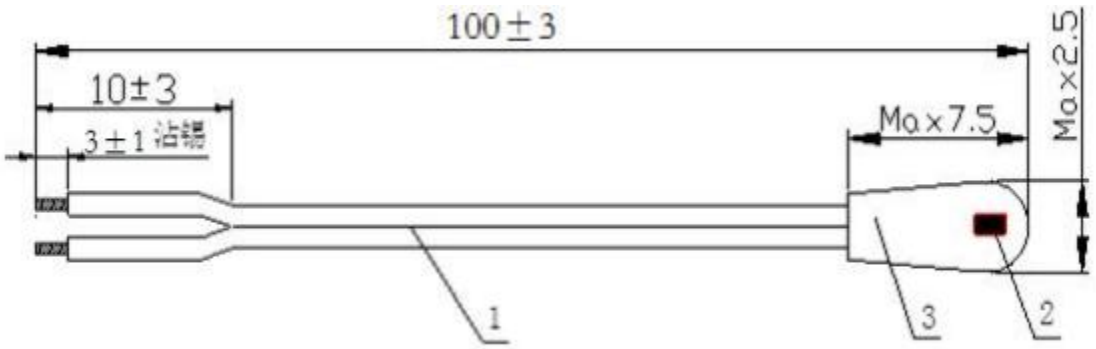
深圳市绍鑫电子有限公司
Shenzhen Shaoxin Electronic Co. , Ltd.

产品名称 Product Name	NTC 温度传感器组件 NTC Sensor Module	RoHS	
产品系列 Product series	MF52D	版 次 REV. NO	A/0
产品型号 Product model	MF52D503F3950L100	修定日期 REV. DATE	2023/2/21

1.产品外形图(Product Drawing)

单位(Unit);mm



2.材料清单(Material List)

NO.	材料名称 Material name	规格/型号 Type/model	数 量 Quantity
2-1	电线	UL2651 28AWG 2P TS 黑色线	1PCS
2-2	NTC电阻	R25=50KΩ±1% B25/50=3950K±1%	1PCS
2-3	环氧树脂	黑色环氧树脂	/

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3.电气性能(Electrical Characteristic)

NO.	项目 Item	代号 Symbol	测试条件 Test Conditions	最小值 Min.	中心值 Nor.	最大值 Max.	单位 Unit
3-1	25℃电阻值 Resistance At 25℃	R25	Ta=25℃±0.05℃ P_T ≦0.1mW	49.50	50.00	50.50	KΩ
3-2	50℃电阻值 Resistance At 50℃	R50	Ta=50℃±0.05℃ P_T ≦0.1mW	/	17.942	/	KΩ
3-3	B值 B Value	$B_{25/25}$	(3853.887* LnK)	3910.5	3950.0	3989.5	K
3-4	耗散系数 dissipative coefficient	δ	Ta=25℃ (in air)	/	5.0	/	mW/℃
3-5	响应时间-液体中 Response Time-In liquid	τ	25℃→85℃ T1=25+(85-25)*63.2%=62.92℃	/	/	8.0	Sec
3-6	绝缘测试 Insulation test	/	DC100V 1Sec	50	/	/	MΩ

4.最大使用等级(Maximum use grade)

NO.	项目 Item	规格 Specification	单位 Unit
4-1	工作温度范围 Operation Temperature Range	-30 ~ +105	℃

5.机械性试验(Mechanical Tests)

NO.	项目 Item	技术要求 Pass Criteria	测试条件 Test Conditions
5-1	拉力测试 pull test	不松脱、不变形 Not loose, not deformed	加载0.5kg 10秒 (Fasten body with a Load Applied to each lead 0.5kg for 10sec)
5-2	自由落体测试 Drop Test	无明显损伤 No visible damage	1米的高度，让产品做自由落体运动，下落到10mm厚的橡木板上，5次(After 5 time natural fall to a maple board from 1M high)

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6. 可靠性测试(Reliability Tests)

NO.	项目 Item	技术要求 Pass Criteria	测试条件 Test Conditions
6-1	高温储存 High Temperature Storage Life Test	⊿R/R25≤±3% No visible damage	105±5℃ , 1000±24 hrs
6-2	低温储存 low temperature storage		-30±5℃ , 1000±24 hrs
6-3	恒温恒湿测试 Humidity test		40±2℃, 90%~95% RH,500H±24 hrs
6-4	温度冲击试验 Temp. cycle test		-30℃×30min→25℃×5min→ 105℃×30min →25℃×5min, 10Cycles

7.铬铁焊接条件(Soldering Iron setting)

NO.	项目 Item	测试条件 settings/ parameters
7-1	烙铁温度 Temperature of Soldering Iron-tip	T≤360℃
7-2	焊接时间 Soldering Time	S≤3Sec
7-3	距电阻的距离 Distance From Thermistor	L≥10mm

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8.安装使用(Install and use)

1.请在规定的温度范围内使用本产品
Use this product within the specified temperature range.

2.温度过高时会导致产品特性或材料品质的恶化
Higher temperature may cause deterioration of the characteristics or the material quality of this product.

3.安装本产品时，在焊接此产品时，不应在树脂头部溶化焊料，否则，可能造成引线断裂、短路、引线绝缘损坏
Do not melt the solder in resin head, when you solder this product. If you melt the solder in resin head,it has possibility that the break of wire, short and insulation damage.

4.不要用烙铁碰触树脂头，否则会造成焊料在树脂头部溶化
Do not touch the resin head directly by solder iron. It may cause the melt of solder in resin head.

5.在分开平行线时，至少要从树脂头部分开10mm以上
At least away from resin head 10mm above when lead dividing.

6.如果从树脂头部切断长度小于10mm的引线，引线边缘的溶化焊料很容易通过引线传至树脂头部
In case you cut the lead wire of this product less than 10mm from resin head,the heat of melted solder at lead wire edge is propagated easily to the resin head along the lead wire.

7.在弯曲引线时，引线弯曲半径大于1mm，当弯曲或切断引线时，建议固定组件引线
Radius of lead bending should be more than 1mm when lead bending.
Holding element by side lead wire is recommended when lead wire is bent or cut.

8.不要对引线加过大的力，否则，可能会造成引线与元件之间的接合部断开或裂开
Do not apply an excessive force to the lead. Otherwise, it may cause junction between lead and element to break or crack.

9.本产品在陶瓷元件属于易碎材料，使用时务必小心不要施加过大压力或冲击此类强力可能会造成产品破裂或破碎
The ceramic element of this product is fragile, and care must be taken not to load an excessive press-force or not to give a shock at handling. Such forces may cause cracking or chipping.

10.对本产品进行树脂封膜时，请在使用前评估本产品的品质
If you mold by resin this product, please evaluate the quality of this product before you use it.

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9.产品储存条件(Storage Conditions)

储存条件(Storage Conditions) :

1.储存温度(Ambicnt Temperature): -10℃~+40℃

2.相对湿度(Relative Humidity): ≦75%RH

3.远离腐蚀和阳光照射(Keep away from corrosive atmosphere and sunlight)

4.储存时间(Period of Storage): 1 year

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10.注意事项(Matters needing attention)

1.腐蚀性气体或去氧气体(氯气、氢化硫气体、氨气、硫酸气体、一氧化氮等)
Corrosive gas or deoxidizing gas (Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)

2.挥发性或易燃性气体
Volatile or flammable gas

3.在尘土飞扬的条件
Dusty conditions

4.真空、高压或低压条件下
Under vacuum, or under high or low pressure

5.潮湿场所，不要直接浸泡在液体里面或者 使用液体清洗
Wet or humid locations ; soak in the liquid or wash with liquid

6.存放在盐水、油、化学液体或有机溶剂的场所，不可直接与速干胶搭配使用
Places with salt water, oils, chemical liquids or organic solvents and do not use directly with quick-drying glue.

7.强烈振动
Strong vibrations

8.存在类似有害条件的其它场所
Other places where similar hazardous conditions exist

9.请务必在您的产品上配备话当的自动保险功能，以防止由我们产品的异常操作或者失效可能引起的继发损坏
Be sure to provide an appropriate fail-safe function on your product to prevent secondary damages that may be caused by the abnormal function or the failure of our product.

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R -T Table

R25=50KΩ±1% B25/50=3950K±1%							
T(℃)	Rmax(KΩ)	Rnom(KΩ)	Rmin(KΩ)	T(℃)	Rmax(KΩ)	Rnom(KΩ)	Rmin(KΩ)
-30	918.022	883.2036	849.6207	6	123.0386	120.751	118.4941
-29	862.201	830.0151	798.9508	7	117.1047	114.9837	112.8898
-28	810.1368	780.3755	751.6324	8	111.4905	109.5245	107.5823
-27	761.5532	734.026	707.4231	9	106.1771	104.3552	102.5543
-26	716.1961	690.7282	666.0994	10	101.1467	99.4589	97.7895
-25	673.8314	650.2625	627.4551	11	96.3828	94.8197	93.2727
-24	634.2433	612.4261	591.3003	12	91.8697	90.4228	88.9898
-23	597.2332	577.0324	557.4592	13	87.5931	86.2542	84.9273
-22	562.6172	543.9088	525.7698	14	83.5391	82.3008	81.0728
-21	530.2261	512.8958	496.0823	15	79.6952	78.5505	77.4145
-20	499.9036	483.8463	468.2581	16	76.0492	74.9916	73.9414
-19	471.505	456.6244	442.1691	17	72.5899	71.6135	70.6431
-18	444.897	431.1039	417.6967	18	69.3069	68.406	67.51
-17	419.9558	407.1685	394.7311	19	66.1902	65.3595	64.5328
-16	396.5672	384.7103	373.1705	20	63.2305	62.4653	61.7031
-15	374.6255	363.6294	352.9209	21	60.4191	59.7148	59.0128
-14	354.0324	343.8333	333.8945	22	57.7479	57.1002	56.4542
-13	334.6974	325.2361	316.0106	23	55.209	54.6141	54.0203
-12	316.5362	307.7581	299.1936	24	52.7953	52.2496	51.7043
-11	299.4706	291.3257	283.3739	25	50.5	50	49.5
-10	283.4283	275.8701	268.4865	26	48.3589	47.8592	47.3599
-9	268.3421	261.3276	254.471	27	46.32	45.8214	45.3236
-8	254.1493	247.639	241.2714	28	44.3778	43.8811	43.3856
-7	240.7921	234.7494	228.8354	29	42.5272	42.0331	41.5406
-6	228.2164	222.6075	217.1147	30	40.7634	40.2726	39.7837
-5	216.3721	211.1656	206.0639	31	39.0821	38.595	38.1103
-4	205.2124	200.3796	195.641	32	37.4788	36.9961	36.516
-3	194.6941	190.208	185.8067	33	35.9496	35.4716	34.9966
-2	184.7766	180.6125	176.5246	34	34.4907	34.0179	33.5483
-1	175.4222	171.5571	167.7605	35	33.0985	32.6312	32.1673
0	166.5959	163.0086	159.4826	36	31.7696	31.3081	30.8503
1	158.2648	154.9356	151.6612	37	30.5009	30.0455	29.5939
2	150.3985	147.3091	144.2687	38	29.2893	28.8402	28.3951
3	142.9684	140.1019	137.2791	39	28.132	27.6894	27.251
4	135.948	133.2887	130.6683	40	27.0263	26.5903	26.1587
5	129.3125	126.8458	124.4137	41	25.9697	25.5404	25.1157

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R -T Table

R25=50KΩ ±1% B25/50=3950K±1%							
T(℃)	Rmax(KΩ)	Rnom(KΩ)	Rmin(KΩ)	T(℃)	Rmax(KΩ)	Rnom(KΩ)	Rmin(KΩ)
42	24.9596	24.5372	24.1195	79	6.5776	6.3797	6.1872
43	23.9939	23.5785	23.1679	80	6.3654	6.1719	5.9837
44	23.0704	22.662	22.2585	81	6.161	5.9717	5.7877
45	22.1871	21.7857	21.3894	82	5.9641	5.779	5.5991
46	21.3419	20.9476	20.5585	83	5.7743	5.5933	5.4174
47	20.5332	20.1459	19.764	84	5.5915	5.4144	5.2424
48	19.759	19.3788	19.0041	85	5.4152	5.242	5.0739
49	19.0179	18.6448	18.2771	86	5.2453	5.0759	4.9115
50	18.3082	17.9421	17.5815	87	5.0814	4.9158	4.755
51	17.6284	17.2693	16.9158	88	4.9234	4.7614	4.6042
52	16.9772	16.6251	16.2786	89	4.771	4.6125	4.4588
53	16.3532	16.008	15.6684	90	4.624	4.4689	4.3187
54	15.7552	15.4167	15.0841	91	4.4821	4.3305	4.1836
55	15.1819	14.8502	14.5243	92	4.3452	4.1969	4.0532
56	14.6323	14.3072	13.988	93	4.2131	4.068	3.9276
57	14.1051	13.7867	13.4741	94	4.0855	3.9436	3.8063
58	13.5995	13.2876	12.9816	95	3.9624	3.8236	3.6893
59	13.1145	12.809	12.5094	96	3.8435	3.7078	3.5764
60	12.649	12.3498	12.0566	97	3.7287	3.5959	3.4675
61	12.2022	11.9093	11.6223	98	3.6178	3.4879	3.3623
62	11.7734	11.4866	11.2057	99	3.5107	3.3836	3.2607
63	11.3616	11.0809	10.806	100	3.4072	3.2828	3.1627
64	10.9662	10.6914	10.4225	101	3.3072	3.1855	3.068
65	10.5864	10.3174	10.0543	102	3.2106	3.0915	2.9766
66	10.2215	9.9583	9.7009	103	3.1171	3.0007	2.8882
67	9.8709	9.6133	9.3615	104	3.0268	2.9129	2.8029
68	9.5339	9.2819	9.0356	105	2.9395	2.828	2.7204
69	9.21	8.9634	8.7226				
70	8.8986	8.6573	8.4218				
71	8.5992	8.3631	8.1328				
72	8.3112	8.0802	7.855				
73	8.0341	7.8082	7.5879				
74	7.7676	7.5466	7.3312				
75	7.5111	7.295	7.0843				
76	7.2643	7.0528	6.8469				
77	7.0266	6.8198	6.6185				
78	6.7979	6.5956	6.3987				