	120	±20%	1.5	3400	±5%	500
96	HNP0R7D15	0.7	±20%	9	2550	±5%	680
97	HNP1D15	1	±20%	9	2600	±5%	680
98	HNP1R3D15	1.3	±20%	9	2650	±5%	680
99	HNP1R5D15	1.5	±20%	9	2650	±5%	680
100	HNP2D15	2	±20%	8	2700	±5%	680
101	HNP2R5D15	2.5	±20%	8	2700	±5%	680
102	HNP3D15	3	±20%	8	2750	±5%	680
103	HNP4D15	4	±20%	7	2800	±5%	680
104	HNP5D15	5	±20%	6	2800	±5%	680
105	HNP6D15	6	±20%	5.5	2850	±5%	680
106	HNP7D15	7	±20%	5	2850	±5%	680
107	HNP8D15	8	±20%	5	2900	±5%	680
108	HNP10D15	10	±20%	5	2950	±5%	680
109	HNP12D15	12	±20%	5	3000	±5%	680
110	HNP15D15	15	±20%	4	3100	±5%	680
111	HNP16D15	16	±20%	4	3100	±5%	680
112	HNP20D15	20	±20%	4	3150	±5%	680



	产品名称 Product Name	功率型 NTC 热敏电阻 Power NTC thermistors	版本 Edition	2.1
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No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
113	HNP25D15	25	±20%	3.5	3200	±5%	680
114	HNP30D15	30	±20%	3.5	3200	±5%	680
115	HNP33D15	33	±20%	3	3200	±5%	680
116	HNP47D15	47	±20%	3	3300	±5%	680
117	HNP50D15	50	±20%	3	3400	±5%	680
118	HNP60D15	60	±20%	2.5	3400	±5%	680
119	HNP80D15	80	±20%	2.5	3450	±5%	680
120	HNP100D15	100	±20%	2	3450	±5%	680
121	HNP120D15	120	±20%	2	3500	±5%	680
122	HNP0R7D18	0.7	±20%	15	2600	±5%	1000
123	HNP1D18	1	±20%	14	2650	±5%	1000
124	HNP1R3D18	1.3	±20%	13	2700	±5%	1000
125	HNP1R5D18	1.5	±20%	12	2700	±5%	1000
126	HNP2D18	2	±20%	11	2750	±5%	1000
127	HNP2R5D18	2.5	±20%	10	2800	±5%	1000
128	HNP3D18	3	±20%	9	2800	±5%	1000
129	HNP4D18	4	±20%	8.5	2850	±5%	1000
130	HNP4R7D18	4.7	±20%	8	2850	±5%	1000
131	HNP5D18	5	±20%	7.5	2850	±5%	1000
132	HNP6D18	6	±20%	7	2900	±5%	1000
133	HNP6R8D18	6.8	±20%	7	2950	±5%	1000
134	HNP7D18	7	±20%	6.5	2950	±5%	1000
135	HNP8D18	8	±20%	6.5	3000	±5%	1000
136	HNP10D18	10	±20%	6	3100	±5%	1000
137	HNP12D18	12	±20%	5.5	3100	±5%	1000
138	HNP13D18	13	±20%	5.5	3150	±5%	1000
139	HNP15D18	15	±20%	5	3150	±5%	1000
140	HNP16D18	16	±20%	5	3200	±5%	1000
141	HNP18D18	18	±20%	5	3200	±5%	1000
142	HNP20D18	20	±20%	4.5	3200	±5%	1000
143	HNP25D18	25	±20%	4.5	3300	±5%	1000
144	HNP30D18	30	±20%	4	3300	±5%	1000
145	HNP33D18	33	±20%	4	3400	±5%	1000
146	HNP47D18	47	±20%	3.5	3450	±5%	1000
147	HNP50D18	50	±20%	3.5	3450	±5%	1000
148	HNP55D18	55	±20%	3.5	3450	±5%	1000
149	HNP60D18	60	±20%	3	3450	±5%	1000
150	HNP80D18	80	±20%	3	3500	±5%	1000



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151	HNP100D18	100	±20%	3	3600	±5%	1000
152	HNP120D18	120	±20%	2.5	2600	±5%	1000
153	HNP0R5D20	0.5	±20%	18	2600	±5%	1500
154	HNP0R7D20	0.7	±20%	18	2650	±5%	1500
155	HNP1D20	1	±20%	16	2700	±5%	1500
156	HNP1R3D20	1.3	±20%	15	2750	±5%	1500
157	HNP1R5D20	1.5	±20%	14	2750	±5%	1500
158	HNP2D20	2	±20%	12.5	2800	±5%	1500
159	HNP2R5D20	2.5	±20%	11.5	2850	±5%	1500
160	HNP3D20	3	±20%	10.5	2850	±5%	1500
161	HNP4D20	4	±20%	9.5	2900	±5%	1500
162	HNP4R7D20	4.7	±20%	9	2950	±5%	1500
163	HNP5D20	5	±20%	9	3000	±5%	1500
164	HNP6D20	6	±20%	8.5	3050	±5%	1500
165	HNP6R8D20	6.8	±20%	8	3100	±5%	1500
166	HNP7D20	7	±20%	8	3100	±5%	1500
167	HNP8D20	8	±20%	7.5	3100	±5%	1500
168	HNP10D20	10	±20%	7	3150	±5%	1500
169	HNP12D20	12	±20%	6.5	3200	±5%	1500
170	HNP13D20	13	±20%	6.5	3200	±5%	1500
171	HNP15D20	15	±20%	6	3200	±5%	1500
172	HNP16D20	16	±20%	5.5	3200	±5%	1500
173	HNP18D20	18	±20%	5.5	3300	±5%	1500
174	HNP20D20	20	±20%	5.5	3300	±5%	1500
175	HNP25D20	25	±20%	5.5	3400	±5%	1500
176	HNP30D20	30	±20%	5	3400	±5%	1500
177	HNP33D20	33	±20%	4.5	3450	±5%	1500
178	HNP47D20	47	±20%	4	3500	±5%	1500
179	HNP50D20	50	±20%	4	3500	±5%	1500
180	HNP55D20	55	±20%	4	3550	±5%	1500
181	HNP60D20	60	±20%	3.5	3550	±5%	1500
182	HNP80D20	80	±20%	3.5	3700	±5%	1500
183	HNP100D20	100	±20%	3.5	3800	±5%	1500
184	HNP120D20	120	±20%	3	3900	±5%	1500
185	HNP0R5D25	0.5	±20%	20	2650	±5%	2500
186	HNP0R7D25	0.7	±20%	20	2700	±5%	2500
187	HNP1D25	1	±20%	20	2750	±5%	2500
188	HNP1R3D25	1.3	±20%	19	2800	±5%	2500




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No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
189	HNP1R5D25	1.5	±20%	18.5	2800	±5%	2500
190	HNP2D25	2	±20%	18	2850	±5%	2500
191	HNP2R5D25	2.5	±20%	15	2900	±5%	2500
192	HNP3D25	3	±20%	14.5	2950	±5%	2500
193	HNP4D25	4	±20%	14	3050	±5%	2500
194	HNP4R7D25	4.7	±20%	13	3100	±5%	2500
195	HNP5D25	5	±20%	12	3100	±5%	2500
196	HNP6D25	6	±20%	11	3150	±5%	2500
197	HNP6R8D25	6.8	±20%	10.5	3150	±5%	2500
198	HNP7D25	7	±20%	10	3150	±5%	2500
199	HNP8D25	8	±20%	9.5	3200	±5%	2500
200	HNP10D25	10	±20%	8.5	3200	±5%	2500
201	HNP12D25	12	±20%	8	3300	±5%	2500
202	HNP15D25	15	±20%	7.5	3300	±5%	2500
203	HNP16D25	16	±20%	7	3400	±5%	2500
204	HNP18D25	18	±20%	6.5	3400	±5%	2500
205	HNP20D25	20	±20%	6.5	3400	±5%	2500
206	HNP25D25	25	±20%	6	3450	±5%	2500
207	HNP30D25	30	±20%	5.5	3450	±5%	2500
208	HNP33D25	33	±20%	5.5	3450	±5%	2500
209	HNP47D25	47	±20%	5	3600	±5%	2500
210	HNP50D25	50	±20%	4.5	3600	±5%	2500
211	HNP0R5D30	0.5	±20%	30	2700	±5%	3500
212	HNP0R7D30	0.7	±20%	30	2750	±5%	3500
213	HNP1D30	1	±20%	30	2800	±5%	3500
214	HNP1R3D30	1.3	±20%	27	2850	±5%	3500
215	HNP1R5D30	1.5	±20%	25	2850	±5%	3500
216	HNP2D30	2	±20%	23	2950	±5%	3500
217	HNP2R5D30	2.5	±20%	20	3000	±5%	3500
218	HNP3D30	3	±20%	17	3100	±5%	3500
219	HNP4D30	4	±20%	16	3150	±5%	3500
220	HNP4R7D30	4.7	±20%	15	3150	±5%	3500
221	HNP5D30	5	±20%	14	3200	±5%	3500
222	HNP6D30	6	±20%	13	3200	±5%	3500
223	HNP6R8D30	6.8	±20%	12	3200	±5%	3500
224	HNP7D30	7	±20%	11.5	3200	±5%	3500
225	HNP8D30	8	±20%	11	3300	±5%	3500
226	HNP10D30	10	±20%	10	3300	±5%	3500

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No.	型号 Types	额定阻值 R ₂₅ R ₂₅ , Rated resistance at 25°C (Ω)	R ₂₅ 公差 Tolerance of R ₂₅	最大电流 I _{max} I _{max} , Max.current (A)	B _{25/50} 值 B _{25/50} value (K)	B _{25/50} 值公差 Tolerance of B _{25/50} value	最大允许电容值 C _T C _T , Max. permissible capacitance at 240Vac (μF)
227	HNP12D30	12	±20%	9.5	3400	±5%	3500
228	HNP15D30	15	±20%	9	3450	±5%	3500
229	HNP16D30	16	±20%	8.5	3450	±5%	3500
230	HNP18D30	18	±20%	8	3450	±5%	3500
231	HNP20D30	20	±20%	7.5	3450	±5%	3500
232	HNP25D30	25	±20%	7	3500	±5%	3500
233	HNP30D30	30	±20%	7	3600	±5%	3500
234	HNP33D30	33	±20%	6.5	3600	±5%	3500
235	HNP47D30	47	±20%	6.5	3800	±5%	3500
236	HNP50D30	50	±20%	5.5	3850	±5%	3500


备注: 其他额定阻值 R₂₅ 产品以及 R₂₅ 公差小于 20% 产品可根据需求提供

Remark: alternative R₂₅ products and R₂₅ tolerance smaller than 20% products available on request

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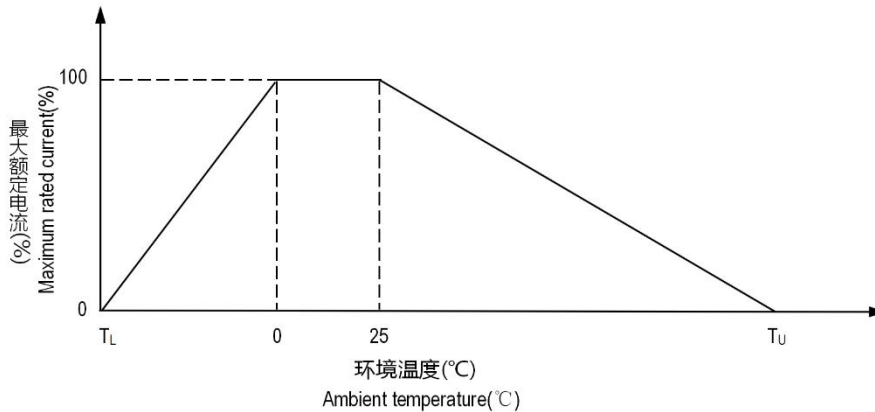
4、可靠性测试 Reliability Test

项目 Item	测试条件和方法 Test conditions and methods	测试标准 Standard	技术要求 Technical requirements
可焊性 Solderability	温度: 245±3°C, 时间: 3±0.3 秒, Temperature: 245±3°C, time: 3±0.3s	IEC 60068-2-20	上锡面积≥95% The area of tin is more than 95%
耐焊性 Solder resistance	温度: 260±3°C; 时间: 10±1 秒 Welding temperature: 260±3°C; time: 10±1s	IEC 60068-2-20	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 10\%$
引线拉力 Tensile strength of terminals	逐渐施加指定重量, 维持 10±1 秒 Gradually applying the force specified and duration 10±1s 径 Wire diameter (mm) 拉力 Force (KG) 0.5 < d ≤ 0.8 1.0	IEC 60068-2-21	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 10\%$
冷热冲击 Thermal shock	温度 -40±5°C, 30 分钟/循环, 间隔时间 5 分钟; 温度: +170±5°C, 30 分钟/循环, 间隔时间 5 分钟; 5 个循环 Temperature: -40±5°C, 30min / cycle, interval time 5min; temperature: +170±5°C, 30min / cycle, interval time 5min; 5 cycles	IEC 60068-2-14	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 20\%$
高温存储 High temperature storage	温度: 170±5°C, 时间: 1000±24 小时 Temperature: 170±5°C, time: 1000±24h	IEC 60068-2-2	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 20\%$
稳态湿热 Steady state damp heat	温度: 40±2°C, 湿度: 90~95%, 时间: 1000±24 小时 Temperature: - 40±2°C , 90 ~ 95 % RH ,	IEC 60068-2-78	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 20\%$
寿命测试 Life test	测试温度: 25±5 °C; 最大稳态电流 I _{max} , 1000±24 小时 25±5°C, Maximum steady state current, 1000±24 hrs	IEC 60539-1 4.26.1	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 20\%$
耐久性测试 Endurance	25±5°C, 最大稳态电流 I _{max} , 240Vac 时的电容, 1 分钟开/ 5 分钟关, 1000 个循环 25±5°C, Maximum steady state current , Capacitance at 240Vac , 1min on / 5 min off , 1000 cycles	规格标准 Specification Standard	无外观损伤 No visible damage $ \Delta R_{25} / R_{25} \leq 20\%$
绝缘电阻 Insulation resistance	绝缘 Dielectric: DC 1000V 1min	MIL-STD-202F -Method302	绝缘电阻 > 500MΩ insulation resistance > 500MΩ 无外观损伤 No visible damage

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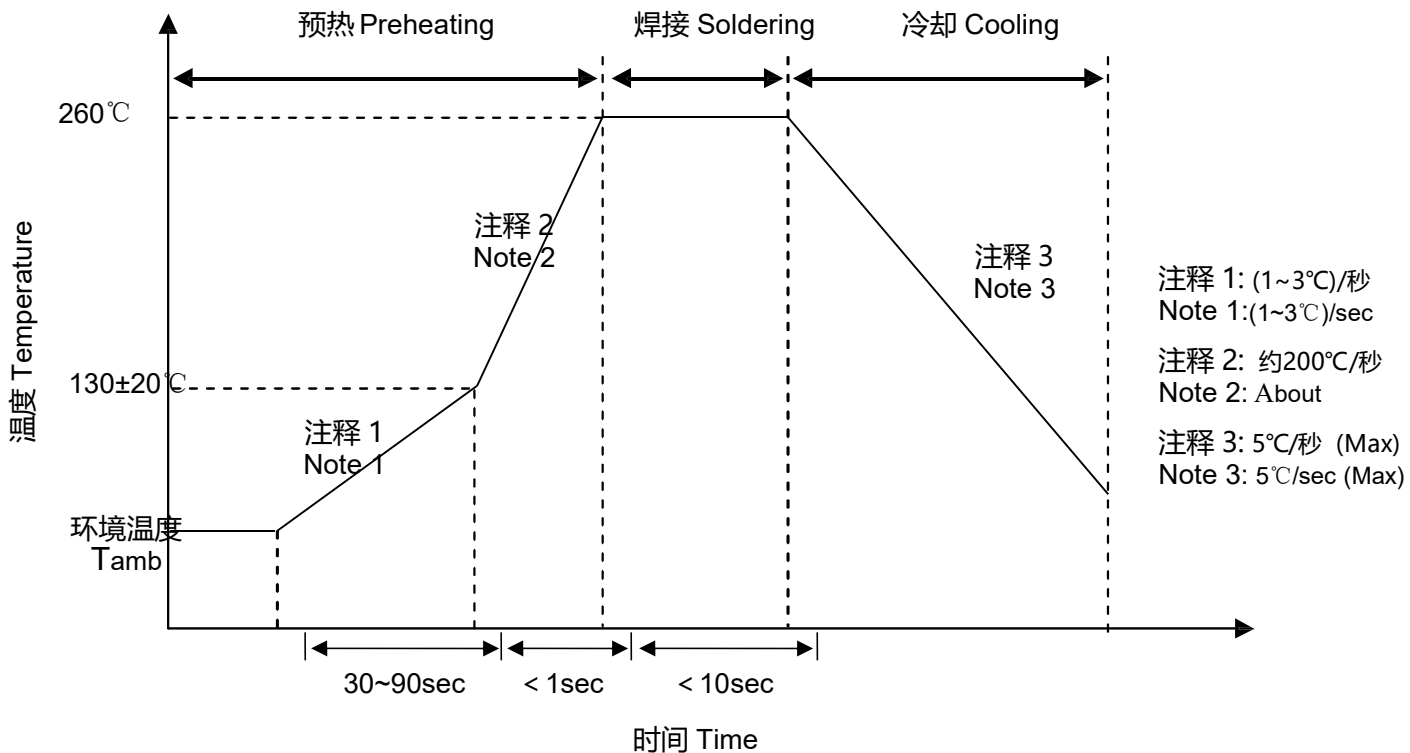
5、最大电流 I_{max} 降额曲线 Derating curve of I_{max}


当产品使用环境温度低于 0°C 或者高于 25°C 时，所允许的最大工作电流 I_{max} 需降低，降低的额度如下图曲线所示。When the applied ambient temperature of the product is lower than 0°C or higher than 25°C , the maximum allowable working current I_{max} should be reduced, and the amount of reduction is shown in the curve below.



备注：TL = 最低温度 ($^{\circ}\text{C}$) Remarks: T_L = Minimum temperature ($^{\circ}\text{C}$)
 TU = 最高温度 ($^{\circ}\text{C}$) T_U = Maximum temperature ($^{\circ}\text{C}$)

6、焊接建议 Soldering Recommendation



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使用烙铁推荐的返工条件

Recommended Reworking Conditions with Soldering Iron

项目 Item	条件 Conditions
烙铁头温度 Temperature of Soldering Iron-tip	360°C (max.)
焊接时间 Soldering Time	3 sec (max.)
与压敏电阻的距离 Distance from Varistor	2 mm (min.)

7、储存 Storage

- 1 储存温度: -10°C ~ +40°C; 储存湿度: ≤75% RH;
Storage temperature:-10°C ~ +40°C; storage humidity:≤75% RH
- 2 避免接触腐蚀性气体, 避免阳光照射
Avoid contact with corrosive gases, and avoid sunlight
- 3 储存期限: 12 个月
Shelf life: 12 months

8、热敏电阻产品外观覆盖涂料材质说明


Material description of coating for appearance of thermistor products

1. 本公司 HNP 功率型 NTC 热敏电阻产品外观覆盖涂料材质为硅树脂涂料, 此涂料具有绝缘性佳、耐高温、散热速度快等特性。

The coating material of HNP power NTC thermistor is silicone resin.Coatings, this coating has good insulation, high temperature resistance, fast heat dissipation and other characteristics.

2. 此涂料材质相当坚固, 但是韧性较差, 如果受不当外力的情况下 (如: 搬运重摔, 将引脚向外掰, 插 PCB 孔径与热敏电阻脚距不匹配, 作用力不当的掰引或弯脚), 可能会使产品产生脚裂的现象; 还由于硅树脂的材料特性, 产品在运输的过程中, 本体会因为摩擦易出现摩擦痕迹的现象, 可人工擦除, 此种现象完全不影响产品特性; 因此上述出现的轻微脚裂及擦痕现象, 经我司试验绝对不会影响产品本身的特性, 敬请放心使用。

The material of this coating is quite strong, but its toughness is poor. If it is subjected to improper external forces (such as: heavy lifting, breaking pins outwards, inserting PCB

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aperture and thermal resistance foot pitch mismatch, inappropriate force to pull or bend feet), it may cause foot cracking of the product; also because of the material characteristics of silicone resin, the product In the course of transportation, the body will be easily rubbed because of friction, which can be erased manually. This phenomenon does not affect the characteristics of the product at all. Therefore, the slight foot cracks and scratches mentioned above will not affect the characteristics of the product itself after our company's test, please rest assured that use.

9、 Revision record

Revision date	Edition	Revised content
2022.4.8	2.0	1、 Product foot type, add S-type products.
		2、 Revised product size Amax.
		3、 Revise D5 product operating temperature range.
		4、 Revise D11 product foot distance P.
		5、 Revise Derating curve of I_{max} .
		6、 Update welding suggestions.
2022.5.20	2.1	1、 Revise item 3, current and capacitance standards.
		2、 Add item 4, reliability test standard column.