

描述 / Descriptions

BROS9004KB 是一款基于 MEMS 工艺的热电堆温度传感器。内部由热电堆 MEMS 芯片、波通长度为 5.5um 的红外滤光片以及一个用于温度补偿的 NTC 热敏电阻封装在一个小尺寸的 TO-46 封装里面。

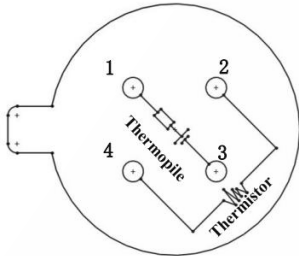
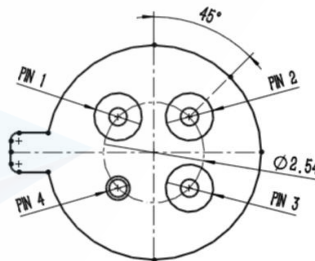
The BROS9004KB is a thermopile temperature sensor based on MEMS (Micro-Electro Mechanical Systems) technology. This thermopile detector consists of thermopile MEMS chip, an F5.5 infrared band pass filter, a NTC thermistor for temperature compensation and a small-size TO-46 Package.

特征 / Features

- ◆ 非接触式表面温度测量 / Non-contact surface temperature measuring
- ◆ 内置一个波通长度为5.5um的红外滤光片 / With an F5.5 infrared filter
- ◆ 使用NTC电阻补偿环境温度 / Using NTC thermistor for ambient temperature compensation
- ◆ 快速响应 / Fast response time
- ◆ 高灵敏度 / High sensitivity

用途 / Applications

- ◆ 非接触式温度测量 / Non-contact infrared thermometer
- ◆ 耳温计、额温计 / Ear thermometer、Forehead thermometer
- ◆ 工业温度测量 / Industrial temperature measurement
- ◆ 家用电器温度测量 / Home appliance temperature measurement

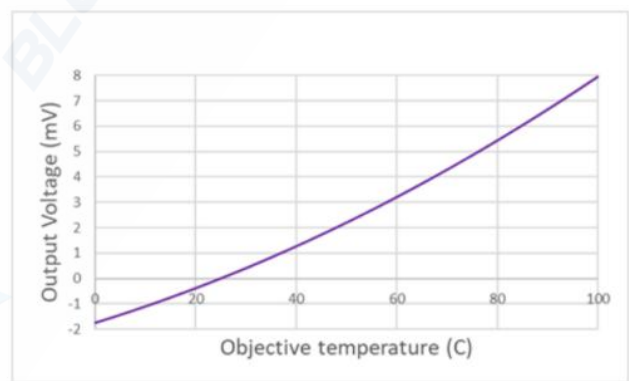
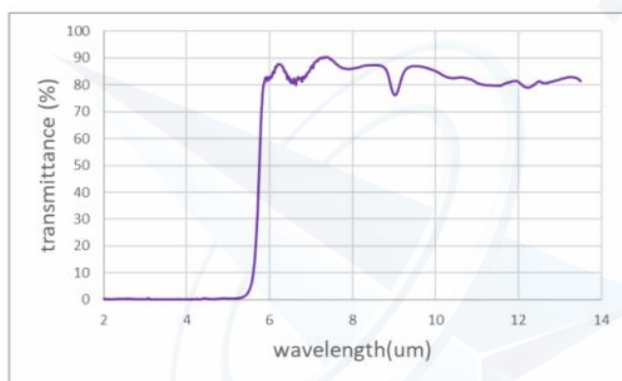
内部等效电路 / Internal Equivalent Circuit**引脚排列 / Pinning**

引脚 /Pin Num	名称 /Symbol	功能 /Function	引脚 /Pin Num	名称 /Symbol	功能 /Function
1	TP+	热电堆+	2	TH	NTC电阻正极端
3	TP-	热电堆-	4	GND	NTC电阻负极端或地

电性能参数 / Electrical Characteristics

参数 /Parameter	测试条件 /Test Condition	最小值 /Min	典型值 /Typ	最大值 /Max	单位/Unit
Active Area	membrane area		1*1		mm ²
Responsivity	Black body=500K,1Hz @temp=25°C		80		V/W
DC Output	Black body=310K,1Hz @temp=25°C		0.9		mV
TC of Thermopile			-0.1		%/°C
Time Constant			16		ms
Operating Temp			-40~120		°C
Storage Temp			-40~120		°C
Thermopile Res	@temp=25°C	60	75	90	kΩ
Noise Voltage	@temp=25°C	31	32	35	nV/Hz ^{1/2}
Thermistor Resistance	±3% tolerance, @temp=25°C		100		kΩ
TC of Thermistor(B)	±1% tolerance, Defined at 25/50°C		3950		k

电参数曲线图 / Electrical Characteristic Curve



热敏电阻 R-T 表 / NTC Temperature VS Resistance Table

T(°C)	R(KΩ)	T(°C)	R(KΩ)	T(°C)	R(KΩ)	T(°C)	R(KΩ)
-30	1787.9797	3	280.9084	36	62.5954	69	17.9562
-29	1679.6017	4	267.2014	37	60.0707	70	17.3452
-28	1578.5061	5	254.2428	38	57.661	71	16.7578
-27	1484.1584	6	241.9877	39	55.3604	72	16.193
-26	1396.0662	7	230.394	40	53.1635	73	15.6499
-25	1313.7754	8	219.4224	41	51.0651	74	15.1276
-24	1236.8685	9	209.0361	42	49.0602	75	14.6251
-23	1164.9598	10	199.2007	43	47.1443	76	14.1417
-22	1097.6941	11	189.8841	44	45.313	77	13.6764
-21	1034.7432	12	181.0559	45	43.5621	78	13.2286
-20	975.8038	13	172.6881	46	41.8878	79	12.7976
-19	920.5962	14	164.754	47	40.2862	80	12.3825
-18	868.8615	15	157.229	48	38.7539	81	11.9828
-17	820.3603	16	150.0898	49	37.2876	82	11.5978
-16	774.871	17	143.3144	50	35.8842	83	11.227
-15	732.1889	18	136.8825	51	34.5405	84	10.8697
-14	692.1238	19	130.7749	52	33.2538	85	10.5254
-13	654.4999	20	124.9734	53	32.0214	86	10.1935
-12	619.154	21	119.4612	54	30.8408	87	9.8736
-11	585.9346	22	114.2223	55	29.7096	88	9.5652
-10	554.7016	23	109.2417	56	28.6253	89	9.2678
-9	525.3245	24	104.5053	57	27.586	90	8.9809
-8	497.6821	25	100	58	26.5895	91	8.7042
-7	471.6621	26	95.7132	59	25.6338	92	8.4373
-6	447.1599	27	91.6333	60	24.7171	93	8.1797
-5	424.0781	28	87.7492	61	23.8376	94	7.9312
-4	402.3264	29	84.0505	62	22.9937	95	7.6912
-3	381.8204	30	80.5274	63	22.1836	96	7.4596
-2	362.4818	31	77.1707	64	21.4061	97	7.236
-1	344.2375	32	73.9717	65	20.6594	98	7.0201
0	327.0195	33	70.9222	66	19.9424	99	6.8115
1	310.764	34	68.0144	67	19.2537	100	6.6101
2	295.4121	35	65.2411	68	18.592	101	6.4155

功能描述 / Functional Description**使用方法:**

1. 读取热电堆温度传感器 2、4 管脚电阻值 R_a ;
 2. 根据 R_a 在规格书中的 R-T 表查找到对应环境温度 T_a ;
 3. 读取传感器 1、3 脚的电压 V_a ;
 4. 在 V-T 表里的 T_a 列中找到与 V_a 值相等或相近的电压值, 其对应的横坐标则为被测物体温度 T_{obj} .
1. Read the resistance value R_a of pin 2 and pin 4 of thermopile temperature sensor;
 2. Find the corresponding ambient temperature T_a according to the R-T table in the specification by R_a ;
 3. Read the voltage V_a of pins 1 and 3 of the sensor;
 4. In the T_a column of the V-T table, find the voltage value equal to or close to the V_a value, and its corresponding abscissa is the measured object temperature T_{obj} .

注意事项:

1. 传感器须先校准热敏电阻 NTC 的阻值;
 2. 传感器测试受黑体温度、距离、环境等因素影响, V-T 表仅供参考, 使用前还需对 V-T 表进行校准 (以下V-T表供参考) ;
 3. 传感器测试输出电压容易受到 NTC 阻值影响, 需增加热阻、热容增加温度稳定性, 一般使用金属 (铜、铝) 套件;
 4. 为减少传感器管脚之间的热干扰, 在制作 PCB 时, 应将传感器管脚之间进行热隔离;
 5. 频繁、过度振动、强烈冲击或碰撞会导致传感器内部产生共振而断裂。
1. The sensor must first calibrate the resistance of the thermistor NTC;
 2. The sensor test is affected by the blackbody temperature, distance, environment and other factors. The V-T table is only for reference. Before use, the V-T table needs to be calibrated (the following is the V-T table for reference);
 3. The test output voltage of the sensor is easily affected by NTC resistance value, so it needs to increase thermal resistance and heat capacity to increase temperature stability. Generally, using metal (copper, aluminum);
 4. In order to reduce the thermal interference between sensor pins, thermal isolation should be carried out between sensor pins when making PCB;
 5. Frequent, excessive vibration, strong impact or collision will cause resonance and fracture inside the sensor.

V-T 表 / Output Voltage VS Temperature Table

V-T Table (发射率 $\epsilon=1.0$ 0.1℃间隔 Ta=25℃)									
Tobj (℃)	Va (mV)	Tobj (℃)	Va (mV)	Tobj (℃)	Va (mV)	Tobj (℃)	Va (mV)	Tobj (℃)	Va (mV)
25	0	30	0.404003772	35	0.826089877	40	1.266311978	45	1.724705917
25.1	0.007903305	30.1	0.412268079	35.1	0.834716438	40.1	1.275301683	45.1	1.734059306
25.2	0.015813815	30.2	0.420539619	35.2	0.843350254	40.2	1.284298657	45.2	1.743419971
25.3	0.023731531	30.3	0.428818394	35.3	0.851991326	40.3	1.2933029	45.3	1.752787914
25.4	0.031656453	30.4	0.437104404	35.4	0.860639654	40.4	1.302314414	45.4	1.762163133
25.5	0.039588583	30.5	0.445397649	35.5	0.869295239	40.5	1.311333198	45.5	1.77154563
25.6	0.047527921	30.6	0.45369813	35.6	0.87795808	40.6	1.320359252	45.6	1.780935404
25.7	0.055474467	30.7	0.462005848	35.7	0.886628178	40.7	1.329392577	45.7	1.790332455
25.8	0.063428222	30.8	0.470320803	35.8	0.895305534	40.8	1.338433173	45.8	1.799736783
25.9	0.071389188	30.9	0.478642996	35.9	0.903990147	40.9	1.347481039	45.9	1.809148389
26	0.079357363	31	0.486972426	36	0.912682019	41	1.356536177	46	1.818567272
26.1	0.08733275	31.1	0.495309095	36.1	0.921381149	41.1	1.365598586	46.1	1.827993433
26.2	0.095315348	31.2	0.503653003	36.2	0.930087537	41.2	1.374668266	46.2	1.837426871
26.3	0.103305159	31.3	0.51200415	36.3	0.938801185	41.3	1.383745218	46.3	1.846867587
26.4	0.111302183	31.4	0.520362537	36.4	0.947522092	41.4	1.392829442	46.4	1.85631558
26.5	0.11930642	31.5	0.528728164	36.5	0.956250259	41.5	1.401920939	46.5	1.865770852
26.6	0.127317871	31.6	0.537101032	36.6	0.964985686	41.6	1.411019707	46.6	1.875233401
26.7	0.135336537	31.7	0.545481141	36.7	0.973728373	41.7	1.420125748	46.7	1.884703228
26.8	0.143362418	31.8	0.553868492	36.8	0.982478321	41.8	1.429239061	46.8	1.894180333
26.9	0.151395515	31.9	0.562263085	36.9	0.99123553	41.9	1.438359648	46.9	1.903664715
27	0.159435829	32	0.57066492	37	1	42	1.447487507	47	1.913156376
27.1	0.16748336	32.1	0.579073999	37.1	1.008771732	42.1	1.456622639	47.1	1.922655314
27.2	0.175538109	32.2	0.587490321	37.2	1.017550725	42.2	1.465765044	47.2	1.932161531
27.3	0.183600076	32.3	0.595913887	37.3	1.026336981	42.3	1.474914723	47.3	1.941675025
27.4	0.191669262	32.4	0.604344697	37.4	1.035130499	42.4	1.484071676	47.4	1.951195798
27.5	0.199745667	32.5	0.612782752	37.5	1.043931279	42.5	1.493235902	47.5	1.960723849
27.6	0.207829292	32.6	0.621228052	37.6	1.052739323	42.6	1.502407402	47.6	1.970259177
27.7	0.215920138	32.7	0.629680598	37.7	1.06155463	42.7	1.511586177	47.7	1.979801784
27.8	0.224018206	32.8	0.638140389	37.8	1.070377201	42.8	1.520772225	47.8	1.989351669
27.9	0.232123495	32.9	0.646607428	37.9	1.079207036	42.9	1.529965548	47.9	1.998908833
28	0.240236006	33	0.655081713	38	1.088044134	43	1.539166145	48	2.008473274
28.1	0.24835574	33.1	0.663563245	38.1	1.096888497	43.1	1.548374016	48.1	2.018044993
28.2	0.256482698	33.2	0.672052025	38.2	1.105740125	43.2	1.557589163	48.2	2.027623991
28.3	0.26461688	33.3	0.680548053	38.3	1.114599018	43.3	1.566811584	48.3	2.037210267
28.4	0.272758286	33.4	0.68905133	38.4	1.123465176	43.4	1.576041281	48.4	2.046803821
28.5	0.280906918	33.5	0.697561856	38.5	1.132338599	43.5	1.585278252	48.5	2.056404653
28.6	0.289062775	33.6	0.706079631	38.6	1.141219288	43.6	1.594522499	48.6	2.066012763
28.7	0.297225858	33.7	0.714604655	38.7	1.150107244	43.7	1.603774021	48.7	2.075628152
28.8	0.305396169	33.8	0.72313693	38.8	1.159002465	43.8	1.613032818	48.8	2.085250818
28.9	0.313573706	33.9	0.731676455	38.9	1.167904953	43.9	1.622298892	48.9	2.094880763
29	0.321758471	34	0.740223232	39	1.176814708	44	1.63157224	49	2.104517986
29.1	0.329950465	34.1	0.748777259	39.1	1.185731729	44.1	1.640852865	49.1	2.114162487
29.2	0.338149688	34.2	0.757338538	39.2	1.194656018	44.2	1.650140766	49.2	2.123814266
29.3	0.34635614	34.3	0.76590707	39.3	1.203587574	44.3	1.659435943	49.3	2.133473323
29.4	0.354569822	34.4	0.774482853	39.4	1.212526399	44.4	1.668738395	49.4	2.143139659
29.5	0.362790734	34.5	0.78306589	39.5	1.221472491	44.5	1.678048125	49.5	2.152813272
29.6	0.371018878	34.6	0.791656179	39.6	1.230425851	44.6	1.68736513	49.6	2.162494163
29.7	0.379254253	34.7	0.800253722	39.7	1.239386479	44.7	1.696689412	49.7	2.172182332
29.8	0.38749686	34.8	0.80885852	39.8	1.248354377	44.8	1.70602097	49.8	2.181877779
29.9	0.3957467	34.9	0.817470571	39.9	1.257329543	44.9	1.715359805	49.9	2.191580504

V-T 表 / Output Voltage VS Temperature Table

V-T Table (发射率 $\epsilon=1.0$ 1.0°C间隔 $T_a=-20\sim 30^\circ\text{C}$ 单位: mV、 $^\circ\text{C}$)							
$T_{\text{obj}} \backslash T_a$	-20	-10	0	10	20	25	30
0	1.142971784	0.600606488	0	-0.658361434	-1.373532629	-1.752013261	-2.144158939
1	1.207644601	0.664601458	0.063317122	-0.59572216	-1.311571202	-1.690390758	-2.08287536
2	1.273046986	0.729318349	0.127348519	-0.532376257	-1.248910794	-1.628073097	-2.020900446
3	1.339180475	0.794758681	0.192095693	-0.468322239	-1.185549933	-1.565058815	-1.958232743
4	1.406046563	0.860923932	0.257560109	-0.403558659	-1.121487188	-1.501346488	-1.894870833
5	1.473646704	0.927815544	0.323743192	-0.338084105	-1.056721164	-1.436934728	-1.830813339
6	1.541982317	0.995434919	0.390646329	-0.271897206	-0.991250503	-1.371822186	-1.766058916
7	1.61105478	1.063783422	0.45827087	-0.204996626	-0.925073884	-1.306007548	-1.700606258
8	1.680865434	1.132862377	0.526618128	-0.137381067	-0.858190023	-1.239489535	-1.634454095
9	1.751415581	1.202673075	0.595689377	-0.069049267	-0.790597671	-1.172266908	-1.567601192
10	1.822706486	1.273216768	0.665485857	0	-0.722295618	-1.104338461	-1.500046351
11	1.894739378	1.344494669	0.736008768	0.069767922	-0.653282686	-1.035703024	-1.431788409
12	1.967515446	1.416507958	0.807259278	0.140255653	-0.583557734	-0.966359462	-1.362826237
13	2.041035845	1.489257777	0.879238516	0.21146431	-0.513119658	-0.896306676	-1.293158741
14	2.115301692	1.56274523	0.951947576	0.283394976	-0.441967386	-0.825543601	-1.222784862
15	2.19031407	1.63697139	1.025387517	0.356048698	-0.370099881	-0.754069206	-1.151703577
16	2.266074023	1.711937289	1.099559362	0.42942649	-0.297516143	-0.681882494	-1.079913892
17	2.342582563	1.787643929	1.174464102	0.50352933	-0.224215203	-0.608982505	-1.007414852
18	2.419840663	1.864092273	1.25010269	0.578358162	-0.150196128	-0.535368307	-0.934205533
19	2.497849264	1.941283252	1.326476047	0.653913896	-0.075458016	-0.461039006	-0.860285043
20	2.576609272	2.019217761	1.403585058	0.73019741	0	-0.385993739	-0.785652525
21	2.656121557	2.097896663	1.481430578	0.807209547	0.076178754	-0.310231677	-0.710307154
22	2.736386956	2.177320786	1.560013424	0.884951117	0.153079048	-0.233752021	-0.634248136
23	2.817406272	2.257490924	1.639334384	0.963422899	0.230701652	-0.156554006	-0.557474711
24	2.899180275	2.338407839	1.719394211	1.042625637	0.309047302	-0.0786369	-0.479986148
25	2.981709701	2.42007226	1.800193625	1.122560046	0.388116705	0	-0.401781752
26	3.064995254	2.502484881	1.881733316	1.203226806	0.467910534	0.079357363	-0.322860854
27	3.149037604	2.585646368	1.96401394	1.284626566	0.548429431	0.159435829	-0.243222819
28	3.23383739	2.669557352	2.047036122	1.366759946	0.629674009	0.240236006	-0.162867044
29	3.319395217	2.754218432	2.130800455	1.449627532	0.711644848	0.321758471	-0.081792952
30	3.40571166	2.839630177	2.215307502	1.53322988	0.794342498	0.404003772	0
31	3.492787263	2.925793124	2.300557793	1.617567517	0.877767479	0.486972426	0.082512326
32	3.580622535	3.012707779	2.386551831	1.702640937	0.961920282	0.57066492	0.165744512
33	3.669217959	3.100374618	2.473290085	1.788450607	1.046801367	0.655081713	0.249697012
34	3.758573983	3.188794086	2.560772996	1.874996961	1.132411164	0.740223232	0.334370252
35	3.848691027	3.277966597	2.649000974	1.962280406	1.218750076	0.826089877	0.419764631
36	3.93956948	3.367892536	2.7379744	2.050301318	1.305818475	0.912682019	0.505880516
37	4.031209701	3.45857226	2.827693625	2.139060046	1.393616705	1	0.592718248
38	4.12361202	3.550006093	2.918158973	2.228556908	1.482145082	1.088044134	0.68027814
39	4.216776737	3.642194333	3.009370737	2.318792196	1.571403893	1.176814708	0.768560475
40	4.310704122	3.735137249	3.101329183	2.409766172	1.661393399	1.266311978	0.857565511
41	4.405394419	3.828835079	3.194034547	2.501479069	1.752113831	1.356536177	0.947293476
42	4.50084784	3.923288035	3.287487039	2.593931096	1.843565393	1.447487507	1.037744574
43	4.59706457	4.018496301	3.381686839	2.687122432	1.935748263	1.539166145	1.128918979
44	4.694044768	4.114460031	3.476634103	2.781053228	2.028662593	1.63157224	1.220816842
45	4.791788561	4.211179355	3.572328955	2.875723611	2.122308505	1.724705917	1.313438283
46	4.890296053	4.308654372	3.668771497	2.971133678	2.216686097	1.818567272	1.4067834
47	4.989567318	4.406885156	3.765961802	3.067283502	2.311795441	1.913156376	1.500852264
48	5.089602402	4.505871755	3.863899914	3.164173129	2.407636582	2.008473274	1.595644919
49	5.190401328	4.605614188	3.962585856	3.261802579	2.50420954	2.104517986	1.691161386
50	5.291964088	4.706112451	4.062019621	3.360171846	2.60151431	2.201290507	1.787401658



V-T 表 / Output Voltage VS Temperature Table

V-T Table (发射率 $\epsilon=1.0$ 1.0℃间隔 $T_a=-20\sim 30^\circ\text{C}$ 单位: mV、℃)							
$\begin{matrix} I_a \\ \text{Tobj} \end{matrix}$	-20	-10	0	10	20	25	30
51	5.394290652	4.807366512	4.162201179	3.4592809	2.69955086	2.298790806	1.884365705
52	5.497380961	4.909376312	4.263130471	3.559129684	2.798319136	2.397018828	1.982053473
53	5.601234932	5.012141771	4.364807417	3.659718118	2.897819058	2.495974493	2.080464882
54	5.705852454	5.115662778	4.467231909	3.761046095	2.998050519	2.595657697	2.179599828
55	5.811233395	5.219939202	4.570403816	3.863113485	3.099013393	2.696068312	2.279458185
56	5.917377594	5.324970884	4.674322982	3.965920134	3.200707525	2.797206186	2.380039801
57	6.024284867	5.430757642	4.778989226	4.069465863	3.30313274	2.899071144	2.481344501
58	6.131955005	5.537299271	4.884402344	4.173750471	3.406288837	3.001662986	2.583372088
59	6.240387776	5.644595538	4.990562107	4.278773731	3.510175594	3.104981491	2.686122341
60	6.349582923	5.752646191	5.097468266	4.384535396	3.614792764	3.209026414	2.789595017
61	6.459540164	5.86145095	5.205120544	4.491035192	3.720140079	3.313797487	2.89378985
62	6.570259197	5.971009517	5.313518644	4.598272825	3.826217246	3.419294422	2.998706551
63	6.681739693	6.081321565	5.422662245	4.706247979	3.93023952	3.525516905	3.10434481
64	6.793981301	6.192386749	5.532551004	4.814960314	4.040559863	3.632464602	3.210704295
65	6.90698365	6.3042047	5.643184557	4.924409468	4.148824619	3.740137159	3.317784653
66	7.020746342	6.416775025	5.754562514	5.034595058	4.257817841	3.848534198	3.425585509
67	7.135268961	6.530097311	5.866684468	5.14551668	4.36753913	3.957655321	3.534106465
68	7.250551065	6.644171122	5.979549987	5.257173906	4.477988064	4.067500108	3.643347106
69	7.366592193	6.758996002	6.093158618	5.369566289	4.589164199	4.17806812	3.753306993
70	7.483391861	6.874571471	6.207509889	5.482693362	4.701067073	4.289358894	3.863985669
71	7.600949564	6.990897031	6.322603306	5.596554635	4.813696202	4.401371952	3.975382654
72	7.719264777	7.107972161	6.438438352	5.711149598	4.927051082	4.51410679	4.087497451
73	7.838336953	7.225796319	6.555014493	5.826477722	5.041131189	4.627562888	4.200329541
74	7.958165523	7.344368945	6.672331174	5.942538457	5.15593598	4.741739706	4.313878386
75	8.0787499	7.463689455	6.790387817	6.059331234	5.27146489	4.856636683	4.42814343
76	8.200089476	7.583757249	6.909183829	6.176855464	5.387717337	4.97225324	4.543124095
77	8.322183623	7.704571705	7.028718594	6.295110538	5.50469272	5.088588777	4.658819787
78	8.445031692	7.826132181	7.148991478	6.414095829	5.622390418	5.205642679	4.775229892
79	8.568633017	7.948438018	7.270001827	6.53381069	5.740809791	5.323414308	4.892353778
80	8.692986911	8.071488536	7.391748969	6.654254456	5.859950182	5.441903011	5.010190792
81	8.818092668	8.195283037	7.514232213	6.775426444	5.979810914	5.561108115	5.128740268
82	8.943949563	8.319820803	7.63745085	6.897325952	6.100391293	5.681028929	5.248001519
83	9.070556853	8.445101099	7.761404153	7.019952261	6.221690608	5.801664747	5.367973839
84	9.197913777	8.571123172	7.886091375	7.143304632	6.343708128	5.923014841	5.488656508
85	9.326019555	8.69788625	8.011511753	7.26738231	6.466443106	6.04507847	5.610048786
86	9.454873389	8.825389544	8.137664506	7.392184523	6.589894779	6.167854872	5.732149919
87	9.584474465	8.953632247	8.264548837	7.517710481	6.714062364	6.291343271	5.854959132
88	9.714821948	9.082613534	8.392163929	7.643959377	6.838945065	6.415542874	5.978475637
89	9.845914989	9.212332565	8.52050895	7.770930388	6.964542066	6.54045287	6.102698628
90	9.97775272	9.342788481	8.64958305	7.898622674	7.090852536	6.666072433	6.227627283
91	10.11033426	9.473980408	8.779385366	8.027035378	7.217875629	6.79240072	6.353260765
92	10.2436587	9.605907453	8.909915013	8.156167628	7.345610481	6.919436873	6.479598219
93	10.37772513	9.738568709	9.041171095	8.286018535	7.474056214	7.047180019	6.606638777
94	10.51253262	9.871963252	9.173152696	8.416587195	7.603211932	7.175629266	6.734381554
95	10.64808021	10.00609014	9.305858889	8.547872688	7.733076727	7.304783711	6.862825649
96	10.78436694	10.14094843	9.439288727	8.67987408	7.863649673	7.434642435	6.99197015
97	10.92139182	10.27653713	9.57344125	8.812590421	7.99492983	7.565204501	7.121814124
98	11.05915388	10.41285528	9.708315483	8.946020745	8.126916245	7.696468961	7.25235663
99	11.19765208	10.54990185	9.843910435	9.080164072	8.259607947	7.828434851	7.383596708
100	11.3368854	10.68767585	9.980225101	9.215019408	8.393003954	7.961101193	7.515533385

V-T 表 / Output Voltage VS Temperature Table

V-T Table (发射率 $\varepsilon=1.0$ 1.0°C间隔 $T_a=40\sim100^\circ\text{C}$ 单位: mV、°C)							
$T_{obj} \backslash T_a$	40	50	60	70	80	90	100
0	-2.968522872	-3.844587914	-4.770039647	-5.742324233	-6.758684337	-7.816192567	-8.911782511
1	-2.907917141	-3.78466003	-4.710789611	-5.683752044	-6.700789996	-7.758976073	-8.855243865
2	-2.846627721	-3.724056104	-4.650871179	-5.624519107	-6.642242553	-7.701114124	-8.79806741
3	-2.784653175	-3.662774715	-4.590282947	-5.564624032	-6.583040635	-7.642605363	-8.740251807
4	-2.721992101	-3.600814477	-4.529023545	-5.504065465	-6.523182904	-7.583448468	-8.681795747
5	-2.658643136	-3.538174041	-4.467091638	-5.442842088	-6.462668056	-7.523642149	-8.622697957
6	-2.59460495	-3.474852094	-4.404485929	-5.380952617	-6.401494822	-7.463185154	-8.5629572
7	-2.529876253	-3.410847358	-4.341205154	-5.318395803	-6.339661969	-7.402076262	-8.502572269
8	-2.464455788	-3.346158591	-4.277248085	-5.255170432	-6.277168297	-7.340314288	-8.441541993
9	-2.398342335	-3.280784586	-4.212613529	-5.191275325	-6.214012639	-7.277898079	-8.379865233
10	-2.331534707	-3.214724172	-4.147300327	-5.126709336	-6.150193863	-7.214826515	-8.317540882
11	-2.264031755	-3.147976209	-4.081307355	-5.061471353	-6.085710869	-7.151098512	-8.254567869
12	-2.195832361	-3.080539595	-4.01463352	-4.995560298	-6.020562593	-7.086713015	-8.190945151
13	-2.126935446	-3.01241326	-3.947277766	-4.928975125	-5.954748001	-7.021669003	-8.12667172
14	-2.057339962	-2.94359617	-3.879239069	-4.861714821	-5.888266091	-6.955965487	-8.061746598
15	-1.987044894	-2.87408732	-3.810516438	-4.793778409	-5.821115897	-6.889601511	-7.99616884
16	-1.916049264	-2.803885744	-3.741108915	-4.72516494	-5.753296482	-6.82257615	-7.929937533
17	-1.844352124	-2.732990504	-3.671015575	-4.6558735	-5.684806941	-6.75488851	-7.863051792
18	-1.77195256	-2.661400697	-3.600235524	-4.585903205	-5.615646403	-6.686537727	-7.795510766
19	-1.698849693	-2.589115452	-3.528767901	-4.515253204	-5.545814025	-6.617522971	-7.727313633
20	-1.625042673	-2.51613393	-3.456611877	-4.443922678	-5.475308997	-6.547843441	-7.6584596
21	-1.550530684	-2.442455324	-3.383766654	-4.371910838	-5.404130539	-6.477498366	-7.588947908
22	-1.475312943	-2.368078858	-3.310231465	-4.299216925	-5.332277902	-6.406487005	-7.518777823
23	-1.399388695	-2.293003789	-3.236005574	-4.225840212	-5.259750367	-6.334808649	-7.447948645
24	-1.322757221	-2.217229403	-3.161088276	-4.151780002	-5.186547246	-6.262462615	-7.3764597
25	-1.24541783	-2.140755018	-3.085478897	-4.077035629	-5.112667878	-6.189448254	-7.304310344
26	-1.167369864	-2.063579982	-3.009176792	-4.001606455	-5.038111636	-6.115764942	-7.231499964
27	-1.088612692	-1.985703674	-2.932181347	-3.925491873	-4.962877917	-6.041412087	-7.158027971
28	-1.009145718	-1.907125502	-2.854491977	-3.848691305	-4.886966151	-5.966389122	-7.083893809
29	-0.928968374	-1.827844905	-2.776108127	-3.771204202	-4.810375795	-5.890695513	-7.009096947
30	-0.84808012	-1.747861349	-2.69702927	-3.693030043	-4.733106334	-5.814330751	-6.933636883
31	-0.766480449	-1.667174334	-2.617254909	-3.614168338	-4.655157284	-5.737294356	-6.857513143
32	-0.684168881	-1.585783383	-2.536784576	-3.534618622	-4.576528186	-5.659585875	-6.78072528
33	-0.601144966	-1.503688052	-2.45561783	-3.454380461	-4.497218609	-5.581204884	-6.703272873
34	-0.517408282	-1.420887925	-2.37375426	-3.373453447	-4.417228152	-5.502150983	-6.625155529
35	-0.432958437	-1.337382613	-2.29119348	-3.291837201	-4.336556439	-5.422423803	-6.546372882
36	-0.347795065	-1.253171755	-2.207935136	-3.20953137	-4.255203122	-5.342023	-6.466924592
37	-0.26191783	-1.168255018	-2.123978897	-3.126535629	-4.173167878	-5.260948254	-6.386810344
38	-0.175326424	-1.082632097	-2.039324462	-3.042849679	-4.090450414	-5.179199275	-6.306029851
39	-0.088020566	-0.996302715	-1.953971556	-2.95847325	-4.007050461	-5.096775798	-6.22458285
40	0	-0.909266619	-1.86791993	-2.873406094	-3.922967775	-5.013677582	-6.142469104
41	0.088735499	-0.821523586	-1.781169363	-2.787647993	-3.83820214	-4.929904414	-6.059688402
42	0.178186132	-0.733073418	-1.693719659	-2.701198754	-3.752753366	-4.845456104	-5.976240557
43	0.268352073	-0.643915942	-1.605570649	-2.614058208	-3.666621286	-4.760332489	-5.892125407
44	0.359233468	-0.554051014	-1.516722188	-2.526226214	-3.579805759	-4.674533429	-5.807342814
45	0.450830439	-0.463478514	-1.427174158	-2.437702655	-3.492306669	-4.58805881	-5.721892665
46	0.543143081	-0.372198346	-1.336926465	-2.348487437	-3.404123926	-4.500908542	-5.635774872
47	0.636171465	-0.280210443	-1.245979042	-2.258580494	-3.315257463	-4.413082559	-5.54898937
48	0.729915634	-0.187514759	-1.154331844	-2.167981782	-3.225707238	-4.324580819	-5.461536116
49	0.824375609	-0.094111277	-1.061984853	-2.076691283	-3.135473231	-4.235403304	-5.373415092
50	0.919551383	0	-0.968938075	-1.984709002	-3.044555447	-4.145550018	-5.284626304

V-T 表 / Output Voltage VS Temperature Table

V-T Table (发射率 $\varepsilon=1.0$ 1.0℃间隔 $T_a=40\sim 100^\circ\text{C}$ 单位: mV、℃)							
Tobj \ Ta	40	50	60	70	80	90	100
51	1.015442927	0.094819041	-0.875191537	-1.892034968	-2.952953916	-4.055020991	-5.19516978
52	1.112050187	0.190345792	-0.780745294	-1.798669233	-2.86066869	-3.963816272	-5.10504557
53	1.209373083	0.286580176	-0.685599422	-1.704611873	-2.767699842	-3.871935937	-5.014253747
54	1.307411515	0.383522092	-0.589754021	-1.609862988	-2.674047472	-3.779380082	-4.922794407
55	1.406165355	0.481171416	-0.493209215	-1.514422698	-2.579711699	-3.686148826	-4.830667668
56	1.505634454	0.579527998	-0.395965149	-1.418291149	-2.484692667	-3.59224231	-4.737873668
57	1.605818639	0.678591669	-0.298021992	-1.321468507	-2.388990539	-3.497660697	-4.64441257
58	1.706717716	0.778362236	-0.199379936	-1.223954961	-2.292605503	-3.402404172	-4.550284555
59	1.808331466	0.878839482	-0.100039193	-1.125750722	-2.195537768	-3.30647294	-4.455489826
60	1.910659648	0.98002317	0	-1.026856023	-2.097787563	-3.209867229	-4.36002861
61	2.013701998	1.081913039	0.100737387	-0.927271117	-1.999355139	-3.112587287	-4.26390115
62	2.117458233	1.184508807	0.202172689	-0.826996281	-1.900240769	-3.014633384	-4.167107712
63	2.221928045	1.287810172	0.304305607	-0.726031811	-1.800444747	-2.916005808	-4.069648584
64	2.327111106	1.391816808	0.407135818	-0.624378025	-1.699967385	-2.816704871	-3.971524072
65	2.433007066	1.496528369	0.510662982	-0.522035259	-1.598809017	-2.716730902	-3.872734501
66	2.539615554	1.60194449	0.614886735	-0.419003874	-1.496969999	-2.616084251	-3.773280217
67	2.646936178	1.708064782	0.719806694	-0.315284246	-1.394450704	-2.514765289	-3.673161587
68	2.754968526	1.814888837	0.825422457	-0.210876776	-1.291251527	-2.412774404	-3.572378995
69	2.863712165	1.922416228	0.9317336	-0.105781881	-1.18737288	-2.310112005	-3.470932845
70	2.973166642	2.030646507	1.03873968	0	-1.082815197	-2.206778521	-3.368823559
71	3.083331484	2.139579205	1.146440234	0.106468411	-0.97757893	-2.102774397	-3.266051579
72	3.194206197	2.249213835	1.254834782	0.213622875	-0.871664549	-1.9981001	-3.162617365
73	3.30579027	2.359549891	1.36392282	0.321462896	-0.765072545	-1.892756112	-3.058521394
74	3.418083171	2.470586846	1.473703831	0.429987962	-0.657803424	-1.786742937	-2.953764164
75	3.531084347	2.582324156	1.584177274	0.539197538	-0.549857715	-1.680061094	-2.848346188
76	3.644793231	2.694761258	1.695342593	0.649091075	-0.44123596	-1.572711121	-2.742267997
77	3.759209232	2.807897568	1.807199212	0.759668004	-0.331938722	-1.464693574	-2.635530141
78	3.874331744	2.921732487	1.919746538	0.870927737	-0.221966582	-1.356009027	-2.528133187
79	3.990160141	3.036265396	2.03298396	0.982869671	-0.111320136	-1.246658069	-2.420077717
80	4.10669378	3.15149566	2.146910848	1.095493183	0	-1.136641309	-2.311364332
81	4.223932	3.267422623	2.261526555	1.208797634	0.111993195	-1.02595937	-2.201993649
82	4.341874122	3.384045616	2.376830418	1.322782368	0.224658801	-0.914612893	-2.091966302
83	4.460519448	3.501363948	2.492821757	1.437446713	0.337996151	-0.802602537	-1.981282939
84	4.579867266	3.619376915	2.609499873	1.552789977	0.452004565	-0.689928974	-1.869944228
85	4.699916844	3.738083794	2.726864051	1.668811456	0.566683344	-0.576592895	-1.757950849
86	4.820667436	3.857483845	2.844913562	1.785510427	0.682031774	-0.462595006	-1.645303499
87	4.942118277	3.977576313	2.963647658	1.90288615	0.798049125	-0.347936027	-1.532002893
88	5.064268586	4.098360427	3.083065576	2.020937873	0.914734652	-0.232616695	-1.418049757
89	5.187117567	4.219835398	3.203166538	2.139664824	1.032087593	-0.116637764	-1.303444836
90	5.310664407	4.342000423	3.323949747	2.259066219	1.150107172	0	-1.188188887
91	5.434908278	4.464854682	3.445414395	2.379141256	1.268792598	0.117295815	-1.072282684
92	5.559848335	4.588397341	3.567559657	2.499889119	1.388143064	0.235248883	-0.95727013
93	5.685483718	4.71262755	3.690384691	2.621308979	1.508157749	0.353858393	-0.838522677
94	5.811813553	4.837544443	3.813888642	2.743399988	1.628835817	0.473123519	-0.720670493
95	5.93883695	4.963147141	3.938070641	2.866161289	1.750176418	0.593043422	-0.602171289
96	6.066553004	5.08943475	4.062929804	2.989592005	1.872178689	0.713617246	-0.483025911
97	6.194960796	5.216406359	4.18846523	3.113691249	1.99484175	0.834844125	-0.363235215
98	6.324059393	5.344061046	4.314676009	3.238458118	2.11816471	0.956723176	-0.242800073
99	6.453847845	5.472397874	4.441561212	3.363891697	2.242146664	1.079253505	-0.121721369
100	6.584325193	5.601415892	4.5691199	3.489991055	2.366786692	1.202434203	0

外形尺寸图 / Package Dimensions

