

# Approval

Manufacturer:

Customer:

Mayloon Electronic Co., Ltd.,  
Tel: 852-2408 9788 Fax: 852-2406 9982  
<http://www.mayloon.com>

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Approved By:	Checked By:	Prepared By :

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Approved By:	Examined By:	Tested By :

Company's Stamp	
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Company's Stamp	
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Approval No. : \_\_\_\_\_

Product : NTC THERMISTOR

Mayloon Part No. : SMD03-104 F 4100F

Customer's Part No. : \_\_\_\_\_

Specifications : R25 100,000 Ω ± 1 %

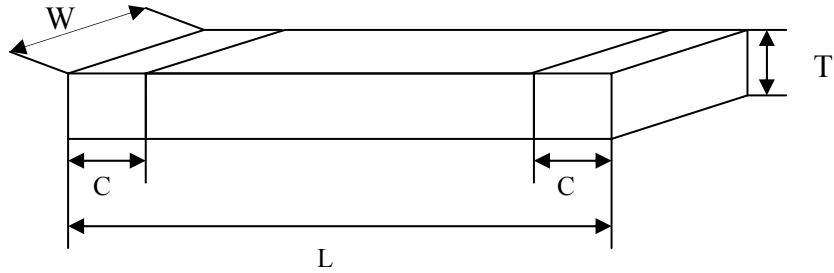
B25-85 4100 °K ± 1 %

Date : \_\_\_\_\_

## Specification of SMD Chips Thermistor

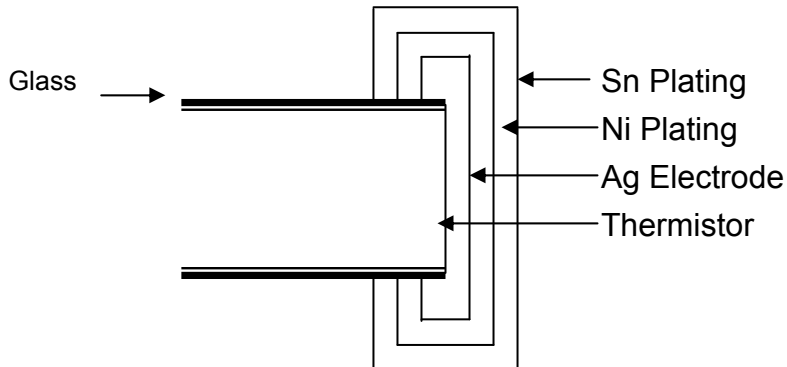
◆ **PART NO. : SMD03-104 F 4100F**

◆ **CHIP DIMENSIONS**



Item	L(mm)	W(mm)	T(mm)	C(mm)
1608 ( 0603 )	1.60 ±0.05	0.80 ±0.05	0.95 ±0.10	0.40±0.20

◆ **CHIP STRUCTURE**



◆ **ELECTRICAL CHARACTERISTICS**

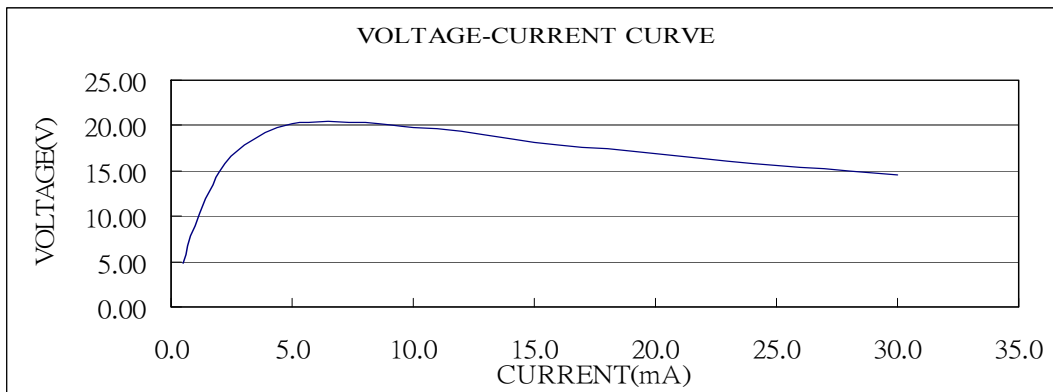
Style	Symbol	Condition	Specification
Resistance at 25°C	R <sub>25</sub>	T = 25 ± 0.1°C	100K Ω ± 1 %
B Constant	B	25°C to 85°C	4100 °K ± 1 %
Thermal Time Constant	T	T = 25 ± 0.1°C	Approx. 5 sec
Thermal Dissipation Constant	C	T = 25 ± 0.1°C	Approx. 3.5 mW/°C
Maximum Power Rating*	P <sub>w</sub>	T = 25 ± 0.1°C	350 mW
Operation Temp. Range	--	--	-40°C ~ 125°C

\*Maximum Power Rating = Thermal Dissipation Constant × (125°C-25°C)

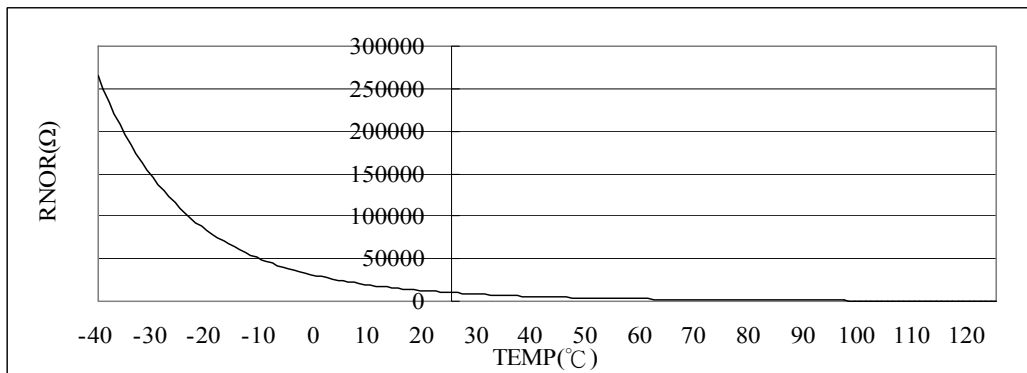
◆ RELIABILITY TEST

PERFORMANCE	TEST METHOD	APPRAISE
Life	MIL – STD – 202F , Method 108A 1000 hours at 125°C NTC WV intermittent	Within ±3 %
Humidity	MIL – STD – 202F , Method 103B 1000 hours at Temperature: 40°C Humidity: 95%	Within ±3 %
Thermal Shock	MIL – STD – 202F , Method 107 10 cycles, -40°C to +125°C	Within ±3 %
Solderability	MIL – STD – 202F , Method 208 235°C for 2 seconds	95% min. coverage
Resistance to Soldering Heat	MIL – R – 55342D , Para 4.7.7 Soldered to test board at 260°C for 10 seconds	Within ±3 %
Bending Strength	JIS C 5202 6.1.4 Pressurizing rod at a rate at 1mm/sec for 1mm	Within ±3 %
Resistance to flexure of Substrate	JIS C 5202 6.2.1 Pressurizing force shall be 3kg (min.)	Over 3 kg
Insulation Resistance	MIL – STD – 202F , Method 302 DC 250V For 10 seconds	Over 1000MΩ
Dielectric Withstand Voltage	MIL – STD – 202F , Method 301 DC 250V For 10 seconds	Not Short

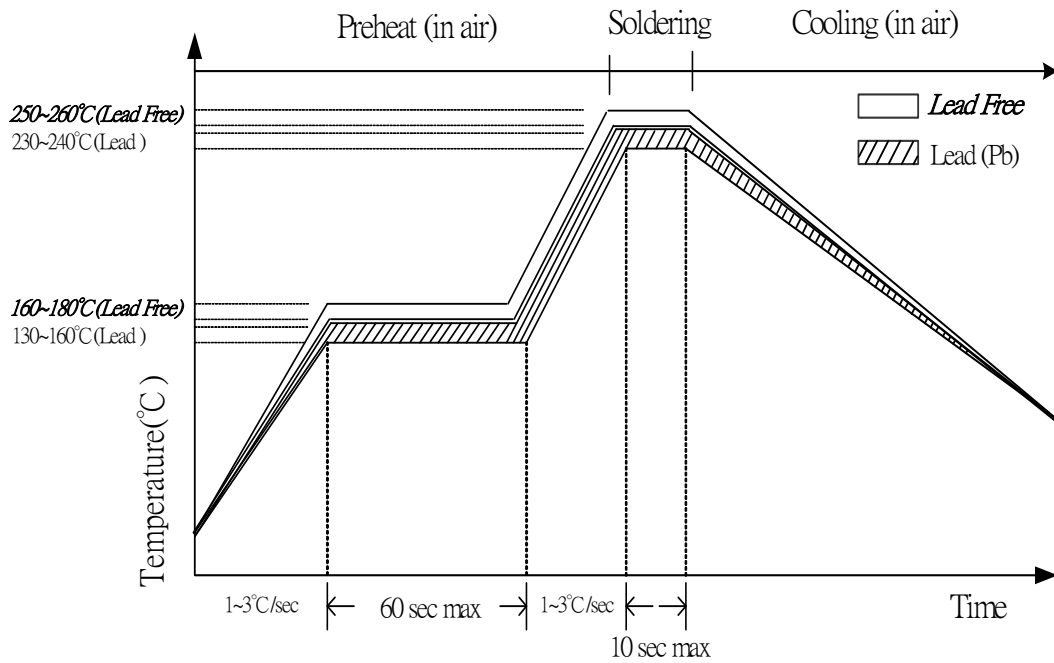
◆ VOLTAGE – CURRENT CURVE



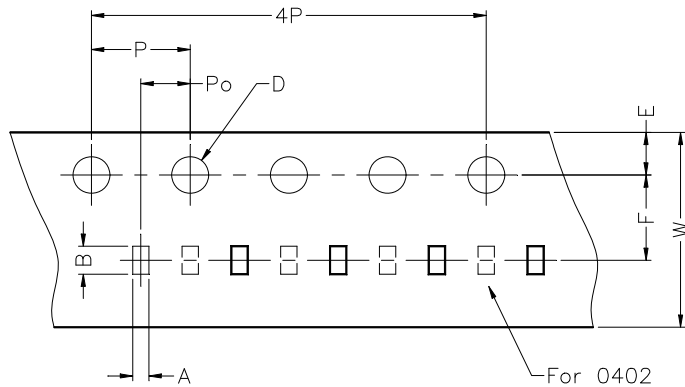
◆ RESISTANCE – TEMP CURVE



### ◆ REFLOW SOLDERING PROFILE



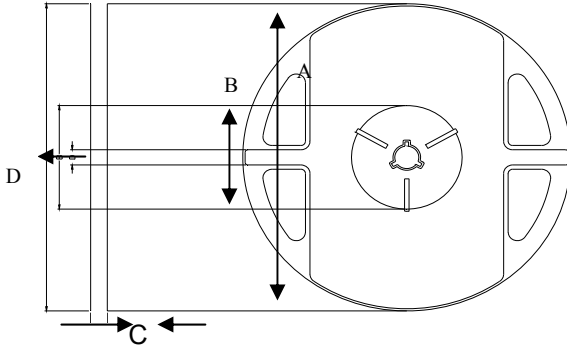
### ◆ TAPING DIMENSIONS



Unit: mm

Dimension	0805	0603	0402
A	1.50 ± 0.05	1.08 ± 0.05	0.66 ± 0.03
B	2.30 ± 0.05	1.85 ± 0.05	1.15 ± 0.03
W	8.00 ± 0.05	8.00 ± 0.05	8.00 ± 0.05
D	1.50 ± 0.10	1.50 ± 0.10	1.50 ± 0.10
E	1.75 ± 0.05	1.75 ± 0.05	1.75 ± 0.05
F	3.50 ± 0.05	3.50 ± 0.05	3.50 ± 0.05
P	4.00 ± 0.05	4.00 ± 0.05	4.00 ± 0.05
Po	2.00 ± 0.05	2.00 ± 0.05	2.00 ± 0.05
4P	16.00 ± 0.05	16.00 ± 0.05	16.00 ± 0.05

◆ **REEL DIMENSIONS**



Unit: mm

Item	A	B	C	D
Dimension	178.0 ±1.0	60.0 ±1.0	9.0 ±0.1	13.0 ±0.1

◆ **ORDERING INFORMATION**

SMD      03    104    F    4100    F  
 ①            ②            ③            ④            ⑤            ⑥

1. Series SMD Thermistor. (TH - Lead (Pb) ; TF - Lead Free )
2. Dimension : 05 ( 0805 ) , 03 ( 0603 ) , 02 ( 0402 )
3. Resistance : 104 =  $10 \times 10^4 = 100,000$  ohm
4. R Tolerance : F:±1% ; G:±2% ; H:±3% ; J:±5% ; K:±10%
5. B value : 3125, 3435 , 3550, 3700, 4100, ....etc.
6. B Tolerance : F:±1% ; G:±2% ; H:±3%

● **ACCESSORY : RESISTANCE-TEMPERATURE CHARACTERISTICS.**

## RESISTANCE-TEMPERATURE CHARACTERISTICS

PART NO.:

**SMD03-104 F 4100F**

R : 100,000 ohms ± 1%

B : 4100 °K ± 1%

Temperature (°C)	Resistance (Ω)			Temperature Coef. (%/°C)	Resist. Tolerance (%)		Temp. Tolerance (°C)	
	MIN.	CENTER	MAX.		MIN.	MAX.	MIN.	MAX.
-40.0	4405285	4623690	4852438	-7.54	-4.72	4.95	-0.66	0.63
-39.0	4089626	4289159	4497977	-7.48	-4.65	4.87	-0.65	0.62
-38.0	3798987	3981374	4172099	-7.41	-4.58	4.79	-0.65	0.62
-37.0	3531207	3698006	3872297	-7.35	-4.51	4.71	-0.64	0.61
-36.0	3284326	3436946	3596300	-7.29	-4.44	4.64	-0.64	0.61
-35.0	3056565	3196281	3342048	-7.23	-4.37	4.56	-0.63	0.60
-34.0	2846309	2974272	3107677	-7.17	-4.30	4.49	-0.63	0.60
-33.0	2652090	2769344	2891492	-7.11	-4.23	4.41	-0.62	0.60
-32.0	2472573	2580062	2691956	-7.05	-4.17	4.34	-0.62	0.59
-31.0	2306542	2405124	2507669	-6.99	-4.10	4.26	-0.61	0.59
-30.0	2152890	2243342	2337361	-6.93	-4.03	4.19	-0.60	0.58
-29.0	2010609	2093637	2179876	-6.88	-3.97	4.12	-0.60	0.58
-28.0	1878778	1955023	2034158	-6.82	-3.90	4.05	-0.59	0.57
-27.0	1756559	1826603	1899249	-6.77	-3.83	3.98	-0.59	0.57
-26.0	1643185	1707557	1774272	-6.71	-3.77	3.91	-0.58	0.56
-25.0	1537956	1597136	1658429	-6.66	-3.71	3.84	-0.58	0.56
-24.0	1440230	1494659	1550989	-6.60	-3.64	3.77	-0.57	0.55
-23.0	1349422	1399498	1451287	-6.55	-3.58	3.70	-0.56	0.55
-22.0	1264995	1311082	1358713	-6.50	-3.52	3.63	-0.56	0.54
-21.0	1186459	1228889	1272709	-6.45	-3.45	3.57	-0.55	0.54
-20.0	1113361	1152437	1192765	-6.40	-3.39	3.50	-0.55	0.53
-19.0	1045291	1081288	1118413	-6.35	-3.33	3.43	-0.54	0.52
-18.0	981868	1015039	1049225	-6.30	-3.27	3.37	-0.53	0.52
-17.0	922743	953319	984809	-6.25	-3.21	3.30	-0.53	0.51
-16.0	867598	895789	924802	-6.20	-3.15	3.24	-0.52	0.51
-15.0	816138	842136	868876	-6.15	-3.09	3.18	-0.52	0.50
-14.0	768093	792075	816724	-6.10	-3.03	3.11	-0.51	0.50
-13.0	723213	745341	768068	-6.06	-2.97	3.05	-0.50	0.49
-12.0	681270	701690	722651	-6.01	-2.91	2.99	-0.50	0.48
-11.0	642052	660901	680235	-5.97	-2.85	2.93	-0.49	0.48

-10.0	605364	622766	640603	-5.92	-2.79	2.86	-0.48	0.47
-9.0	571027	587095	603555	-5.88	-2.74	2.80	-0.48	0.47
-8.0	538875	553714	568905	-5.83	-2.68	2.74	-0.47	0.46
-7.0	508754	522461	536482	-5.79	-2.62	2.68	-0.46	0.45
-6.0	480525	493186	506130	-5.74	-2.57	2.62	-0.46	0.45
-5.0	454055	465752	477702	-5.70	-2.51	2.57	-0.45	0.44
-4.0	429223	440031	451065	-5.66	-2.46	2.51	-0.44	0.43
-3.0	405919	415905	426094	-5.62	-2.40	2.45	-0.44	0.43
-2.0	384038	393265	402674	-5.58	-2.35	2.39	-0.43	0.42
-1.0	363484	372011	380700	-5.54	-2.29	2.34	-0.42	0.41
0.0	344169	352049	360073	-5.50	-2.24	2.28	-0.41	0.41
1.0	326011	333292	340702	-5.46	-2.18	2.22	-0.41	0.40
2.0	308932	315660	322503	-5.42	-2.13	2.17	-0.40	0.39
3.0	292862	299079	305397	-5.38	-2.08	2.11	-0.39	0.39
4.0	277735	283478	289312	-5.34	-2.03	2.06	-0.39	0.38
5.0	263489	268796	274181	-5.30	-1.97	2.00	-0.38	0.37
6.0	250069	254970	259942	-5.26	-1.92	1.95	-0.37	0.37
7.0	237421	241947	246535	-5.22	-1.87	1.90	-0.36	0.36
8.0	225496	229675	233909	-5.19	-1.82	1.84	-0.36	0.35
9.0	214248	218106	222011	-5.15	-1.77	1.79	-0.35	0.34
10.0	203634	207195	210797	-5.11	-1.72	1.74	-0.34	0.34
11.0	193616	196901	200222	-5.08	-1.67	1.69	-0.33	0.33
12.0	184155	187186	190246	-5.04	-1.62	1.64	-0.32	0.32
13.0	175219	178012	180832	-5.01	-1.57	1.58	-0.32	0.31
14.0	166773	169348	171945	-4.97	-1.52	1.53	-0.31	0.31
15.0	158790	161161	163551	-4.94	-1.47	1.48	-0.30	0.30
16.0	151239	153422	155621	-4.90	-1.42	1.43	-0.29	0.29
17.0	144096	146105	148127	-4.87	-1.37	1.38	-0.28	0.28
18.0	137337	139183	141041	-4.84	-1.33	1.33	-0.28	0.27
19.0	130937	132633	134339	-4.80	-1.28	1.29	-0.27	0.27
20.0	124876	126434	127998	-4.77	-1.23	1.24	-0.26	0.26
21.0	119134	120563	121996	-4.74	-1.18	1.19	-0.25	0.25
22.0	113692	115001	116314	-4.71	-1.14	1.14	-0.24	0.24
23.0	108534	109732	110932	-4.67	-1.09	1.09	-0.23	0.23
24.0	103641	104737	105833	-4.64	-1.05	1.05	-0.23	0.23
25.0	99000	100000	101000	-4.61	-1.00	1.00	-0.22	0.22
26.0	94509	95507	96507	-4.58	-1.05	1.05	-0.23	0.23
27.0	90249	91244	92241	-4.55	-1.09	1.09	-0.24	0.24
28.0	86208	87198	88191	-4.52	-1.14	1.14	-0.25	0.25

29.0	82372	83356	84343	-4.49	-1.18	1.18	-0.26	0.26
30.0	78731	79707	80687	-4.46	-1.22	1.23	-0.28	0.27
31.0	75274	76241	77212	-4.43	-1.27	1.27	-0.29	0.29
32.0	71989	72946	73908	-4.40	-1.31	1.32	-0.30	0.30
33.0	68868	69814	70766	-4.37	-1.36	1.36	-0.31	0.31
34.0	65901	66835	67776	-4.35	-1.40	1.41	-0.32	0.32
35.0	63080	64002	64931	-4.32	-1.44	1.45	-0.34	0.33
36.0	60396	61306	62222	-4.29	-1.48	1.50	-0.35	0.35
37.0	57844	58740	59643	-4.26	-1.53	1.54	-0.36	0.36
38.0	55414	56296	57187	-4.23	-1.57	1.58	-0.37	0.37
39.0	53101	53969	54846	-4.21	-1.61	1.62	-0.39	0.38
40.0	50898	51752	52615	-4.18	-1.65	1.67	-0.40	0.39
41.0	48800	49640	50489	-4.15	-1.69	1.71	-0.41	0.41
42.0	46801	47626	48460	-4.13	-1.73	1.75	-0.42	0.42
43.0	44896	45706	46526	-4.10	-1.77	1.79	-0.44	0.43
44.0	43080	43875	44680	-4.08	-1.81	1.84	-0.45	0.44
45.0	41347	42128	42918	-4.05	-1.85	1.88	-0.46	0.46
46.0	39695	40461	41237	-4.03	-1.89	1.92	-0.48	0.47
47.0	38118	38869	39631	-4.00	-1.93	1.96	-0.49	0.48
48.0	36614	37350	38096	-3.98	-1.97	2.00	-0.50	0.50
49.0	35177	35898	36631	-3.95	-2.01	2.04	-0.52	0.51
50.0	33805	34512	35230	-3.93	-2.05	2.08	-0.53	0.52
51.0	32495	33187	33891	-3.90	-2.09	2.12	-0.54	0.53
52.0	31243	31921	32611	-3.88	-2.12	2.16	-0.56	0.55
53.0	30047	30711	31386	-3.85	-2.16	2.20	-0.57	0.56
54.0	28903	29553	30214	-3.83	-2.20	2.24	-0.58	0.57
55.0	27809	28445	29093	-3.81	-2.24	2.28	-0.60	0.59
56.0	26763	27386	28020	-3.78	-2.27	2.32	-0.61	0.60
57.0	25763	26372	26993	-3.76	-2.31	2.36	-0.63	0.61
58.0	24805	25401	26009	-3.74	-2.35	2.39	-0.64	0.63
59.0	23888	24472	25067	-3.72	-2.38	2.43	-0.65	0.64
60.0	23011	23582	24164	-3.69	-2.42	2.47	-0.67	0.66
61.0	22171	22729	23299	-3.67	-2.46	2.51	-0.68	0.67
62.0	21366	21912	22470	-3.65	-2.49	2.55	-0.70	0.68
63.0	20595	21129	21674	-3.63	-2.53	2.58	-0.71	0.70
64.0	19856	20378	20912	-3.61	-2.56	2.62	-0.73	0.71
65.0	19148	19658	20180	-3.59	-2.60	2.66	-0.74	0.72
66.0	18469	18968	19479	-3.56	-2.63	2.69	-0.76	0.74
67.0	17817	18306	18805	-3.54	-2.67	2.73	-0.77	0.75

68.0	17193	17670	18159	-3.52	-2.70	2.77	-0.79	0.77
69.0	16594	17060	17538	-3.50	-2.74	2.80	-0.80	0.78
70.0	16019	16475	16942	-3.48	-2.77	2.84	-0.82	0.80
71.0	15467	15913	16370	-3.46	-2.80	2.87	-0.83	0.81
72.0	14937	15373	15820	-3.44	-2.84	2.91	-0.85	0.82
73.0	14428	14854	15292	-3.42	-2.87	2.94	-0.86	0.84
74.0	13939	14356	14784	-3.40	-2.90	2.98	-0.88	0.85
75.0	13470	13877	14295	-3.38	-2.94	3.01	-0.89	0.87
76.0	13018	13417	13826	-3.36	-2.97	3.05	-0.91	0.88
77.0	12585	12974	13374	-3.34	-3.00	3.08	-0.92	0.90
78.0	12168	12549	12940	-3.33	-3.03	3.12	-0.94	0.91
79.0	11767	12140	12522	-3.31	-3.07	3.15	-0.95	0.93
80.0	11382	11746	12120	-3.29	-3.10	3.19	-0.97	0.94
81.0	11011	11367	11733	-3.27	-3.13	3.22	-0.99	0.96
82.0	10655	11002	11360	-3.25	-3.16	3.25	-1.00	0.97
83.0	10312	10652	11002	-3.23	-3.19	3.29	-1.02	0.99
84.0	9981	10314	10656	-3.21	-3.22	3.32	-1.03	1.00
85.0	9663	9988	10323	-3.20	-3.25	3.35	-1.05	1.02
86.0	9357	9675	10003	-3.18	-3.29	3.39	-1.07	1.03
87.0	9062	9373	9694	-3.16	-3.32	3.42	-1.08	1.05
88.0	8778	9082	9396	-3.14	-3.35	3.45	-1.10	1.06
89.0	8505	8802	9109	-3.13	-3.38	3.48	-1.11	1.08
90.0	8241	8532	8832	-3.11	-3.41	3.52	-1.13	1.10
91.0	7987	8271	8565	-3.09	-3.44	3.55	-1.15	1.11
92.0	7742	8020	8307	-3.07	-3.47	3.58	-1.16	1.13
93.0	7506	7778	8059	-3.06	-3.50	3.61	-1.18	1.14
94.0	7278	7544	7819	-3.04	-3.53	3.64	-1.20	1.16
95.0	7059	7319	7588	-3.03	-3.56	3.68	-1.22	1.18
96.0	6847	7101	7365	-3.01	-3.58	3.71	-1.23	1.19
97.0	6643	6892	7149	-2.99	-3.61	3.74	-1.25	1.21
98.0	6445	6689	6941	-2.98	-3.64	3.77	-1.27	1.22
99.0	6255	6493	6740	-2.96	-3.67	3.80	-1.28	1.24
100.0	6071	6304	6546	-2.94	-3.70	3.83	-1.30	1.26
101.0	5894	6122	6358	-2.93	-3.73	3.86	-1.32	1.27
102.0	5722	5946	6177	-2.91	-3.76	3.89	-1.34	1.29
103.0	5557	5775	6002	-2.90	-3.78	3.92	-1.35	1.31
104.0	5397	5611	5833	-2.88	-3.81	3.95	-1.37	1.32
105.0	5243	5452	5669	-2.87	-3.84	3.98	-1.39	1.34
106.0	5093	5298	5511	-2.85	-3.87	4.01	-1.41	1.36

<b>107.0</b>	4949	5150	5358	-2.84	-3.89	4.04	-1.42	1.37
<b>108.0</b>	4810	5006	5210	-2.82	-3.92	4.07	-1.44	1.39
<b>109.0</b>	4675	4867	5067	-2.81	-3.95	4.10	-1.46	1.41
<b>110.0</b>	4544	4733	4928	-2.79	-3.97	4.13	-1.48	1.42
<b>111.0</b>	4418	4603	4794	-2.78	-4.00	4.16	-1.50	1.44
<b>112.0</b>	4296	4477	4664	-2.76	-4.03	4.19	-1.51	1.46
<b>113.0</b>	4178	4355	4539	-2.75	-4.05	4.22	-1.53	1.47
<b>114.0</b>	4064	4237	4417	-2.74	-4.08	4.24	-1.55	1.49
<b>115.0</b>	3954	4123	4299	-2.72	-4.11	4.27	-1.57	1.51
<b>116.0</b>	3847	4013	4185	-2.71	-4.13	4.30	-1.59	1.53
<b>117.0</b>	3743	3906	4075	-2.69	-4.16	4.33	-1.61	1.54
<b>118.0</b>	3643	3802	3968	-2.68	-4.18	4.36	-1.63	1.56
<b>119.0</b>	3546	3702	3864	-2.67	-4.21	4.38	-1.64	1.58
<b>120.0</b>	3452	3605	3764	-2.65	-4.24	4.41	-1.66	1.60
<b>121.0</b>	3361	3511	3667	-2.64	-4.26	4.44	-1.68	1.61
<b>122.0</b>	3273	3420	3572	-2.63	-4.29	4.47	-1.70	1.63
<b>123.0</b>	3188	3331	3481	-2.61	-4.31	4.49	-1.72	1.65
<b>124.0</b>	3105	3245	3392	-2.60	-4.34	4.52	-1.74	1.67
<b>125.0</b>	3024	3162	3306	-2.59	-4.36	4.55	-1.76	1.69

