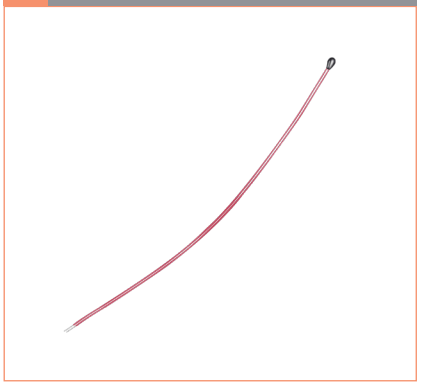
Temperature Measuring NTC Thermistor Datasheet

Features

- MF52 Series Temperature Measuring NTC Thermistor
- Zero Power Resistance at 25℃ :10KΩ, tolerance ±1%
- $B_{25/50}$ constant 3950K, tolerance ±1%
- Excellent solder ability
- Operating temperature：-30℃ to +125℃
- Lead-Free & Halogen Free

HNTC MF52 Series



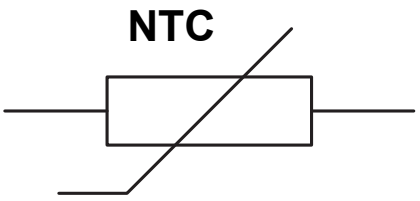
Applications

- Consumer Electronics,Thermal management in smartphones/tablets
- Temperature detection and protection in air conditioners;
- Temperature monitoring in microwaves/ovens
- Temperature monitoring in microwaves/ovens
- Constant temperature control in automated machinery
- Temperature measure and control

Part Number Code

H	NTC	-	103	F	3380	F	B
①	②		③	④	⑤	⑥	⑦

① "HJC" Brand Code
② NTC Thermistor
③ Rated Zero-Power Resistance：10KΩ
④ Resistance Tolerance F：1% G：2% H：3% J：5%
⑤ B Constant
⑥ B Constant Tolerance F：1% H：3%
⑦ B Constant calculation method A：25℃/85℃ B：25℃/50℃



Electrical Characteristics (Ta=25℃ Unless otherwise specified)

PARAMETER	Symbol	CONDITION	VALUE	UNIT
Rated Zero-Power Resistance	R_{25}	T_a=25℃ ±0.05℃ PT ⩽ 0.1mW	10±1%	KΩ
Resistance At 50℃	R_{50}	T_a=50℃ ±0.05℃ PT ⩽ 0.1mW	3.59（Typ）	KΩ
B Constant（Material Constant）	$B_{25/50}$	25℃ /50℃	3950±1%	K
Insulation Resistance	/	T_a=25℃ ,100VDC	100 min.	MΩ
Thermal Dissipation Constant	δ	T_a=25℃ ,stationary in the air	0.7 min.	mW/℃
Response Time-In liquid	τ	25℃→ 50℃ T1=25+(50-25)*63.2%=40.8℃	10 max.	sec
Operating Temperature Range	/	/	-30 to + 125	℃
Max.Dissipation power	P	T_a=25℃	3.5	mW

Electrical Test

Items	Test Methods and Remarks
Nominal Zero-Power Resistance at 25°C	Ambient temperature：25±0.05°C ;
Nominal B Constant	Measure the resistance at the ambient temperature of 25±0.05°C , 50±0.05°C or 85±0.05°C . $B_{(25/50℃)} = \frac{\ln R_{25} - \ln R_{50}}{1/T_{25} - 1/T_{50}}$ $B_{(25/85℃)} = \frac{\ln R_{25} - \ln R_{85}}{1/T_{25} - 1/T_{85}}$
Thermal Time Constant	The total time for the temperature of the thermistor to change by 63.2% of the difference from ambient temperature T0 (°C) to T1 (°C) by the drastic change of the power applied to thermistor from Non-zero Power to Zero-Power state, normally expressed in second(S)
Dissipation Factor	The required power which makes the NTC thermistor body temperature raise 1 °C through self-heated, normally expressed in milliwatts per degree Celsius (mW/°C). It can be calculated by the following formula:

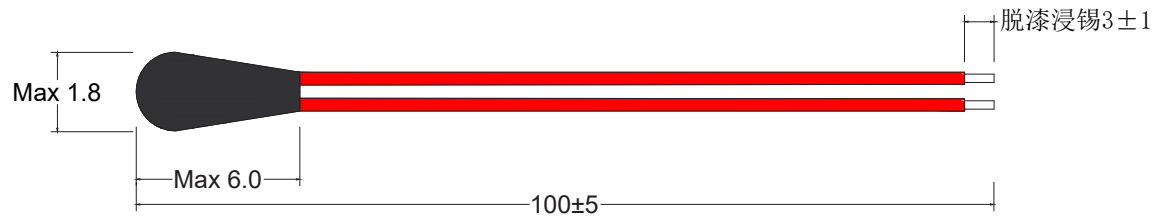
Reliability Test

Items	Standard	Test Conditions & Methods	Requirements
Rapid Temperature Change	IEC 60068-2-14	-30°C 30min → 25°C 5min → 125°C 30min → 25°C 5min, repeat 5 times, recovery time is 4 hours	No visible damage, R25 ΔR/R ⩽ ±3%
High Temperature Storage	IEC 60068-2-2	Temperature:125°C ±5°C , time:1000 hours	No visible damage, R25 ΔR/R ⩽ ±3%
Low Temperature Storage	IEC 60068-2-2	Temperature:-30°C , time:1000 hours	No visible damage, R25 ΔR/R ⩽ ±3%
Steady State Damp Heat	IEC 60068-2-78	Temperature:40 °C ±2 °C , humidity:93%±2%, time:500±12 hours	No visible damage, R25 ΔR/R ⩽ ±3%

Environmental Specification

Storage temperature：	-10°C to +40°C
Storage Conditions:	Light-proof, Hermetically Sealed, Moisture-proof; The components should be left in their original packing to avoid soldering problems due to oxidized contacts.
Relative humidity:	< 75 % RH
Storage period	The components should be employed within 12 months after delivery,the components should be resealed after opening the packing.

Physical Dimensions



Ordering Information

Part Number	DELIVERY MODE	MPQ(PCS)
HNTC-103F3950FB-100B	Bulk	500

Caution

1.Avoiding the measurement error caused by the current passing through the thermistor chip leads the component to heat itself;
2.When the soldering iron is welded, the distance between the soldering point and the coating layer is at least 2mm, the soldering temperature should be lower than 360 ° C, and the soldering time is <3s;

R-T Chart

Temp.(℃)	R_Min(KΩ)	R_Typ(KΩ)	R_Max(KΩ)		Temp.(℃)	R_Min(KΩ)	R_Typ(KΩ)	R_Max(KΩ)
-40	328.374	343.633	359.564		7	22.644	23.065	23.491
-39	307.221	321.281	335.950		8	21.575	21.965	22.360
-38	287.574	300.534	314.046		9	20.562	20.924	21.290
-37	269.315	281.266	293.718		10	19.603	19.938	20.277
-36	252.338	263.362	274.841		11	18.694	19.004	19.318
-35	236.545	246.718	257.302		12	17.832	18.119	18.410
-34	221.845	231.236	241.000		13	17.015	17.281	17.549
-33	208.156	216.827	225.838		14	16.239	16.486	16.734
-32	195.401	203.412	211.729		15	15.504	15.732	15.961
-31	183.512	190.914	198.595		16	14.806	15.016	15.228
-30	172.425	179.267	186.361		17	14.143	14.338	14.533
-29	162.079	168.405	174.961		18	13.514	13.693	13.874
-28	152.422	158.273	164.332		19	12.916	13.082	13.248
-27	143.402	148.815	154.417		20	12.348	12.501	12.654
-26	134.975	139.984	145.164		21	11.808	11.949	12.090
-25	127.096	131.733	136.525		22	11.295	11.424	11.554
-24	119.729	124.022	128.456		23	10.806	10.925	11.044
-23	112.835	116.811	120.915		24	10.342	10.451	10.560
-22	106.382	110.065	113.864		25	9.900	10.000	10.100
-21	100.339	103.751	107.269		26	9.471	9.571	9.671
-20	94.677	97.840	101.098		27	9.063	9.163	9.262
-19	89.371	92.302	95.320		28	8.675	8.774	8.873
-18	84.395	87.112	89.909		29	8.305	8.404	8.503
-17	79.727	82.247	84.839		30	7.953	8.051	8.149
-16	75.346	77.684	80.086		31	7.618	7.715	7.813
-15	71.234	73.402	75.628		32	7.299	7.395	7.492
-14	67.371	69.382	71.447		33	6.995	7.090	7.186
-13	63.741	65.608	67.522		34	6.706	6.800	6.894
-12	60.330	62.062	63.837		35	6.429	6.522	6.616
-11	57.121	58.729	60.376		36	6.166	6.258	6.350
-10	54.103	55.595	57.123		37	5.915	6.005	6.096
-9	51.263	52.648	54.065		38	5.675	5.764	5.854
-8	48.589	49.875	51.190		39	5.447	5.534	5.623
-7	46.071	47.264	48.484		40	5.228	5.315	5.402
-6	43.698	44.806	45.938		41	5.020	5.105	5.191
-5	41.462	42.491	43.541		42	4.821	4.905	4.989
-4	39.353	40.309	41.283		43	4.631	4.713	4.796
-3	37.364	38.252	39.156		44	4.449	4.530	4.612
-2	35.488	36.312	37.151		45	4.276	4.355	4.435
-1	33.717	34.482	35.260		46	4.110	4.188	4.267
0	32.045	32.755	33.477		47	3.952	4.028	4.105
1	30.465	31.124	31.795		48	3.800	3.875	3.951
2	28.973	29.585	30.206		49	3.655	3.728	3.803
3	27.562	28.130	28.707		50	3.516	3.588	3.661
4	26.229	26.756	27.290		51	3.383	3.454	3.526
5	24.967	25.456	25.952		52	3.256	3.326	3.396
6	23.774	24.227	24.687		53	3.135	3.203	3.272

R-T Chart

Temp.(℃)	R_Min(KΩ)	R_Typ(KΩ)	R_Max(KΩ)		Temp.(℃)	R_Min(KΩ)	R_Typ(KΩ)	R_Max(KΩ)
54	3.018	3.085	3.152		88	0.931	0.962	0.995
55	2.907	2.972	3.038		89	0.902	0.933	0.965
56	2.800	2.864	2.929		90	0.874	0.904	0.935
57	2.697	2.760	2.823		91	0.847	0.876	0.907
58	2.599	2.660	2.723		92	0.821	0.850	0.880
59	2.505	2.565	2.626		93	0.796	0.824	0.853
60	2.415	2.473	2.533		94	0.772	0.799	0.828
61	2.328	2.386	2.444		95	0.748	0.775	0.804
62	2.245	2.301	2.359		96	0.726	0.752	0.780
63	2.166	2.221	2.277		97	0.704	0.730	0.757
64	2.089	2.143	2.198		98	0.683	0.709	0.735
65	2.016	2.069	2.122		99	0.663	0.688	0.713
66	1.946	1.997	2.050		100	0.643	0.668	0.693
67	1.878	1.928	1.980		101	0.624	0.648	0.673
68	1.813	1.862	1.913		102	0.606	0.630	0.654
69	1.751	1.799	1.848		103	0.589	0.611	0.635
70	1.691	1.738	1.786		104	0.572	0.594	0.617
71	1.633	1.679	1.727		105	0.555	0.577	0.600
72	1.578	1.623	1.669		106	0.539	0.561	0.583
73	1.525	1.569	1.614		107	0.524	0.545	0.566
74	1.474	1.517	1.561		108	0.509	0.529	0.551
75	1.425	1.467	1.510		109	0.495	0.515	0.535
76	1.377	1.419	1.461		110	0.481	0.500	0.521
77	1.332	1.372	1.414		111	0.467	0.486	0.506
78	1.288	1.328	1.368		112	0.454	0.473	0.492
79	1.246	1.285	1.324		113	0.442	0.460	0.479
80	1.205	1.243	1.282		114	0.429	0.447	0.466
81	1.166	1.203	1.241		115	0.418	0.435	0.454
82	1.129	1.165	1.202		116	0.406	0.423	0.441
83	1.093	1.128	1.164		117	0.395	0.412	0.430
84	1.058	1.092	1.128		118	0.384	0.401	0.418
85	1.024	1.058	1.093		119	0.374	0.390	0.407
86	0.992	1.025	1.059		120	0.364	0.380	0.396
87	0.961	0.993	1.026		121	0.354	0.370	0.386
88	0.931	0.962	0.995		122	0.345	0.360	0.376
89	0.902	0.933	0.965		123	0.336	0.351	0.366
86	0.992	1.025	1.059		124	0.327	0.342	0.357
87	0.961	0.993	1.026		125	0.318	0.333	0.348