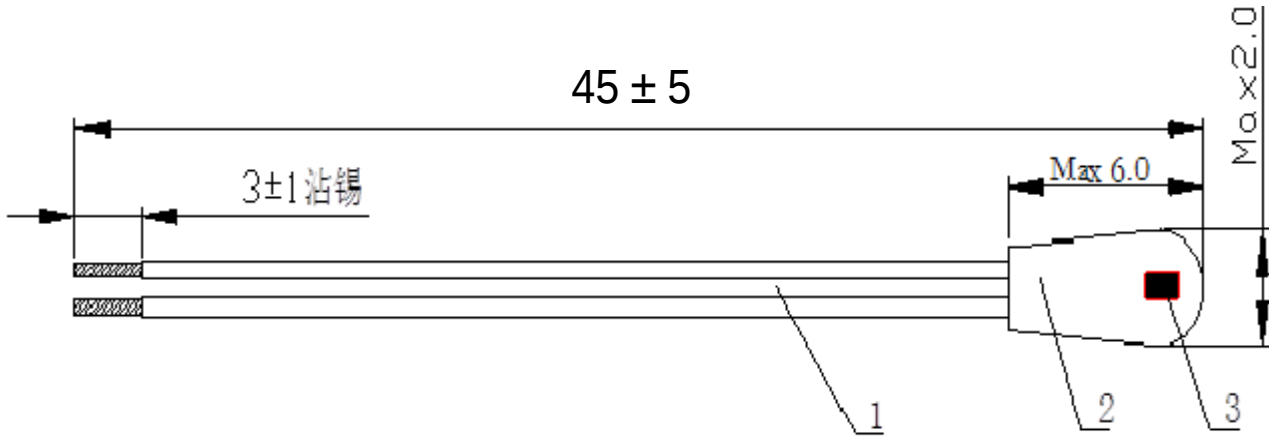


深圳市绍鑫电子有限公司
Shenzhen Shaoxin Electronics Co., LTD

产品名称 Product Name	NTC 温度传感器组件 NTC Sensor Module	RoHS	
产品系列 Product series	MF52B	版 次 REV. NO	A/0
产品型号 Product model	MF52B103F3950L45	修定日期 REV. DATE	2024/10/16

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	0.3MM 红色漆色线	2PCS
2-2	NTC电阻	R25=10K Ω $\pm 1\%$ B25/50=3950K $\pm 1\%$	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	9.90	10.00	10.10	KΩ
3-2	50℃电阻值 Resistance At 50℃	R50	Ta=50℃±0.05℃ P _T ≤0.1mW	/	3.588	/	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	$\Delta R/R25 \leq \pm 3\%$ No visible damage	$105 \pm 5^{\circ}\text{C}$, 1000 ± 24 hrs
6-2	低温储存 low temperature storage		$-30 \pm 5^{\circ}\text{C}$, 1000 ± 24 hrs
6-3	恒温恒湿测试 Humidity test		$40 \pm 2^{\circ}\text{C}$, 90%~95% RH, 500H ± 24 hrs
6-4	温度冲击试验 Temp. cycle test		$-30^{\circ}\text{C} \times 30\text{min} \rightarrow 25^{\circ}\text{C} \times 5\text{min} \rightarrow 105^{\circ}\text{C} \times 30\text{min} \rightarrow 25^{\circ}\text{C} \times 5\text{min}$, 10Cycles

7. 烙铁焊接条件(Soldering Iron setting)

NO.	项目 Item	测试条件 settings/parameters
7-1	烙铁温度 Temperature of Soldering Iron-tip	$T \leq 360^{\circ}\text{C}$
7-2	焊接时间 Soldering Time	$S \leq 3\text{Sec}$
7-3	距电阻的距离 Distance From Thermistor	$L \geq 10\text{mm}$

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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)：

- 储存温度(Ambicnt Temperature)：-10℃～+40℃
- 相对湿度(Relative Humidity)：≦75%RH
- 远离腐蚀和阳光照射(Keep away from corrosive atmosphere and sunlight)
- 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、硫化氢气体、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适当的自动保险功能，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=10K Ω ±1% B25/50=3950K ±1%							
T(℃)	Rmin(K Ω)	Rnom(K Ω)	Rmax(K Ω)	T(℃)	Rmin(K Ω)	Rnom(K Ω)	Rmax(K Ω)
-30	172.4247	179.2666	186.3613	6	23.7738	24.2274	24.6872
-29	162.0793	168.4053	174.9608	7	22.6443	23.065	23.4912
-28	152.4218	158.2726	164.3317	8	21.575	21.965	22.3599
-27	143.4022	148.8151	154.417	9	20.5622	20.9239	21.2897
-26	134.9746	139.9837	145.1643	10	19.6028	19.938	20.2768
-25	127.0964	131.7332	136.5254	11	18.6937	19.0041	19.3178
-24	119.7285	124.0216	128.4558	12	17.8318	18.1193	18.4096
-23	112.8348	116.8107	120.9146	13	17.0146	17.2807	17.5493
-22	106.3818	110.0648	113.864	14	16.2394	16.4857	16.734
-21	100.3387	103.7512	107.2691	15	15.504	15.7317	15.9612
-20	94.6771	97.8396	101.0977	16	14.8059	15.0164	15.2284
-19	89.3705	92.302	95.3201	17	14.1432	14.3376	14.5333
-18	84.3946	87.1124	89.9088	18	13.5139	13.6933	13.8738
-17	79.7268	82.2471	84.8385	19	12.916	13.0816	13.2479
-16	75.3463	77.6837	80.0856	20	12.3479	12.5005	12.6537
-15	71.2336	73.4018	75.6284	21	11.808	11.9485	12.0895
-14	67.3708	69.3823	71.4468	22	11.2946	11.4239	11.5535
-13	63.7412	65.6077	67.522	23	10.8064	10.9252	11.0442
-12	60.3295	62.0616	63.837	24	10.3419	10.451	10.5602
-11	57.1212	58.7288	60.3755	25	9.9	10	10.1
-10	54.1032	55.5953	57.1228	26	9.471	9.5709	9.6709
-9	51.2629	52.648	54.0651	27	9.063	9.1626	9.2623
-8	48.5889	49.8747	51.1895	28	8.6747	8.7738	8.8732
-7	46.0705	47.2643	48.4842	29	8.3052	8.4037	8.5025
-6	43.6978	44.8062	45.9381	30	7.9534	8.0512	8.1494
-5	41.4615	42.4906	43.5409	31	7.6184	7.7154	7.8128
-4	39.3531	40.3086	41.2831	32	7.2993	7.3953	7.4919
-3	37.3644	38.2516	39.1559	33	6.9953	7.0903	7.1859
-2	35.488	36.3117	37.1508	34	6.7056	6.7995	6.894
-1	33.7169	34.4817	35.2603	35	6.4294	6.5221	6.6156
0	32.0447	32.7547	33.4771	36	6.166	6.2576	6.3498
1	30.4652	31.1243	31.7945	37	5.9148	6.0051	6.0962
2	28.9728	29.5847	30.2064	38	5.6752	5.7642	5.854
3	27.5623	28.1301	28.7068	39	5.4465	5.5342	5.6227
4	26.2286	26.7556	27.2904	40	5.2283	5.3146	5.4018
5	24.9672	25.4562	25.9521	41	5.0199	5.1049	5.1907

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R -T Table

R25=10K Ω ±1% B25/50=3950K±1%							
T(℃)	Rmin(K Ω)	Rnom(K Ω)	Rmax(K Ω)	T(℃)	Rmin(K Ω)	Rnom(K Ω)	Rmax(K Ω)
42	4.821	4.9045	4.989	78	1.288	1.3275	1.3681
43	4.6309	4.713	4.7961	79	1.2458	1.2845	1.3243
44	4.4494	4.53	4.6117	80	1.2053	1.2431	1.282
45	4.2759	4.3551	4.4354	81	1.1663	1.2033	1.2413
46	4.11	4.1878	4.2667	82	1.1287	1.1649	1.2021
47	3.9515	4.0278	4.1053	83	1.0926	1.1279	1.1644
48	3.7999	3.8748	3.9508	84	1.0577	1.0923	1.1279
49	3.6548	3.7283	3.803	85	1.0241	1.058	1.0928
50	3.5161	3.5882	3.6614	86	0.9918	1.0249	1.059
51	3.3833	3.454	3.5258	87	0.9606	0.993	1.0264
52	3.2562	3.3255	3.396	88	0.9306	0.9623	0.9949
53	3.1346	3.2025	3.2715	89	0.9016	0.9326	0.9646
54	3.0181	3.0846	3.1523	90	0.8737	0.904	0.9353
55	2.9065	2.9717	3.038	91	0.8468	0.8764	0.907
56	2.7996	2.8635	2.9285	92	0.8208	0.8498	0.8797
57	2.6972	2.7597	2.8234	93	0.7958	0.8241	0.8534
58	2.599	2.6603	2.7227	94	0.7716	0.7994	0.828
59	2.5049	2.5649	2.626	95	0.7483	0.7754	0.8035
60	2.4147	2.4734	2.5333	96	0.7258	0.7523	0.7798
61	2.3282	2.3856	2.4443	97	0.7041	0.73	0.7569
62	2.2452	2.3014	2.3589	98	0.6831	0.7085	0.7348
63	2.1656	2.2206	2.2768	99	0.6628	0.6877	0.7134
64	2.0892	2.1431	2.1981	100	0.6433	0.6676	0.6928
65	2.0159	2.0686	2.1224	101	0.6244	0.6482	0.6728
66	1.9455	1.997	2.0498	102	0.6062	0.6295	0.6536
67	1.8779	1.9283	1.98	103	0.5885	0.6113	0.6349
68	1.813	1.8623	1.9129	104	0.5715	0.5938	0.6169
69	1.7507	1.7989	1.8484	105	0.555	0.5769	0.5995
70	1.6908	1.738	1.7864				
71	1.6332	1.6794	1.7267				
72	1.5779	1.6231	1.6694				
73	1.5247	1.5689	1.6142				
74	1.4736	1.5168	1.5612				
75	1.4245	1.4667	1.5101				
76	1.3772	1.4185	1.461				
77	1.3317	1.3722	1.4137				