DL1093 *宽温度IC*

1. 主要功能:

工作电压：1.5V（也可3V工作，电路图的连接有微小改动）

极低功耗，关机后电流接近0

测温范围：-50.0℃~300.0℃(-58.0℉~572.0℉)

解析度： 0.1℃(-50.0℃~199.9℃); 0.1℉(-58.0℉~199.9℉)

1℃(200℃~300℃); 1℉(200℉~572℉)

测温周期： 1 秒 热敏电阻： 25℃=100K

高精度： +/-0.5℃ 在00C~60℃

+/-1.0℃ 在 -20℃~00℃, 60℃~110℃

+/-1.5℃ 在-40℃ ~ -20℃, 110℃~200℃

+/-2.0℃ 在-50℃ ~ -40℃, 200℃~250℃

+/-3.0℃ 在250℃~300℃ 复位全显示一会后

显示实测温度

10 分钟自动关机功能

上电默认温度单位是℃

2. 按键功能:

① ON/OFF: 开机/关机
② C/F: 温度单位摄氏度/华氏度转换
③ HOLD: 温度保持, 按下有”HOLD”字符显示并停止测温, 再按返回正常
④ MAX/MIN: 按下显示”最高温度”→”最低温度”→返回正常显示. 在显示最高/最低温度的时候长按清除最高/最低温度记忆.

按键功能

ON/OFF

开机/关机

C/ F

华氏/摄氏转换

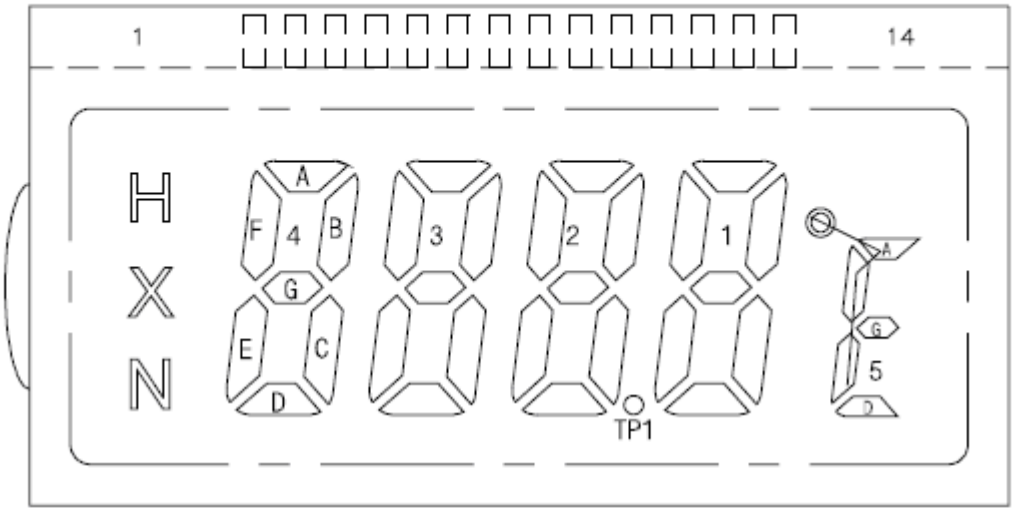
HOLD

锁定显示

MAX/MIN

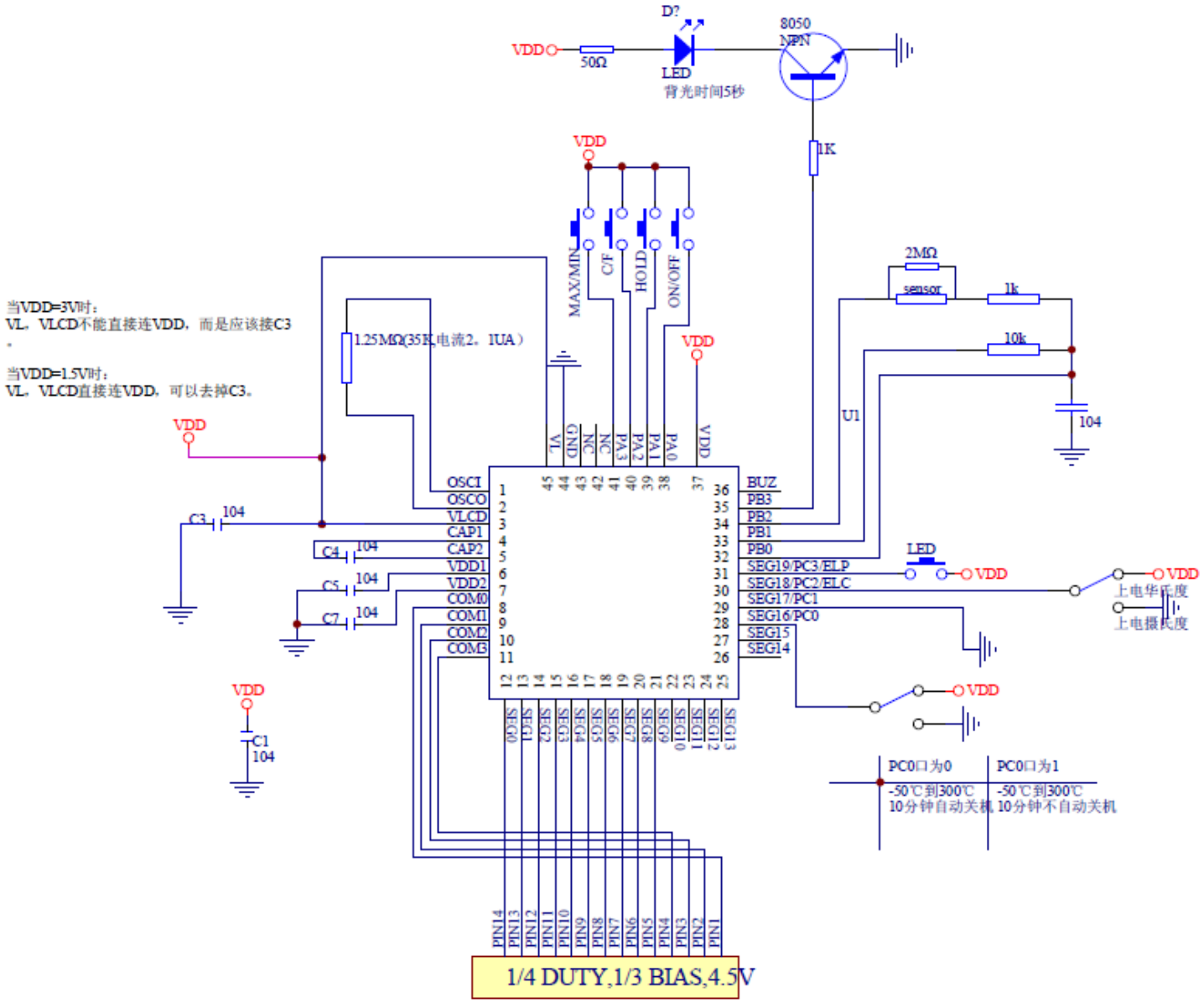
短按键转换显示MAX（最大值）或 MIN（最小值），长按键3S会清除记忆

LCD 逻辑表： (4.5V 1/4Duty 1/3Bias)

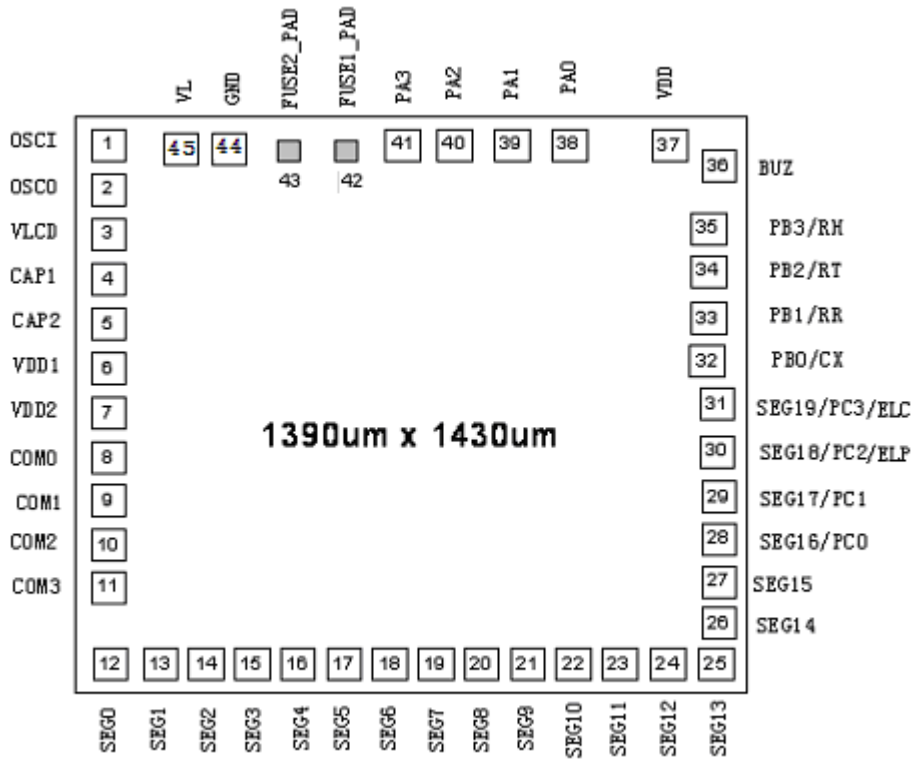


PIN	14	13	12	11	10	9	8	7	6	5	4	3	2	1
	S0	S1	S2	S3	S4	S5	S6	S7	S8	S9	COM3	COM2	COM1	COM0
COM0	4F		4A	3F	3A	2F	2A	1F	1A					COM0
COM1	4G		4B	3G	3B	2G	2B	1G	1B				COM1	
COM2	4E	X	4C	3E	3C	2E	2C	1E	1C	5AEF		COM2		
COM3	H	N	4D		3D	TP1	2D	5D	1D	5G	COM3			

电路图


当VDD=3V时：
VL，VLCD不能直接连VDD，而是应该接C3
。
当VDD=1.5V时：
VL，VLCD直接连VDD，可以去掉C3。
D?
LED
背光时间5秒
50Ω
8050
NPN
1K
VDD
MAX/MIN
C/F
HOLD
ON/OFF
1.25MΩ(35K电流2。1UA）
2MΩ
sensor
1k
10k
104
U1
C3
C4
C5
C7
C1
OSCI
OSCO
VLCD
CAP1
CAP2
VDD1
VDD2
COM0
COM1
COM2
COM3
BUZ
PB3
PB2
PB1
PB0
SEG19/PC3/ELP
SEG18/PC2/ELC
SEG17/PC1
SEG16/PC0
SEG15
SEG14
LED
上电华氏度
上电摄氏度
PC0口为0
PC0口为1
-50℃到300℃
10分钟自动关机
-50℃到300℃
10分钟不自动关机
PIN14
PIN13
PIN12
PIN11
PIN10
PIN9
PIN8
PIN7
PIN6
PIN5
PIN4
PIN3
PIN2
PIN1
1/4 DUTY,1/3 BIAS,4.5V

IC管脚图



The substrate of chip should be connected to GND

PAD 坐标:

	PAD	X	Y		PAD	X	Y
1	OSCI	76	1347.3	24	SEG12	1217.2	76
2	OSCO	76	1252.3	25	SEG13	1312.2	76
3	VLCD	76	1157.3	26	SEG14	1314	224.05
4	CAP1	76	1019.3	27	SEG15	1314	319.05
5	CAP2	76	924.3	28	SEG16	1314	414.05
6	VDD1	76	829.3	29	SEG 17	1314	509.05
7	VDD2	76	658.3	30	SEG18	1314	604.05
8	COM0	76	563.3	31	SEG19	1314	699.05
9	COM1	76	468.3	32	PB0	1280.8	802.05
10	COM2	76	373.3	33	PB1	1280.8	912.05
11	COM3	76	278.3	34	PB2	1280.8	1022.05
12	SEG0	77.2	76	35	PB3	1280.8	1132.05
13	SEG1	172.2	76	36	BUZ	1297.15	1310.8
14	SEG2	267.2	76	37	VDD	1181.1	1323
15	SEG3	362.2	76	38	PA0	957.3	1328

16	SEG4	457.2	76	39	PA1	825.5	1328
17	SEG5	552.2	76	40	PA2	706.1	1328
18	SEG6	647.2	76	41	PA3	596.1	1328
19	SEG7	742.2	76	42	FUSE1	506.1	1323
20	SEG8	837.2	76	43	FUSE2	424.1	1323
21	SEG9	932.2	76	44	GND	334.1	1323
22	SEG10	1027.2	76	45	VL	234.1	1323
23	SEG11	1122.2	76				

温度传感器资料

Resistance-Temperature Table

R at (25℃)=100KΩ±1% B25/50= 3950K ±1%

T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.	T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.
-50	4876.007	5381.97	5128.987	4.93%	126	3.106	3.394	3.250	4.42%
-49	4689.967	5172.55	4931.261	4.89%	127	3.025	3.307	3.166	4.45%
-48	4501.400	4960.47	4730.935	4.85%	128	2.946	3.222	3.084	4.48%
-47	4298.224	4732.16	4515.190	4.81%	129	2.869	3.140	3.004	4.50%
-46	4190.088	4610.73	4400.409	4.78%	130	2.795	3.060	2.928	4.53%
-45	4039.916	4442.21	4241.061	4.74%	131	2.722	2.982	2.852	4.55%
-44	3840.574	4218.70	4029.636	4.69%	132	2.652	2.907	2.779	4.58%
-43	3649.916	4005.15	3827.532	4.64%	133	2.584	2.834	2.709	4.61%
-42	3450.364	3781.88	3616.120	4.58%	134	2.518	2.762	2.640	4.63%
-41	3282.674	3594.45	3438.564	4.53%	135	2.454	2.694	2.574	4.66%
-40	3094.953	3384.87	3239.914	4.47%	136	2.392	2.627	2.509	4.68%
-39	2900.000	3167.49	3033.747	4.41%	137	2.331	2.562	2.447	4.71%
-38	2718.832	2965.75	2842.289	4.34%	138	2.273	2.499	2.386	4.73%
-37	2550.374	2778.40	2664.386	4.28%	139	2.216	2.438	2.327	4.76%
-36	2393.645	2604.32	2498.981	4.22%	140	2.161	2.378	2.270	4.78%
-35	2247.744	2442.47	2345.107	4.15%	141	2.107	2.320	2.214	4.81%
-34	2111.847	2291.91	2201.879	4.09%	142	2.055	2.264	2.160	4.83%
-33	1985.197	2151.77	2068.484	4.03%	143	2.005	2.210	2.107	4.86%
-32	1867.100	2021.26	1944.179	3.96%	144	1.956	2.157	2.056	4.88%
-31	1756.918	1899.64	1828.281	3.90%	145	1.909	2.105	2.007	4.91%
-30	1654.065	1786.26	1720.161	3.84%	146	1.862	2.055	1.959	4.93%
-29	1556.822	1679.19	1618.004	3.78%	147	1.817	2.007	1.912	4.95%
-28	1466.020	1579.33	1522.674	3.72%	148	1.774	1.960	1.867	4.98%
-27	1381.188	1486.15	1433.669	3.66%	149	1.732	1.914	1.823	5.00%
-26	1301.893	1399.16	1350.525	3.60%	150	1.690	1.869	1.780	5.03%
-25	1227.735	1317.90	1272.816	3.54%	151	1.649	1.824	1.736	5.05%
-24	1158.347	1241.95	1200.149	3.48%	152	1.608	1.780	1.694	5.08%
-23	1093.389	1170.94	1132.164	3.42%	153	1.568	1.737	1.653	5.10%
-22	1032.548	1104.50	1068.526	3.37%	154	1.530	1.695	1.613	5.12%

R at (25℃)=100KΩ±1% B25/50= 3950K ±1%

T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.	T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.
-21	975.535	1042.32	1008.929	3.31%	155	1.493	1.655	1.574	5.15%
-20	922.084	984.09	953.087	3.25%	156	1.457	1.615	1.536	5.17%
-19	870.858	928.35	899.602	3.20%	157	1.421	1.577	1.499	5.20%
-18	822.846	876.16	849.504	3.14%	158	1.387	1.540	1.464	5.22%
-17	777.825	827.28	802.554	3.08%	159	1.354	1.504	1.429	5.24%
-16	735.590	781.48	758.535	3.02%	160	1.322	1.469	1.395	5.27%
-15	695.949	738.54	717.244	2.97%	161	1.291	1.435	1.363	5.29%
-14	658.725	698.26	678.493	2.91%	162	1.260	1.402	1.331	5.32%
-13	623.756	660.47	642.111	2.86%	163	1.231	1.369	1.300	5.34%
-12	590.891	624.98	607.936	2.80%	164	1.202	1.338	1.270	5.36%
-11	559.988	591.65	575.821	2.75%	165	1.174	1.308	1.241	5.39%
-10	530.918	560.34	545.627	2.70%	166	1.148	1.279	1.214	5.41%
-9	502.612	529.87	516.243	2.64%	167	1.123	1.252	1.187	5.43%
-8	476.011	501.28	488.646	2.59%	168	1.098	1.225	1.162	5.45%
-7	451.003	474.43	462.715	2.53%	169	1.075	1.199	1.137	5.47%
-6	427.481	449.20	438.339	2.48%	170	1.051	1.174	1.112	5.49%
-5	405.348	425.48	415.416	2.42%	171	1.029	1.149	1.089	5.52%
-4	385.795	404.55	395.174	2.37%	172	1.007	1.125	1.066	5.54%
-3	367.319	384.80	376.058	2.32%	173	0.985	1.101	1.043	5.56%
-2	349.855	366.14	357.998	2.27%	174	0.964	1.078	1.021	5.58%
-1	333.340	348.52	340.929	2.23%	175	0.944	1.056	1.000	5.60%
0	317.717	331.86	324.789	2.18%	176	0.924	1.034	0.979	5.62%
1	301.840	314.95	308.396	2.13%	177	0.905	1.013	0.959	5.64%
2	286.863	299.02	292.940	2.07%	178	0.886	0.992	0.939	5.66%
3	272.730	283.99	278.362	2.02%	179	0.867	0.972	0.920	5.68%
4	259.387	269.83	264.607	1.97%	180	0.850	0.952	0.901	5.70%
5	246.787	256.46	251.624	1.92%	181	0.831	0.932	0.882	5.73%
6	235.097	244.07	239.585	1.87%	182	0.813	0.912	0.863	5.75%
7	224.038	232.37	228.202	1.82%	183	0.795	0.893	0.844	5.77%
8	213.572	221.30	217.435	1.78%	184	0.778	0.874	0.826	5.79%
9	203.665	210.83	207.247	1.73%	185	0.762	0.856	0.809	5.81%
10	194.282	200.92	197.603	1.68%	186	0.745	0.838	0.792	5.83%
11	185.364	191.52	188.442	1.63%	187	0.730	0.820	0.775	5.86%
12	176.913	182.62	179.764	1.59%	188	0.714	0.803	0.759	5.88%

R at (25℃)=100KΩ±1% B25/50= 3950K ±1%

T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.	T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.
13	168.902	174.18	171.543	1.54%	189	0.699	0.787	0.743	5.90%
14	161.307	166.20	163.752	1.49%	190	0.685	0.771	0.728	5.92%
15	154.102	158.63	156.364	1.45%	191	0.670	0.755	0.713	5.94%
16	147.235	151.42	149.327	1.40%	192	0.656	0.740	0.698	5.96%
17	140.718	144.58	142.651	1.36%	193	0.643	0.725	0.684	5.98%
18	134.531	138.10	136.317	1.31%	194	0.630	0.710	0.670	6.00%
19	128.656	131.95	130.304	1.26%	195	0.617	0.696	0.656	6.02%
20	123.075	126.11	124.595	1.22%	196	0.604	0.682	0.643	6.04%
21	117.762	120.56	119.163	1.18%	197	0.592	0.668	0.630	6.06%
22	112.712	115.29	114.002	1.13%	198	0.580	0.655	0.617	6.08%
23	107.911	110.28	109.097	1.09%	199	0.568	0.642	0.605	6.10%
24	103.345	105.52	104.434	1.04%	200	0.557	0.629	0.593	6.12%
25	99.000	101.00	100.000	1.00%	201	0.545	0.617	0.581	6.14%
26	94.771	96.77	95.770	1.04%	202	0.534	0.604	0.569	6.16%
27	90.749	92.74	91.745	1.09%	203	0.523	0.592	0.557	6.18%
28	86.923	88.91	87.915	1.13%	204	0.512	0.580	0.546	6.20%
29	83.281	85.26	84.268	1.17%	205	0.502	0.569	0.535	6.22%
30	79.815	81.78	80.796	1.21%	206	0.492	0.557	0.525	6.24%
31	76.466	78.41	77.438	1.26%	207	0.482	0.546	0.514	6.26%
32	73.277	75.20	74.241	1.30%	208	0.472	0.535	0.504	6.28%
33	70.241	72.15	71.195	1.34%	209	0.463	0.525	0.494	6.30%
34	67.349	69.24	68.293	1.38%	210	0.454	0.515	0.484	6.32%
35	64.594	66.46	65.527	1.42%	211	0.445	0.505	0.475	6.34%
36	62.003	63.84	62.924	1.46%	212	0.436	0.495	0.465	6.36%
37	59.532	61.35	60.441	1.50%	213	0.427	0.485	0.456	6.38%
38	57.174	58.97	58.071	1.54%	214	0.419	0.476	0.447	6.40%
39	54.924	56.69	55.808	1.58%	215	0.411	0.467	0.439	6.42%
40	52.776	54.52	53.647	1.62%	216	0.403	0.458	0.430	6.44%
41	50.653	52.37	51.510	1.66%	217	0.395	0.449	0.422	6.46%
42	48.628	50.31	49.471	1.70%	218	0.387	0.441	0.414	6.48%
43	46.697	48.35	47.525	1.74%	219	0.380	0.433	0.406	6.50%
44	44.853	46.48	45.668	1.78%	220	0.373	0.425	0.399	6.52%
45	43.093	44.69	43.893	1.82%	221	0.365	0.417	0.391	6.54%
46	41.408	42.98	42.194	1.86%	222	0.359	0.409	0.384	6.56%

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47	39.799	41.34	40.571	1.90%	223	0.352	0.401	0.377	6.57%
48	38.262	39.78	39.019	1.94%	224	0.345	0.394	0.370	6.59%
49	36.793	38.28	37.536	1.98%	225	0.339	0.387	0.363	6.61%
50	35.389	36.85	36.118	2.02%	226	0.332	0.380	0.356	6.63%
51	34.050	35.48	34.765	2.06%	227	0.326	0.373	0.349	6.65%
52	32.769	34.17	33.470	2.09%	228	0.320	0.366	0.343	6.67%
53	31.545	32.92	32.232	2.13%	229	0.314	0.359	0.337	6.69%
54	30.372	31.72	31.046	2.17%	230	0.308	0.353	0.330	6.70%
55	29.251	30.57	29.911	2.21%	231	0.303	0.346	0.324	6.72%
56	28.178	29.47	28.825	2.24%	232	0.297	0.340	0.318	6.74%
57	27.152	28.42	27.785	2.28%	233	0.292	0.334	0.313	6.76%
58	26.168	27.41	26.789	2.32%	234	0.286	0.328	0.307	6.78%
59	25.226	26.44	25.834	2.35%	235	0.281	0.322	0.301	6.80%
60	24.323	25.51	24.918	2.39%	236	0.276	0.316	0.296	6.81%
61	23.451	24.62	24.034	2.43%	237	0.271	0.311	0.291	6.83%
62	22.615	23.76	23.185	2.46%	238	0.266	0.305	0.286	6.85%
63	21.813	22.93	22.372	2.50%	239	0.261	0.300	0.281	6.87%
64	21.044	22.14	21.591	2.53%	240	0.257	0.295	0.276	6.89%
65	20.307	21.38	20.842	2.57%	241	0.252	0.289	0.271	6.90%
66	19.600	20.65	20.124	2.60%	242	0.248	0.284	0.266	6.92%
67	18.921	19.95	19.434	2.64%	243	0.243	0.280	0.261	6.94%
68	18.270	19.27	18.771	2.67%	244	0.239	0.275	0.257	6.96%
69	17.644	18.63	18.135	2.71%	245	0.235	0.270	0.252	6.97%
70	17.044	18.00	17.524	2.74%	246	0.231	0.265	0.248	6.99%
71	16.462	17.40	16.932	2.78%	247	0.227	0.261	0.244	7.01%
72	15.904	16.82	16.364	2.81%	248	0.223	0.256	0.240	7.02%
73	15.368	16.27	15.818	2.84%	249	0.219	0.252	0.236	7.04%
74	14.853	15.73	15.293	2.88%	250	0.215	0.248	0.232	7.06%
75	14.357	15.22	14.788	2.91%	251	0.211	0.244	0.227	7.08%
76	13.882	14.72	14.303	2.94%	252	0.208	0.239	0.224	7.09%
77	13.424	14.25	13.836	2.98%	253	0.204	0.235	0.220	7.11%
78	12.985	13.79	13.388	3.01%	254	0.200	0.231	0.216	7.13%
79	12.562	13.35	12.956	3.04%	255	0.197	0.227	0.212	7.15%
80	12.155	12.93	12.541	3.08%	256	0.193	0.223	0.208	7.16%
81	11.762	12.52	12.139	3.11%	257	0.190	0.219	0.205	7.18%

DL1093

宽温度 IC

R at (25℃)=100KΩ±1%　　B25/50= 3950K ±1%

T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.	T(℃)	Rmin(KΩ)	Rmax(KΩ)	Rnom(KΩ)	Tol.
82	11.383	12.12	11.752	3.14%	258	0.187	0.216	0.201	7.20%
83	11.019	11.74	11.380	3.17%	259	0.184	0.212	0.198	7.22%
84	10.668	11.37	11.022	3.20%	260	0.180	0.209	0.194	7.23%
85	10.331	11.02	10.676	3.24%	261	0.177	0.205	0.191	7.25%
86	10.003	10.68	10.341	3.27%	262	0.174	0.202	0.188	7.27%
87	9.687	10.35	10.017	3.30%	263	0.171	0.198	0.185	7.28%
88	9.382	10.03	9.706	3.33%	264	0.168	0.195	0.182	7.30%
89	9.089	9.72	9.406	3.36%	265	0.166	0.192	0.179	7.32%
90	8.807	9.43	9.116	3.39%	266	0.163	0.189	0.176	7.33%
91	8.534	9.14	8.837	3.43%	267	0.160	0.185	0.173	7.35%
92	8.272	8.86	8.568	3.46%	268	0.157	0.182	0.170	7.37%
93	8.018	8.60	8.308	3.49%	269	0.155	0.179	0.167	7.38%
94	7.774	8.34	8.058	3.52%	270	0.152	0.177	0.164	7.40%
95	7.539	8.09	7.816	3.55%	271	0.150	0.174	0.162	7.42%
96	7.311	7.85	7.583	3.58%	272	0.147	0.171	0.159	7.43%
97	7.092	7.62	7.358	3.61%	273	0.145	0.168	0.156	7.45%
98	6.881	7.40	7.140	3.64%	274	0.142	0.165	0.154	7.47%
99	6.676	7.18	6.931	3.67%	275	0.140	0.163	0.151	7.48%
100	6.479	6.98	6.728	3.70%	276	0.138	0.160	0.149	7.50%
101	6.287	6.77	6.531	3.73%	277	0.136	0.158	0.147	7.51%
102	6.102	6.58	6.340	3.76%	278	0.133	0.155	0.144	7.53%
103	5.923	6.39	6.156	3.79%	279	0.131	0.153	0.142	7.55%
104	5.750	6.21	5.978	3.82%	280	0.129	0.150	0.140	7.56%
105	5.583	6.03	5.806	3.85%	281	0.127	0.148	0.138	7.58%
106	5.422	5.86	5.641	3.87%	282	0.125	0.146	0.135	7.59%
107	5.267	5.69	5.481	3.90%	283	0.123	0.143	0.133	7.61%
108	5.117	5.54	5.326	3.93%	284	0.121	0.141	0.131	7.62%
109	4.972	5.38	5.177	3.96%	285	0.119	0.139	0.129	7.64%
110	4.832	5.23	5.032	3.99%	286	0.117	0.137	0.127	7.66%
111	4.695	5.09	4.892	4.02%	287	0.116	0.135	0.125	7.67%
112	4.564	4.95	4.756	4.04%	288	0.114	0.133	0.123	7.69%
113	4.436	4.81	4.625	4.07%	289	0.112	0.131	0.121	7.70%
114	4.313	4.68	4.498	4.10%	290	0.110	0.129	0.120	7.72%
115	4.194	4.56	4.375	4.13%	291	0.109	0.127	0.118	7.73%
116	4.079	4.43	4.256	4.16%	292	0.107	0.125	0.116	7.75%
117	3.967	4.31	4.141	4.18%	293	0.105	0.123	0.114	7.76%
118	3.859	4.20	4.029	4.21%	294	0.104	0.121	0.112	7.78%
119	3.755	4.09	3.921	4.24%	295	0.102	0.119	0.111	7.79%
120	3.654	3.98	3.817	4.26%	296	0.101	0.118	0.109	7.81%
121	3.555	3.87	3.715	4.29%	297	0.099	0.116	0.108	7.82%
122	3.459	3.77	3.616	4.32%	298	0.098	0.114	0.106	7.84%
123	3.367	3.67	3.520	4.34%	299	0.096	0.113	0.104	7.85%
124	3.277	3.58	3.427	4.37%	300	0.095	0.111	0.103	7.87%
125	3.190	3.48	3.337	4.40%					