

编号: N0001

承 认 书
APPROVAL SHEET

客户名称

CUSTOMER:

产品名称

PART NAME:

片式负温度系数热敏电阻器

Chip NTC Thermistor

规格

SPECIFICATION:

CMFB104J4250HANT

版本

VERSION:

A2

日期

DATE OF ISSUE:

2025-10-21

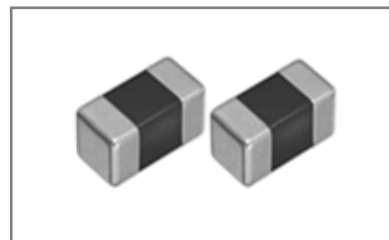
制 造 MANUFACTURER			客 户 CUSTOMER		
拟制 DESIGN	审核 CHECK	批准 APPROVAL	检验 INSPECTOR	审核 CHECK	批准 APPROVAL
徐雪枫	岑权进	郝澍钊			

■片式负温度系数热敏电阻器

Chip NTC Thermistor

片式 NTC 具有无引线、片状化、体积小、响应快等特点。它的瓷体表面采用了玻璃层作保护，同时端头电极进行了可靠的三层电镀工艺，实现片式 NTC 产品优良的焊接性能、高可靠的品质特性。

The chip NTC thermistor As the features of miniature size, no-lead, quick temperature response. The product's ceramic body are coated with glass. The termination As been carried on craft of electroplating of three layers. suit for reflow and flow solder. As the high reliability.



◆特征

Feature

- * 体积小, 适合高密度表面贴装。

Miniature size, suitable for SMT.

- * 玻璃釉包覆保护, 精度高、阻值漂移小。

Porcelain body and glass glaze. High accuracy and small resistance drift.

- * 优良的焊接性和耐焊性。

Excellent in solderability and heat resistance;

◆应用

Application

- * 可充电电池、CPU的温度探测。

Temperature sensing in rec Argeable batteries and CPU.

- * IC、LCD、石英振荡器的温度补偿。

Temperature compensation in IC、LCD、Crystal oscillator and so on.

- * 需温度补偿和探测的各种电路。

Temperature compensation or temperature sensing for various types of circuits.

◆产品规格型号表示方法

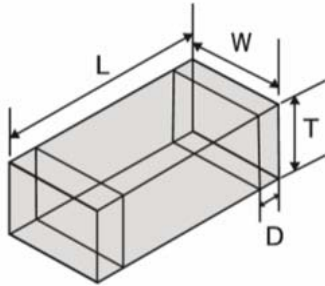
Part Number Identification

CMF	A	103	J	3500	H	A	N	T
产品代号 Product code	尺寸 Dimensions (L×W)	标称阻值 Zero Power Resistance	阻值公差 Tolerance of Resistance	B 值 B Constant	B 值精度 Tolerance	T1/T2 代码 T1/T2 Code	电极代码 Electrode code	包装方式 Packaging
CMF- 片式负温 度系数热敏电阻 器 CMF-Chip NTC Thermistor	A→1.6×0.8	472→4.7kΩ	F→±1%	3500→3500K	F→±1%	A→25°C/50°C	N-银/镍/锡 Ag/Ni/Sn	T→卷带盘装
	B→2.0×1.2	103→10kΩ	G→±2%		G→±2%	B→25°C/85°C		Tape& Reel
	C→3.2×1.6	684→684kΩ	H→±3%		H→±3%	C→0°C/25°C		B→ 散装
	E→0.6×0.3		J→±5%			D→0°C/50°C		Bulk
	D→1.0×0.5		K→±10%					

◆外形尺寸

Shape and dimension

单位(Unit): mm 【inch】



型号 Size	L	W	T	D
0603 【0201】	0.60±0.05 【0.024±0.002】	0.30±0.05 【0.012±0.002】	0.30±0.05 【0.012±0.002】	0.15±0.05 【0.006±0.002】
1005 【0402】	1.00±0.15 【0.040±0.006】	0.50±0.15 【0.020±0.006】	0.5±0.15 【0.020±0.006】	0.25±0.10 【0.010±0.004】
1608 【0603】	1.60±0.15 【0.063±0.008】	0.75±0.15 【0.030±0.008】	0.75±0.15 【0.030±0.008】	0.30±0.20 【0.012±0.008】
2012 【0805】	2.00±0.20 【0.079±0.008】	1.25±0.20 【0.049±0.008】	0.75±0.15 【0.030±0.008】	0.50±0.30 【0.020±0.012】
3216 【1206】	3.20±0.20 【0.126±0.008】	1.60±0.20 【0.063±0.008】	0.75±0.15 【0.030±0.008】	0.50±0.30 【0.020±0.012】

◆性能参数

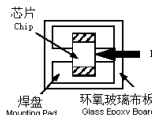
Specification

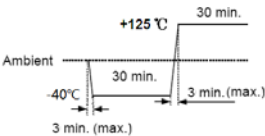
型号规格 Part Number	零功率标称电阻 Zero Power Resistance @ 25°C		B 值 B Value		最大允许工作电 流Maximum Operating Current @ 25°C	热时间常数 Thermal Time Constant	耗散常数 Dissipation Constant @ 25°C	额定功率 Rated Electric Power @ 25°C
	R ₂₅ (kΩ)	Tolerance ± (%)	B _{25/50} (K)	Tolerance ± (%)	I _{Max} (mA)	t (sec)	C (mW/°C)	P (mW)
CMFB104J4250HANT	100	5	4250	3	0.14	<9	2.0	200

注:

规格如有变更, 恕不另行通知, 请访问我们的网站获取最新信息。Specifications subject to change without notice. Please check our website for latest information.

◆可靠性测试方法
Reliability Test Method

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks																		
1	工作温度范围 Operating Temperature Range	-40℃~+125℃																			
2	可焊 Solder ability	至少 95%端电极表面被焊锡覆盖。 At least 95% of terminal electrode should be covered with solder	焊锡温度: 245℃±3℃ 浸锡深度:10 mm 浸锡时间 : 3±0.3s 浸渍到助焊剂约: 3~5s Solder temperature: 245℃±3℃ Immersion tin depth:10 mm Duration : 3±0.3s Dip performance to a flux of about:3~5 s																		
3	耐焊接热 Resistance to Soldering	无可见机械损伤; R ₂₅ 变化率小于±5%; B 值变化率小于±2% No mechanical damage. R ₂₅ change shall be less than±5%; B-constant change shall be less than ±2%	浸锡温度: 260℃±5℃ 浸锡深度:10 mm 浸锡时间 : 10±1s 浸渍到助焊剂约:3 ~ 5 s Solder temperature: 260℃±5℃ Immersion tin depth:10 mm Duration : 10±1 s Dip performance to a flux of about:3 ~ 5 s																		
4	振动 Vibration	无可见机械损伤; R ₂₅ 变化率小于±5%; B 值变化率小于±2% No mechanical damage. R ₂₅ change shall be less than±5%; B-constant change shall be less than ±2%	振动频率范围:10 Hz~55 Hz~10 Hz 全振幅: 1.50 mm 时间:X\Y\Z 轴各 2 小时 Frequency:10 Hz~55 Hz~10 Hz Amplitude: 1.50 mm Time: Vibrated for a period of 2 h,in three directions perpendicularly intersecting each other.																		
5	端电极强度 Adhesion of electrode	端电极与瓷体不应受损, 无可见机械损伤。 The termination and body should be no damage.	芯片 Chip  焊盘 Mounting Pad 环氧玻璃布板 Glass Epoxy Board <table><thead><tr><th>规格 Size code</th><th>推力(N) Force (N)</th><th>时间(s) Time (s)</th></tr></thead><tbody><tr><td>0603</td><td>2</td><td>10±1</td></tr><tr><td>1005</td><td>4</td><td>10±1</td></tr><tr><td>1608</td><td>5</td><td>10±1</td></tr><tr><td>2012</td><td>10</td><td>10±1</td></tr><tr><td>3216</td><td>10</td><td>10±1</td></tr></tbody></table>	规格 Size code	推力(N) Force (N)	时间(s) Time (s)	0603	2	10±1	1005	4	10±1	1608	5	10±1	2012	10	10±1	3216	10	10±1
规格 Size code	推力(N) Force (N)	时间(s) Time (s)																			
0603	2	10±1																			
1005	4	10±1																			
1608	5	10±1																			
2012	10	10±1																			
3216	10	10±1																			
6	抗弯强度 Resistance to flexure	无可见机械损伤; R ₂₅ 变化率小于±5%; B 值变化率小于±2% No mechanical damage. R ₂₅ change shall be less than±5%; B-constant change shall be less than ±2%	条件:测试基板(PCB) 施压速度:0.5 mm/s Condition: print circuit board. Pressing speed: 0.5 mm/s 厚度 thickness 1.6mm±0.20mm 或者 or 0.8mm±0.10mm 基板 substrate 产品 Chip 焊锡 solder 支撑 support 弯曲度 Camber 弯曲工具 Bending tool 半径 radius 2.5mm <table><thead><tr><th>规格 Size code</th><th>弯曲度 Camber (mm)</th><th>保持时间 Duration (s)</th></tr></thead><tbody><tr><td>0603</td><td>2</td><td>30</td></tr><tr><td>1005、1608 2012、3216</td><td>1.0</td><td>30</td></tr></tbody></table>	规格 Size code	弯曲度 Camber (mm)	保持时间 Duration (s)	0603	2	30	1005、1608 2012、3216	1.0	30									
规格 Size code	弯曲度 Camber (mm)	保持时间 Duration (s)																			
0603	2	30																			
1005、1608 2012、3216	1.0	30																			

序号 No.	项目 Items	要求 Requirements	试验方法及备注 Test Methods and Remarks
7	耐高温 High temperature resistance	无可见机械损伤; R_{25} 变化率小于 $\pm 5\%$; B 值变化率小于 $\pm 2\%$ No mechanical damage. R_{25} change shall be less than $\pm 5\%$; B -constant change shall be less than $\pm 2\%$	测试时间: 1000^{+24}_{-0} 小时 测试温度: $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Testing time: 1000^{+24}_{-0} h Temperature: $125^{\circ}\text{C} \pm 2^{\circ}\text{C}$
8	耐低温 Low temperature resistance	无可见机械损伤; R_{25} 变化率小于 $\pm 5\%$; B 值变化率小于 $\pm 2\%$ No mechanical damage. R_{25} change shall be less than $\pm 5\%$; B -constant change shall be less than $\pm 2\%$	测试温度: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 测试时间: 1000^{+24}_{-0} 小时 Temperature: $-40^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Testing time: 1000^{+24}_{-0} h
9	恒定湿热 Static Humidity	无可见机械损伤; R_{25} 变化率小于 $\pm 5\%$; B 值变化率小于 $\pm 2\%$ No mechanical damage. R_{25} change shall be less than $\pm 5\%$; B -constant change shall be less than $\pm 2\%$	湿度: $90\% \sim 95\% \text{ RH}$, 温度: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 测试时间: 1000^{+24}_{-0} 小时 Humidity: $90\% \text{ to } 95\% \text{ RH}$ Temperature: $60^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Testing time: 1000^{+24}_{-0} h
10	工作寿命 (高温负载) Operational Life	无可见机械损伤; R_{25} 变化率小于 $\pm 5\%$; No mechanical damage. R_{25} change shall be less than $\pm 5\%$; B -constant change shall be less than $\pm 2\%$	测试温度: 125°C ; 施加工件电流-稳定状态; 持续时间: 1000 小时; 试验结束后 24 ± 4 小时内进行测试。 Test temp.: 125°C ; With Permissive Operating Current. - steady state; Duration: 1000 h; Measurement at 24 ± 4 hours after test conclusion;
11	温度冲击 (温度循环) Temperature Shock	无可见机械损伤; R_{25} 变化率小于 $\pm 5\%$; B 值变化率小于 $\pm 2\%$ No mechanical damage. R_{25} change shall be less than $\pm 5\%$; B -constant change shall be less than $\pm 2\%$	温度: -40°C , 30 ± 3 分钟 + 125°C , 30 ± 3 分钟 循环次数: 100 Temperature: -40°C for 30 ± 3 min + 125°C for 30 ± 3 min Number of cycles: 100 

注：以上要求测试电性能的项目，应试验后在标准条件下放置 24 小时后测试。

Note: When there are questions concerning, measurement s All be made after 24 ± 2 hrs of recovery under the standard condition.

◆阻值温度特性曲线图，见附表

Resistance temperature Characteristic Curve (see table)

片式 NTC热敏电阻器温度阻值对照表							
R—T CONVERSION TABLE							
R25=100k Ω $\pm$ 5%				B25/50= 4250 $\pm$ 3%			
T/°C	Rmin	Rcen	Rmax	T/°C	Rmin	Rcen	Rmax
-40	4485.9	5319.9	6293.2	0	336.76	368.64	402.52
-39	4159.6	4921.4	5808.2	1	318.73	348.30	379.67
-38	3859.6	4555.9	5364.4	2	301.77	329.22	358.26
-37	3583.4	4220.2	4957.7	3	285.84	311.31	338.20
-36	3329.1	3911.8	4585.0	4	270.85	294.49	319.40
-35	3094.8	3628.2	4243.0	5	256.75	278.70	301.77
-34	2878.7	3367.3	3929.1	6	243.47	263.85	285.23
-33	2679.3	3127.1	3640.7	7	230.97	249.90	269.70
-32	2495.2	2905.9	3375.7	8	219.19	236.77	255.12
-31	2325.1	2701.9	3131.9	9	208.09	224.42	241.42
-30	2167.9	2513.7	2907.5	10	197.62	212.79	228.55
-29	2022.4	2340.1	2700.8	11	187.75	201.84	216.45
-28	1887.8	2179.7	2510.3	12	178.44	191.53	205.06
-27	1763.2	2031.4	2334.7	13	169.65	181.81	194.35
-26	1647.6	1894.4	2172.6	14	161.35	172.64	184.27
-25	1540.5	1767.5	2022.9	15	153.50	164.00	174.77
-24	1441.2	1650.1	1884.6	16	146.09	155.84	165.83
-23	1348.9	1541.3	1756.8	17	139.09	148.15	157.40
-22	1263.2	1440.5	1638.6	18	132.46	140.88	149.45
-21	1183.6	1347.0	1529.1	19	126.20	134.01	141.95
-20	1109.60	1260.25	1427.78	20	120.27	127.52	134.88
-19	1040.73	1179.69	1333.86	21	114.65	121.39	128.20
-18	976.63	1104.85	1246.79	22	109.34	115.59	121.90
-17	916.93	1035.29	1166.02	23	104.30	110.11	115.94
-16	861.30	970.60	1091.05	24	99.52	104.91	110.32
-15	809.44	910.41	1021.42	25	95.000	100.000	105.000
-14	761.07	854.37	956.72	26	90.450	95.347	100.257
-13	715.92	802.18	896.58	27	86.146	90.939	95.758
-12	673.77	753.53	840.63	28	82.074	86.762	91.489
-11	634.40	708.18	788.56	29	78.219	82.803	87.437
-10	597.60	665.86	740.08	30	74.568	79.049	83.589
-9	563.18	626.37	694.91	31	71.111	75.488	79.933
-8	530.99	589.49	652.80	32	67.835	72.109	76.461
-7	500.86	555.04	613.54	33	64.729	68.902	73.160
-6	472.65	522.83	576.91	34	61.785	65.857	70.022
-5	446.22	492.72	542.71	35	58.993	62.965	67.038
-4	421.44	464.54	510.77	36	56.343	60.218	64.198
-3	398.21	438.17	480.93	37	53.829	57.607	61.497
-2	376.42	413.47	453.03	38	51.442	55.125	58.925
-1	355.97	390.33	426.94	39	49.175	52.765	56.476

广东风华高新科技股份有限公司电感分公司

Inductor Branch of Guangdong Fenghua Advanced Technology Holding Co.,Ltd.

R—T CONVERSION TABLE							
R25=100k Ω $\pm$ 5%				B25/50= 4250 $\pm$ 3%			
T/°C	Rmin	Rcen	Rmax	T/°C	Rmin	Rcen	Rmax
40	47.021	50.520	54.144	83	8.696	9.814	11.048
41	44.975	48.384	51.922	84	8.402	9.491	10.695
42	43.029	46.351	49.804	85	8.119	9.181	10.356
43	41.180	44.415	47.786	86	7.8473	8.8826	10.0294
44	39.421	42.572	45.861	87	7.5862	8.5955	9.7148
45	37.747	40.816	44.025	88	7.3351	8.3192	9.4117
46	36.154	39.143	42.273	89	7.0937	8.0532	9.1197
47	34.638	37.548	40.601	90	6.8614	7.7971	8.8382
48	33.194	36.028	39.006	91	6.6380	7.5505	8.5670
49	31.819	34.578	37.482	92	6.4231	7.3130	8.3054
50	30.509	33.195	36.027	93	6.2162	7.0842	8.0532
51	29.260	31.875	34.636	94	6.0170	6.8637	7.8100
52	28.070	30.615	33.308	95	5.8253	6.6513	7.5754
53	26.935	29.412	32.038	96	5.6406	6.4465	7.3491
54	25.852	28.264	30.824	97	5.4628	6.2491	7.1307
55	24.819	27.167	29.662	98	5.2915	6.0587	6.9199
56	23.833	26.119	28.552	99	5.1264	5.8751	6.7164
57	22.892	25.117	27.489	100	4.9673	5.6980	6.5199
58	21.994	24.159	26.472	101	4.8140	5.5272	6.3302
59	21.136	23.243	25.498	102	4.6662	5.3623	6.1470
60	20.316	22.368	24.565	103	4.5236	5.2033	5.9700
61	19.532	21.530	23.672	104	4.3862	5.0497	5.7990
62	18.784	20.728	22.817	105	4.2536	4.9014	5.6338
63	18.068	19.961	21.997	106	4.1257	4.7583	5.4741
64	17.383	19.226	21.211	107	4.0023	4.6200	5.3198
65	16.728	18.523	20.458	108	3.8832	4.4865	5.1706
66	16.102	17.849	19.735	109	3.7682	4.3575	5.0263
67	15.502	17.203	19.043	110	3.6572	4.2328	4.8867
68	14.928	16.584	18.378	111	3.5500	4.1123	4.7517
69	14.379	15.991	17.740	112	3.4465	3.9959	4.6212
70	13.853	15.423	17.128	113	3.3466	3.8833	4.4948
71	13.349	14.878	16.541	114	3.2500	3.7745	4.3726
72	12.866	14.355	15.976	115	3.1567	3.6692	4.2543
73	12.403	13.853	15.434	116	3.0665	3.5674	4.1397
74	11.959	13.372	14.914	117	2.9794	3.4689	4.0288
75	11.534	12.910	14.414	118	2.8951	3.3737	3.9215
76	11.126	12.466	13.933	119	2.8137	3.2815	3.8175
77	10.734	12.040	13.471	120	2.7349	3.1922	3.7167
78	10.359	11.631	13.027	121	2.6587	3.1059	3.6192
79	9.999	11.238	12.600	122	2.5850	3.0223	3.5246
80	9.653	10.861	12.189	123	2.5138	2.9413	3.4330
81	9.321	10.498	11.794	124	2.4448	2.8629	3.3442
82	9.002	10.149	11.414	125	2.3780	2.7870	3.2582

广东风华高新科技股份有限公司电感分公司

Inductor Branch of Guangdong Fenghua Advanced Technology Holding Co., Ltd.

◆包装 Packaging

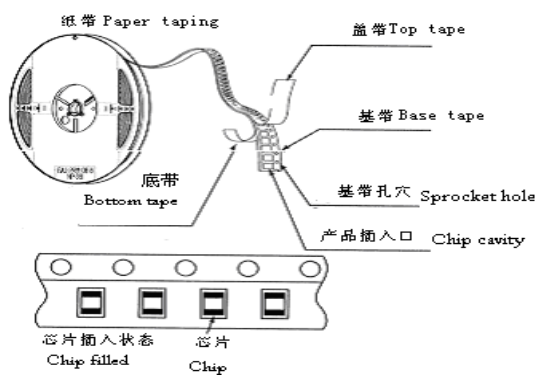
*包装数量

Packaging number

类型 Size	0603	1005	1608	2012	3216
每卷数量 Reel	15k	10k	4k	4k	3k
每盒数量 Box	150k	100k	40k	40k	30k
每箱数量 Case	900k	600k	240k	240k	180k

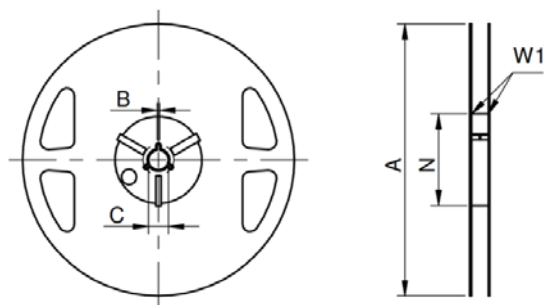
* 编带图

Taping drawings



* 卷盘尺寸

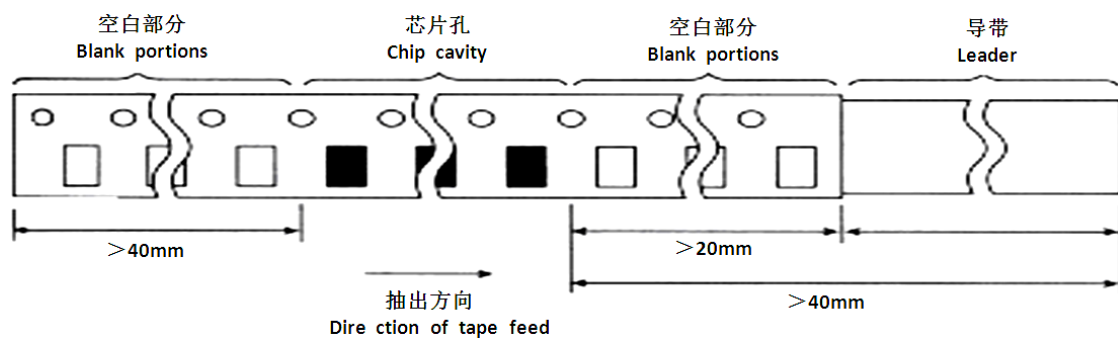
Reel dimensions (Unit: mm)



Part No.	A	B	C	N	W1
0603~3216	178±2.0	1.5 min	13.5±1.0	60±0.1	8.4 ^{+1.5} ₋₀

* 导带及空格部分

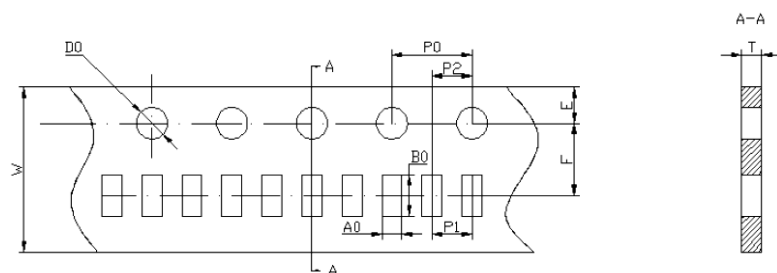
Leader and blank portion



*** 编带尺寸**

Taping dimensions (Unit: mm)

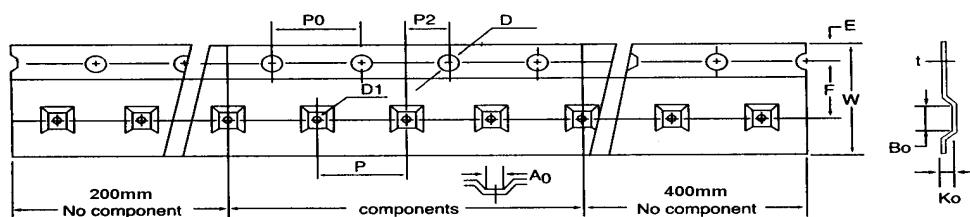
纸带 Paper tape



Part No.	W	A0	B0	D0	E	F	P0	P1	P2	T
0603	8.00±0.10	0.35±0.03	0.66±0.03	1.55±0.05	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	0.42±0.03
1005	8.00±0.10	0.59±0.03	1.12±0.03	1.55±0.05	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	0.60±0.03
1608	8.00±0.10	1.05±0.05	1.85±0.05	1.55±0.05	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	0.95±0.05
2012	8.00±0.10	1.45±0.05	2.35±0.05	1.55±0.05	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	0.95±0.05
3216	8.00±0.10	1.90±0.05	3.46±0.05	1.55±0.05	1.75±0.10	3.50±0.05	4.00±0.10	2.00±0.05	2.00±0.05	0.95±0.05

塑料胶带

Embossed carrier



Part No.	W	A ₀	B ₀	D	D1	E	F	K0	P ₀	P ₀ ×10	P	P2	t
3216	8.0	1.88	3.50	1.50	1.00	1.75	3.50	1.27	4.0	40	4.0	2.0	0.22
	±0.10	±0.10	±0.10	+0.10 -0	+0.10 -0	±0.10	±0.10	±0.10	±0.10	±0.20	±0.10	±0.10	±0.05

◆环保情况说明

Environmental Protection Statement

*RoHS 指令：本公司产品符合 RoHS 指令。

Response to RoHS directive: Our products are RoHS compliance.

◆推荐焊接工艺

Recommended Soldering Technologies

***回流焊 Re-flowing Profile**

- 预热不足有可能引发产品表面裂纹，从而导致产品品质下降。预热温度与最高温度之间的差值应≤100℃。
Un-enough pre-heating may cause cracks on the ferrite, resulting in the deterioration of product quality. The difference between the preheating temperature and the maximum temperature should be less than 100℃
- 不建议将元件浸泡溶剂或使用其他方法来快速冷却元件。

Rapid cooling by dipping in solvent or by other means is not recommended.

● 回流焊接条件 REFLOW SOLDERING CONDITIONS

预热条件: 150 ~ 200°C / 60 ~ 120 秒

Preheat condition: 150 ~ 200°C / 60 ~ 120 sec

允许大于 217°C 时间: 60 ~ 90 秒

Allowed time above 217°C: 60 ~ 90 sec

最大温度: 260 °C

max temp: 260 °C

最高温的最大时间: 10 秒

max time at max temp: 10 sec

焊膏: Sn/3.0Ag/0.5Cu

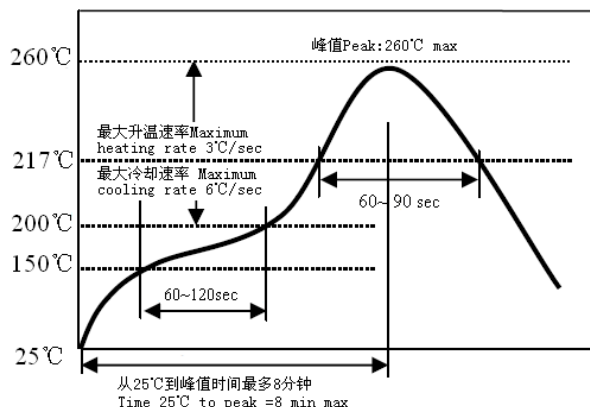
Solder paste: Sn/3.0Ag/0.5Cu

回流焊次数: 最多 2 次

Allowed Reflow time: 2x max

注意: 上表中回流焊曲线仅供参考, 并非为指定的回流焊工艺。实际的电路板组配置必须根据客户具体的电路板设计、焊膏和工艺, 并且不应超过以上回流焊曲线参数。

Note: The reflow profile in the above table is for reference only and is not the specified reflow process. Actual board assembly configuration must be based on the customer's specific board design, solder paste and process, and should not exceed the parameters as the reflow profile shows.



*手工焊接

Iron soldering

- 烙铁温度: 350°C (Max)

Soldering Tip temperature: 350°C Max.

- 烙铁功率: 最大为 30W

Iron soldering power: Max. 30W

- 烙铁头直径: Φ3mm (max.)

Diameter of Soldering Iron-tip: Φ3mm (max.)

- 烙铁停留时间: <3S (注意不要将烙铁碰到产品端电极)。

Soldering Time: < 3S (Take care not to apply the tip of the soldering iron to the terminal electrodes).

- 手工焊接: 最多 1 次

Max. 1 times for iron soldering

注意:

常规情况下不建议用烙铁焊接, 如用烙铁焊接需注意烙铁头的温度管理和焊接工艺控制。烙铁温度急剧变化所产生的压力将直接作用在热敏电阻上, 骤热或骤冷、两端焊锡不均匀、产品高低不平都会使热敏电阻内部产生较大的热应力, 将引发热裂纹。因此用烙铁焊接时需慎重评估相关条件及方法。

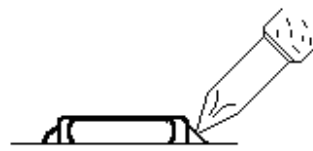
Note: In normal circumstances, soldering with soldering iron is not recommended. If welding with soldering iron, please pay attention to the temperature of the soldering iron head and welding process control. The pressure caused by sharp temperature change of soldering iron will act directly on the thermistor. Sudden heat or cold, uneven solder at both ends, uneven product will cause big thermal stress in the thermistor, which will cause hot cracks. Therefore, it is necessary to evaluate the relevant conditions and methods carefully when welding with soldering iron.

建议采用热风方法进行维修。

hot air methods are recommended for repair purposes.

用烙铁焊接过一次并拆卸后的产品不可使用。

Once the product is welded with soldering iron and disassembled, it can't be used.



*清洗 Cleaning

- 清洗条件 Cleaning Conditions

清洗温度：60℃（最高） Cleaning temperature : 60℃ max

清洗时间：1 分钟（最少） Cleaning time: 1 minute min.

超声波功率：最大为 200W Ultrasonic output power: 200W max

进行超声波清洗时，请防止安装部分与基板发生共振。

Please keep mounted parts and a substrate from an occurrence of resonance in ultrasonic cleaning.

*存储要求 Storage Requirements

- 存储期限 Storage period

距电感公司出厂检验时间 1 年内，产品可以使用检验时间可以通过包装外侧标记的检验号确认。若时间超过 1 年，应检查焊接性能后方可使用。

Products which inspected inductor company over 1 year ago should be examined and used, which can be Confirmed with inspection No. marked on the container. Solder ability should be checked if this period is exceeded.

- 存储条件 Storage conditions

存放货物的库房应满足以下条件：温度：-10 ~ +40℃，相对湿度：30 ~ 70%。

Products should be storage in the warehouse on the following conditions:

Temperature : -10~+40℃ Humidity: 30~70% relative humidity

禁止将产品保管在腐蚀性物质中，如硫磺、氯气或酸，否则将引起端头氧化，导致降低焊接性。

Don't keep products in corrosive gases such as sulfur, chlorine gas or acid , or it may cause oxidization of Electrodes resulting in poor solder ability.

为了避免受潮气、灰尘等物质的影响，产品应保管于货架上。

Products should be stored on the palette for the prevention of the influence from humidity, dust and so on.

产品保管在库房中，应避免热冲击、振动以及直接光照等等。

Products should be stored in the warehouse without heat shock, vibration, direct sunlight and so on.

产品应密封包装。

Products should be stored under the airtight packaged condition.

◆ 使用注意事项 Precautions For Use

*操作注意事项 OPERATING CONSIDERATIONS

本产品的陶瓷元件为易碎材料制成，使用时务必小心不要施加过大压力或引起冲击。此类强力可能会造成产品破裂或破碎。

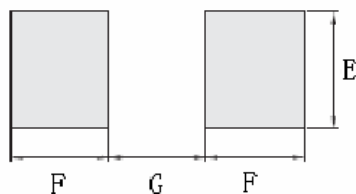
The ceramic of this product is fragile, and care must be taken not to load an excessive press - force or to give a shock at handling. Such forces may cause cracking or chipping.

*PC 板的设计 PCB design

当片式NTC被安装在PC板上后，所使用的焊料的量（焊盘的大小）会直接影响到片式NTC的性能，因此在设计基板时，必须慎重考虑焊盘的大小和配置，这些对组成基板的焊料的量有着决定的作用，过量的焊料会影响到芯片耐机械应力的能力。

When chip thermistors are mounted on a PCB, the amount of solder used (size of fillet) can directly affect thermistor performance. Therefore, when design land- patterns it is necessary to consider the appropriate size and configuration of the solder pads, which determines the amount of solder necessary to form the fillets. Excess solder can affect the ability of chips to withstand mechanical stress.

推荐最大焊盘尺寸 Recommended maximum dimensions (mm)



型号 SIZE	E	F	G
0603	0.30	0.30	0.25
1005	0.60	0.60	0.50
1608	1.00	1.00	1.00
2012	1.40	1.20	1.00
3216	1.80	1.20	2.00

基板配置：将片式 NTC 安装在板上之后，芯片将承受在下一加工过程中产生的机械应力，出于这个原因，在设计焊盘和片式 NTC 的位置时，应注意考虑将应力减少到最低点。

Pattern configurations: After chip thermistor have been mounted on the board, chips can be subject to mechanical stresses in subsequent manufacturing process , for this reason, planning pattern configurations and the position of SMD thermistors should be carefully performed to minimize stress.

***自动安装应考虑到的问题 Considerations for automatic placement.**

在将片式 NTC 安装在 PC 板上时，不能让其承受过量的冲击力。

Excessive impact load should not be imposed on the thermistor when mounting on the PCB .

应定期对安装机器进行维护和检查。

The maintenance and inspection of the mounting devices should be conducted periodically .

当 PC 板沿着接缝孔切割开时，片式 NTC 所受机械应力的的大小因使用的方法不同而不同。以下方法按应力从小到大进行排列：推板、割裂、V 形凹槽、接缝孔。因此。任何理想的片式 NTC 的布局必须考虑到 PC 板的分割方法。

When beating PCB along their perforations, the amount of mechanical stress on the thermistor can vary according to the method used .The following methods are listed in order from least stressful to most stressful: push-back, slit, v-grooving, and perforation. Thus, any ideal SMD thermistor layout must also consider the PCB splitting procedure.

***焊膏的印刷 printing solder paste**

焊膏的印刷厚度建议在 150μm~200μm。

Recommendable thickness of solder paste printing should from 150μm to 200μm.

焊接后，爬锡高度为 0.20mm 至本产品的厚度。

After soldering, the solder fillet shall be a height from 0.2mm to the thickness of chip thermistor.

过多的焊料将给本产品过大的机械应力，这些应力将导致断裂或机械损伤，也可能破坏产品的电性能。

Too much solder gives too strong mechanical stress to chip thermistor, such stress may cause cracking or any mechanical damage. And also, it can destroy the electrical performance of this product.

[illegible]

Note: The above content is the specification of products, Fenghua reserves the right to modify this content without prior notice, and any product changes will be notified to customers via PCN.