

# APPROVAL DATA SHEET

## 客戶承認書

CUSTOMER : Maritex

APPLICATION :

PRODUCT : NTC THERMISTOR

CUSTOMER NO.:

PART NO. : 11S0805204HG

PROJECT NO. :

DATE : 2015/2/23

VERSION : Ver.1

R 25	:	<u>200,000</u>	ohms ±	<u>3.0%</u>
B 25 - 85	:	<u>3950</u>	°K ±	<u>1.0%</u>

PLEASE SIGN BACK ONE COPY OF THIS SPECIFICATION AFTER  
COMPLETION OF APPROVAL

APPROVAL BY: \_\_\_\_\_

DATE: \_\_\_\_\_



宏碩科技股份有限公司

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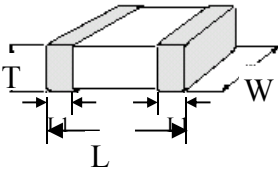
HST	SPECIFICATION	NTC THERMISTOR
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PART NO. : 11S0805204HG

## 1. APPEARANCE

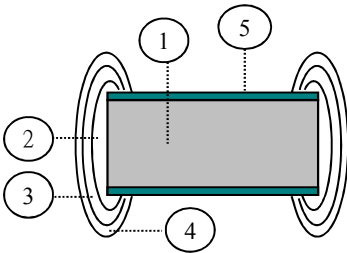
### 1-1 DIMENSIONS

unit : mm



Symbol	Min.	Nor.	Max.
L	1.80	2.00	2.20
W	1.05	1.25	1.45
T	-	-	1.20
L1	0.20	-	0.60

### 1-2 CONSTRUCTION & MATERIAL

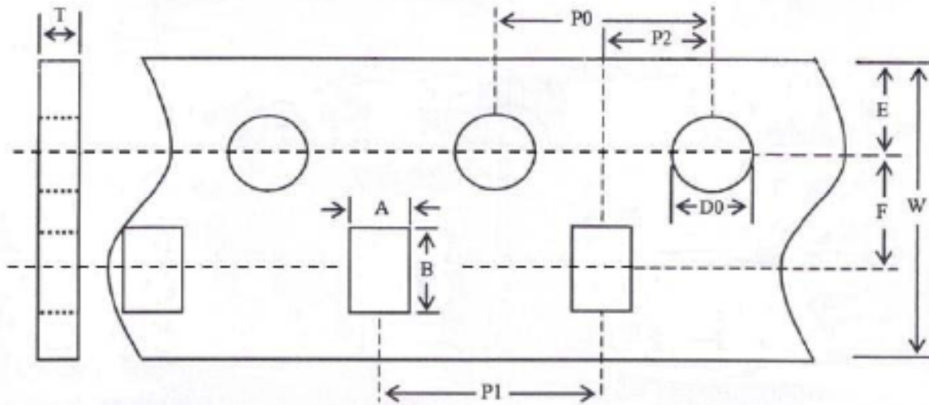


No.	Part Name	Materials	Remark
1	Element	Metal Oxide	
2	End Termination	Ag	
3	Ni plated	Ni	
4	Solder plated	Sn	Lead Free
5	Coating	Glass	

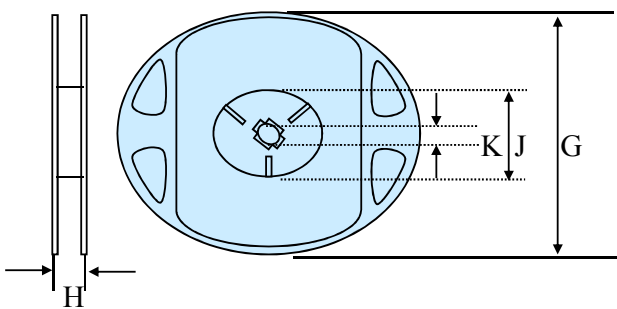
## 2. ELECTRICAL RATING

No.	Item	Symbol	Conditions	Min.	Nor.	Max.	Unit
1	Resistance at Ta	R <sub>25</sub>	Ta : 25 ±0.1°C	194,000	200,000	206,000	ohms
2	B Constant	B	4099 Log(R <sub>25</sub> /R <sub>85</sub> )	3911	3950	3990	° K
3	Dissipation Constant	C	Ta : 25	-	4	-	mW/°C
4	Thermal Time Constant	t	Ta : 25	-	7.5	-	sec
5	Max. Rated Power	P <sub>max.</sub>	Ta : 25	-	-	400	mW
6	Operating Temperature	T		-40	-	125	°C

3. TAPING DIMENSIONS



Symbol	0402		0603		0805		1206	
A	0.65	±0.10	1.10	±0.10	1.50	±0.10	2.00	±0.10
B	1.15	±0.10	1.90	±0.10	2.30	±0.10	3.57	±0.10
W	8.00	±0.20	8.00	±0.20	8.00	±0.20	8.00	±0.20
D0	1.50	±0.25	1.50	±0.25	1.50	±0.25	1.55	±0.25
E	1.75	±0.10	1.75	±0.10	1.75	±0.10	1.75	±0.10
F	3.50	±0.05	3.50	±0.05	3.50	±0.05	3.50	±0.05
P0	4.00	±0.10	4.00	±0.10	4.00	±0.10	4.00	±0.10
P1	2.00	±0.10	4.00	±0.10	4.00	±0.10	4.00	±0.10
P2	2.00	±0.10	2.00	±0.10	2.00	±0.10	2.00	±0.10
T	1.10 Max.		1.10 Max.		1.10 Max.		1.10 Max.	



Symbol	Dimensios	
G	178	±2.0
J	60	±1.5
H	9	±0.3
K	13	±0.2

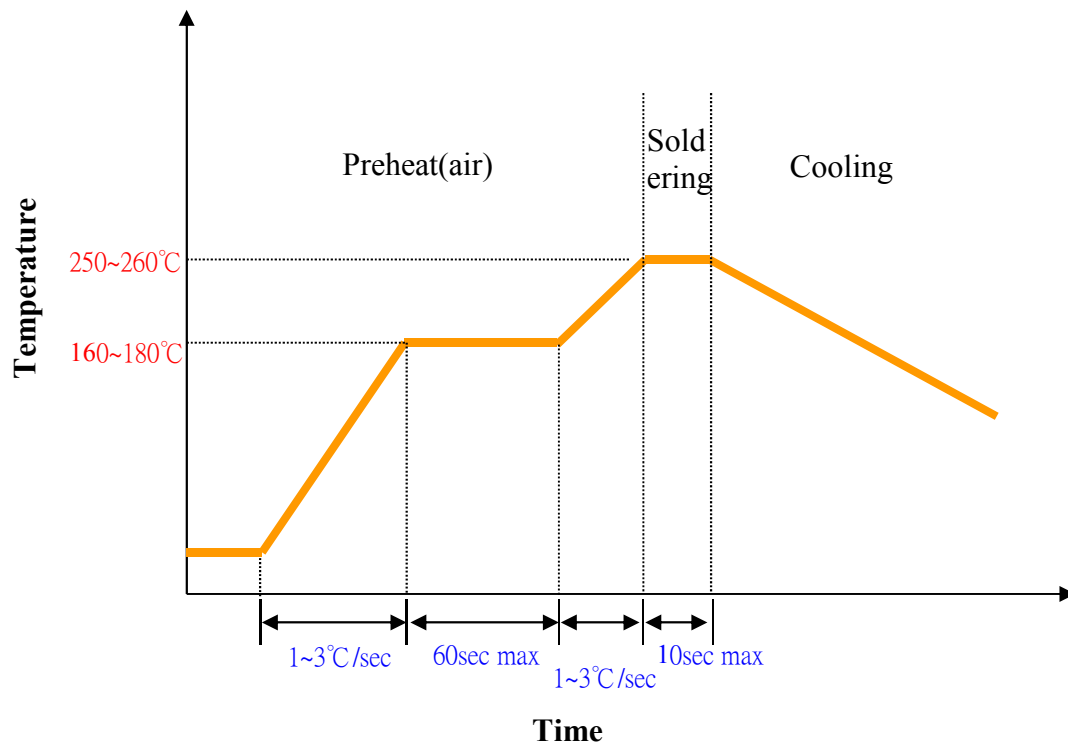
unit : mm

4,000 pcs/Reel

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4. ENVIRONMENTAL RATING			
No.	Item	Condition and Test Method	Rated Value
1	Life	70°C x 1000Hrs, Load Power MIL-STD-202F, Method 108A	Within ±3%
2	Damp heat , Steady state	40°C , 90~95%R.H. x 1000Hrs MIL-STD-202F, Method 103B	Within ±3%
3	Temperature Cycle	(-40°C -> 125°C ) x 10 cycle MIL-STD-202F, Method 107	Within ±3%
4	Solderability	230°C for 5 sec. MIL-STD-202F, Method 208	95% min. coverage
5	Resistance to Soldering Heat	Soldered to test board at 260°C for 10 sec. MIL-R-55342D, Para 4.7.7	Within ±3%
6	Bending Strength	Pressurizing rod at a rate 1mm/sec. for 1mm. JIS C 5202 5.7	No break out and damage
7	Resistance to Flexure of Substrate	Pressurizing force shall be 3kg (min.) JIS C 5202 5.7	Within ±3%

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## 5. REFLOW SOLDERING PROFILE



HST	SPECIFICATION	NTC THERMISTOR
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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0805204HG

R	200,000	ohms ±	3%
B	3950	°K ±	1%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40	6396762	6831615	7289463	-6.89	-6.37	6.70	-0.97	0.92
-39	5976575	6378485	6801295	-6.83	-6.30	6.63	-0.97	0.92
-38	5587286	5958961	6349641	-6.77	-6.24	6.56	-0.97	0.92
-37	5226387	5570296	5931493	-6.72	-6.17	6.48	-0.97	0.92
-36	4891592	5209986	5544110	-6.66	-6.11	6.41	-0.96	0.92
-35	4580818	4875750	5185000	-6.60	-6.05	6.34	-0.96	0.92
-34	4292160	4565505	4851886	-6.55	-5.99	6.27	-0.96	0.91
-33	4023882	4277351	4542695	-6.49	-5.93	6.20	-0.96	0.91
-32	3774393	4009554	4255533	-6.44	-5.87	6.13	-0.95	0.91
-31	3542240	3760525	3988668	-6.39	-5.80	6.07	-0.95	0.91
-30	3326093	3528813	3740519	-6.33	-5.74	6.00	-0.95	0.91
-29	3124732	3313089	3509638	-6.28	-5.69	5.93	-0.94	0.90
-28	2937040	3112134	3294700	-6.23	-5.63	5.87	-0.94	0.90
-27	2761990	2924833	3094490	-6.18	-5.57	5.80	-0.94	0.90
-26	2598642	2750161	2907894	-6.13	-5.51	5.74	-0.94	0.90
-25	2446132	2587177	2733891	-6.09	-5.45	5.67	-0.93	0.90
-24	2303663	2435017	2571544	-6.04	-5.39	5.61	-0.93	0.89
-23	2170506	2292888	2419990	-5.99	-5.34	5.54	-0.93	0.89
-22	2045987	2160058	2278437	-5.94	-5.28	5.48	-0.92	0.89
-21	1929486	2035856	2146157	-5.90	-5.22	5.42	-0.92	0.89
-20	1820432	1919662	2022478	-5.85	-5.17	5.36	-0.91	0.88
-19	1718299	1810905	1906785	-5.81	-5.11	5.29	-0.91	0.88
-18	1622601	1709060	1798506	-5.77	-5.06	5.23	-0.91	0.88
-17	1532889	1613641	1697117	-5.72	-5.00	5.17	-0.90	0.87
-16	1448749	1524199	1602134	-5.68	-4.95	5.11	-0.90	0.87
-15	1369798	1440320	1513110	-5.64	-4.90	5.05	-0.90	0.87
-14	1295682	1361623	1429632	-5.60	-4.84	4.99	-0.89	0.87
-13	1226072	1287752	1351318	-5.56	-4.79	4.94	-0.89	0.86
-12	1160666	1218381	1277814	-5.52	-4.74	4.88	-0.88	0.86
-11	1099182	1153206	1208795	-5.48	-4.68	4.82	-0.88	0.86
-10	1041361	1091946	1143958	-5.44	-4.63	4.76	-0.88	0.85
-9	986960	1034342	1083023	-5.40	-4.58	4.71	-0.87	0.85
-8	935755	980152	1025730	-5.36	-4.53	4.65	-0.87	0.84
-7	887539	929151	971839	-5.32	-4.48	4.59	-0.86	0.84
-6	842118	881133	921125	-5.29	-4.43	4.54	-0.86	0.84
-5	799313	835904	873383	-5.25	-4.38	4.48	-0.85	0.83
-4	758956	793284	828419	-5.22	-4.33	4.43	-0.85	0.83
-3	720893	753108	786055	-5.18	-4.28	4.37	-0.84	0.83
-2	684979	715220	746124	-5.14	-4.23	4.32	-0.84	0.82
-1	651079	679475	708471	-5.11	-4.18	4.27	-0.84	0.82
0	619069	645740	672953	-5.08	-4.13	4.21	-0.83	0.81
1	588831	613889	639437	-5.04	-4.08	4.16	-0.83	0.81

**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0805204HG

R	200,000	ohms ±	3%
B	3950	°K ±	1%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
2	560257	583805	607796	-5.01	-4.03	4.11	-0.82	0.81
3	533246	555381	577915	-4.97	-3.99	4.06	-0.82	0.80
4	507701	528514	549686	-4.94	-3.94	4.01	-0.81	0.80
5	483536	503111	523007	-4.91	-3.89	3.95	-0.81	0.79
6	460668	479082	497784	-4.88	-3.84	3.90	-0.80	0.79
7	439018	456345	473929	-4.85	-3.80	3.85	-0.80	0.78
8	418516	434824	451361	-4.82	-3.75	3.80	-0.79	0.78
9	399094	414446	430001	-4.78	-3.70	3.75	-0.78	0.77
10	380689	395144	409779	-4.75	-3.66	3.70	-0.78	0.77
11	363241	376855	390627	-4.72	-3.61	3.65	-0.77	0.76
12	346695	359520	372483	-4.69	-3.57	3.61	-0.77	0.76
13	331000	343083	355288	-4.66	-3.52	3.56	-0.76	0.76
14	316107	327494	338987	-4.64	-3.48	3.51	-0.76	0.75
15	301970	312704	323527	-4.61	-3.43	3.46	-0.75	0.75
16	288547	298666	308862	-4.58	-3.39	3.41	-0.75	0.74
17	275798	285340	294946	-4.55	-3.34	3.37	-0.74	0.73
18	263685	272684	281737	-4.52	-3.30	3.32	-0.73	0.73
19	252173	260662	269194	-4.50	-3.26	3.27	-0.73	0.72
20	241229	249238	257280	-4.47	-3.21	3.23	-0.72	0.72
21	230822	238378	245961	-4.44	-3.17	3.18	-0.72	0.71
22	220922	228053	235204	-4.41	-3.13	3.14	-0.71	0.71
23	211502	218233	224977	-4.39	-3.08	3.09	-0.70	0.70
24	202536	208891	215251	-4.36	-3.04	3.04	-0.70	0.70
25	194000	200000	206000	-4.34	-3.00	3.00	-0.69	0.69
26	185710	191537	197368	-4.31	-3.04	3.04	-0.71	0.71
27	177820	183478	189145	-4.29	-3.08	3.09	-0.72	0.72
28	170308	175802	181310	-4.26	-3.13	3.13	-0.74	0.73
29	163155	168490	173842	-4.24	-3.17	3.18	-0.75	0.75
30	156341	161521	166722	-4.21	-3.21	3.22	-0.76	0.76
31	149848	154878	159933	-4.19	-3.25	3.26	-0.78	0.78
32	143660	148544	153456	-4.16	-3.29	3.31	-0.79	0.79
33	137760	142503	147276	-4.14	-3.33	3.35	-0.81	0.80
34	132134	136740	141379	-4.12	-3.37	3.39	-0.82	0.82
35	126768	131241	135748	-4.09	-3.41	3.43	-0.84	0.83
36	121648	125991	130372	-4.07	-3.45	3.48	-0.85	0.85
37	116762	120980	125237	-4.05	-3.49	3.52	-0.87	0.86
38	112098	116194	120332	-4.02	-3.53	3.56	-0.88	0.88
39	107644	111623	115644	-4.00	-3.56	3.60	-0.90	0.89
40	103391	107255	111163	-3.98	-3.60	3.64	-0.92	0.91
41	99328	103081	106879	-3.96	-3.64	3.68	-0.93	0.92
42	95445	99091	102783	-3.94	-3.68	3.73	-0.95	0.93
43	91734	95275	98864	-3.92	-3.72	3.77	-0.96	0.95

HST	SPECIFICATION	NTC THERMISTOR
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**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0805204HG

R	<u>200,000</u>	ohms ±	<u>3%</u>
B	<u>3950</u>	°K ±	<u>1%</u>

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
44	88187	91627	95115	-3.89	-3.75	3.81	-0.98	0.96
45	84795	88137	91528	-3.87	-3.79	3.85	-0.99	0.98
46	81550	84797	88094	-3.85	-3.83	3.89	-1.01	0.99
47	78446	81601	84806	-3.83	-3.87	3.93	-1.03	1.01
48	75476	78541	81657	-3.81	-3.90	3.97	-1.04	1.02
49	72634	75612	78642	-3.79	-3.94	4.01	-1.06	1.04
50	69912	72807	75753	-3.77	-3.98	4.05	-1.07	1.05
51	67307	70119	72984	-3.75	-4.01	4.09	-1.09	1.07
52	64811	67545	70330	-3.73	-4.05	4.12	-1.11	1.08
53	62420	65077	67787	-3.71	-4.08	4.16	-1.12	1.10
54	60130	62712	65347	-3.69	-4.12	4.20	-1.14	1.12
55	57934	60445	63008	-3.67	-4.15	4.24	-1.15	1.13
56	55830	58271	60764	-3.65	-4.19	4.28	-1.17	1.15
57	53812	56185	58610	-3.64	-4.22	4.32	-1.19	1.16
58	51877	54185	56544	-3.62	-4.26	4.35	-1.20	1.18
59	50021	52265	54560	-3.60	-4.29	4.39	-1.22	1.19
60	48241	50423	52656	-3.58	-4.33	4.43	-1.24	1.21
61	46532	48654	50827	-3.56	-4.36	4.47	-1.25	1.22
62	44892	46956	49071	-3.54	-4.40	4.50	-1.27	1.24
63	43318	45326	47384	-3.53	-4.43	4.54	-1.29	1.26
64	41806	43759	45762	-3.51	-4.46	4.58	-1.30	1.27
65	40355	42255	44204	-3.49	-4.50	4.61	-1.32	1.29
66	38961	40809	42707	-3.47	-4.53	4.65	-1.34	1.30
67	37621	39420	41267	-3.46	-4.56	4.69	-1.36	1.32
68	36334	38084	39883	-3.44	-4.60	4.72	-1.37	1.34
69	35097	36800	38551	-3.42	-4.63	4.76	-1.39	1.35
70	33908	35565	37271	-3.40	-4.66	4.79	-1.41	1.37
71	32765	34378	36038	-3.39	-4.69	4.83	-1.43	1.39
72	31665	33236	34853	-3.37	-4.73	4.87	-1.44	1.40
73	30608	32137	33711	-3.35	-4.76	4.90	-1.46	1.42
74	29591	31079	32613	-3.34	-4.79	4.94	-1.48	1.43
75	28612	30061	31555	-3.32	-4.82	4.97	-1.50	1.45
76	27670	29081	30537	-3.31	-4.85	5.01	-1.51	1.47
77	26763	28138	29556	-3.29	-4.88	5.04	-1.53	1.48
78	25891	27229	28611	-3.27	-4.92	5.07	-1.55	1.50
79	25050	26354	27700	-3.26	-4.95	5.11	-1.57	1.52
80	24241	25511	26823	-3.24	-4.98	5.14	-1.59	1.53
81	23462	24699	25977	-3.23	-5.01	5.18	-1.60	1.55
82	22711	23916	25162	-3.21	-5.04	5.21	-1.62	1.57
83	21988	23162	24376	-3.20	-5.07	5.24	-1.64	1.59
84	21291	22435	23619	-3.18	-5.10	5.28	-1.66	1.60
85	20619	21733	22888	-3.17	-5.13	5.31	-1.68	1.62



**RESISTANCE-TEMPERATURE CHARACTERISTICS**

**PART NO.:** 11S0805204HG

R	200,000	ohms ±	3%
B	3950	°K ±	1%

Temperature (°C)	Resistance (Ω)			Temperture Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
86	19971	21057	22183	-3.15	-5.16	5.34	-1.70	1.64
87	19347	20405	21503	-3.14	-5.19	5.38	-1.71	1.65
88	18744	19776	20847	-3.12	-5.22	5.41	-1.73	1.67
89	18164	19170	20213	-3.11	-5.25	5.44	-1.75	1.69
90	17603	18584	19602	-3.09	-5.28	5.48	-1.77	1.71
91	17063	18019	19012	-3.08	-5.31	5.51	-1.79	1.72
92	16541	17474	18442	-3.07	-5.34	5.54	-1.81	1.74
93	16038	16947	17892	-3.05	-5.36	5.57	-1.83	1.76
94	15552	16439	17361	-3.04	-5.39	5.61	-1.85	1.78
95	15083	15948	16847	-3.02	-5.42	5.64	-1.86	1.79
96	14631	15474	16351	-3.01	-5.45	5.67	-1.88	1.81
97	14193	15016	15872	-3.00	-5.48	5.70	-1.90	1.83
98	13771	14574	15409	-2.98	-5.51	5.73	-1.92	1.85
99	13363	14146	14962	-2.97	-5.54	5.76	-1.94	1.86
100	12969	13733	14529	-2.96	-5.56	5.80	-1.96	1.88
101	12588	13334	14111	-2.94	-5.59	5.83	-1.98	1.90
102	12220	12948	13706	-2.93	-5.62	5.86	-2.00	1.92
103	11865	12575	13315	-2.92	-5.65	5.89	-2.02	1.94
104	11521	12214	12937	-2.90	-5.67	5.92	-2.04	1.95
105	11189	11865	12571	-2.89	-5.70	5.95	-2.06	1.97
106	10867	11528	12217	-2.88	-5.73	5.98	-2.08	1.99
107	10556	11201	11875	-2.87	-5.76	6.01	-2.10	2.01
108	10256	10885	11543	-2.85	-5.78	6.04	-2.12	2.03
109	9965	10580	11222	-2.84	-5.81	6.07	-2.14	2.04
110	9684	10284	10911	-2.83	-5.84	6.10	-2.16	2.06
111	9411	9998	10611	-2.82	-5.86	6.13	-2.18	2.08
112	9148	9720	10319	-2.80	-5.89	6.16	-2.20	2.10
113	8893	9452	10037	-2.79	-5.92	6.19	-2.22	2.12
114	8646	9192	9764	-2.78	-5.94	6.22	-2.24	2.14
115	8407	8941	9500	-2.77	-5.97	6.25	-2.26	2.16
116	8176	8697	9243	-2.76	-5.99	6.28	-2.28	2.17
117	7952	8461	8995	-2.75	-6.02	6.31	-2.30	2.19
118	7735	8233	8754	-2.73	-6.05	6.34	-2.32	2.21
119	7525	8011	8521	-2.72	-6.07	6.37	-2.34	2.23
120	7321	7796	8295	-2.71	-6.10	6.40	-2.36	2.25
121	7124	7588	8076	-2.70	-6.12	6.43	-2.38	2.27
122	6933	7387	7863	-2.69	-6.15	6.45	-2.40	2.29
123	6747	7191	7657	-2.68	-6.17	6.48	-2.42	2.31
124	6568	7002	7458	-2.67	-6.20	6.51	-2.44	2.33
125	6394	6818	7264	-2.65	-6.22	6.54	-2.46	2.34