

# THINKING ELECTRONIC INDUSTRIAL CO., LTD.

HEAD OFFICE: 8F-1, No.93, Ta-Shun 1st Rd., Kaohsiung, Taiwan

TEL: 886-7-5577660 FAX: 886-7-5570560

## MANUFACTURING SITE

**R** KAOHSIUNG FACTORY: No.51, Kaifa Road, Nantze Export Processing Zone,  
Kaohsiung City 81170, Taiwan  
TEL: 886-7-9616668 FAX: 886-7-9616698

CHANGZHOU FACTORY: No.6 Longmen Road, Wujin National High&New-Tech Industrial  
Development Zone, ChangZhou, JiangSu, China  
TEL: 86-519-86578999 FAX: 86-519-86558643

**R** DONG GUAN FACTORY: Chiao-Tou Tsun, Sha-Tao Hsiang, Chang-An Town,  
Dong-Guan City 523863, Guangdong, China  
TEL: 86-769-85542016 FAX: 86-769-85546890

**R** YICHANG FACTORY: No. 283 Xiaoting Avenue, Xiaoting Dist., Yichang  
City 443007, Hubei, China  
TEL: 86-717-6510010 FAX: 86-717-6511430



## SPECIFICATION FOR APPROVAL

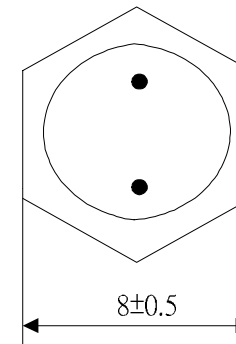
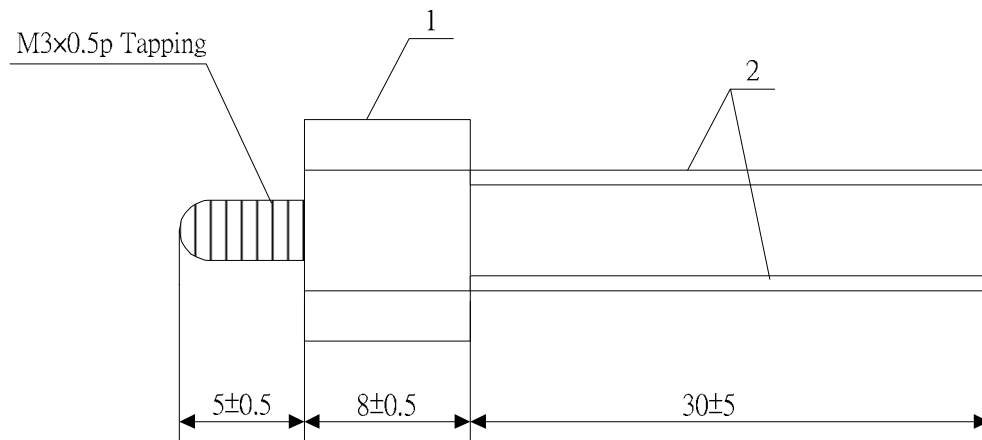
CUSTOMER	Ozdisan
MODEL NO.	NTSF0103
PART NO.	NTSF0103KZ719(RoHS)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	Dec.4.2017
REV. NO	1.0
REV. DATE	

	FOR CUSTOMER APPROVAL	CHECKED BY
		HuFeng
		APPROVED BY
		FMChu





A. Material List		
NO.	ITEM	DESCRIPTION
*	ELEMENT	NTC Thermistor
1	CAP	M3×0.5P TAPPING (Aluminum)
2	LEAD WIRE	Φ0.5mm CP Wires
B. Electrical Characteristic		
ITEM	VALUE	
R25	10K Ω±10%	
B25/100	4300±3%	



						Customer	Ozdisan
						Customer P/N	
						Thinking P/N	NTSF0103KZ719
						Drawing NO.	SF1107026
						Date	2017/12/4
						Tol: ±mm	Unit: mm   Scale:
1.0	2017/12/4	New drawing	RuanDong	HuFeng	FMChu	<i>THINKING ELECTRONIC INDUSTRIAL CO.,LTD</i>	
Rev.	Date	Subjects of Change	Designed by	Checked by	Approved by		



**Specification of NTC Sensor for Temperature Measurement and Control**

**PART NO.** NTSF0103KZ719

**CUSTOMER P/N.** \_\_\_\_\_

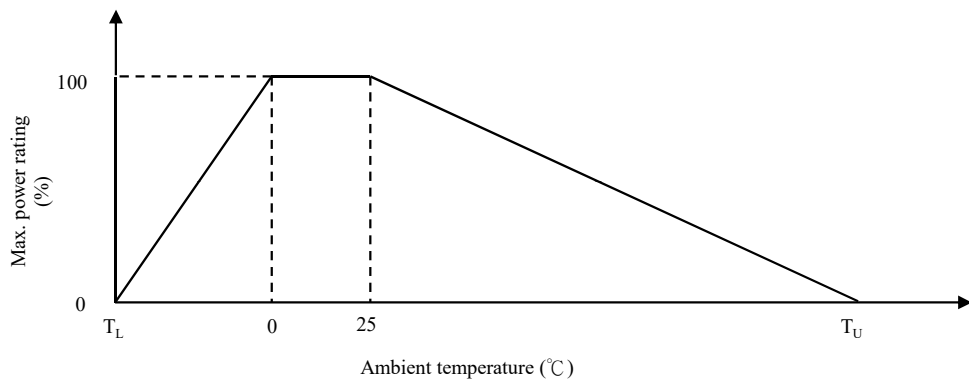
**1. Electrical characteristics**

	Parameter	Symbol	Test Conditions	Min.	Nor.	Max.	Unit.
a.	Resistance At 25°C	R <sub>25</sub>	T <sub>a</sub> =25°C±0.05°C P <sub>T</sub> ≤0.02mW	9	10	11.0	KΩ
b.	B Constant	B <sub>25/100</sub> °C	(1483.396* Ln (R <sub>25</sub> /R <sub>100</sub> ))	4171	4300	4429	K
c.	Hi-Pot Test	-----	1000V AC 1 Sec	-----	-----	10	m A
d.	Insulation test	-----	DC 500 V 1 Sec	100	-----	-----	MΩ

**2. Maximum Ratings**

	Parameter	Specification	Unit
a.	Operation Temperature Range	-40 ----- +125	°C
b.	Max. Power Dissipation at 25°C	150	m W

***Max. Power Dissipation Derating Curve***



Note: T<sub>L</sub> = Minimum Temp. of Operating Temp. Range (°C)

T<sub>U</sub> = Maximum Temp. of Operating Temp. Range (°C)

**3. Reliability Test**

Item	Test Conditions	Variable
Temp. cycle test	-40°C x 30min → +25 °C x 5min +125°C x 30min → +25 °C x 5min } X 5Cycles	Within ± 3 %
Low temp.test	-40± 3°C X 1000 HRS	Within ± 3 %
High temp.test	125± 3°C X 1000 HRS	Within ± 3 %
Humidity test	40 °C 95 % RH x 1000 HRS	Within ± 3 %

## **Install and use**

1. Use this product within the specified temperature range.
2. Higher temperature may cause deterioration of the characteristics or the material quality of this product.
3. Do not melt the solder in resin head, when you solder this product. If you melt the solder in resin head, it has possibility that the break of wire, short and insulation damage.
4. Do not touch the resin head directly by solder iron. It may cause the melt of solder in resin head.
5. At least away from resin head 10mm above when lead dividing.
6. In case you cut the lead wire of this product less than 10mm from resin head, the heat of melted solder at lead wire edge is propagated easily to the resin head along the lead wire.
7. Radius of lead bending should be more than 1mm when lead bending.  
Holding element by side lead wire is recommended when lead wire is bent or cut.
8. Do not apply an excessive force to the lead. Otherwise, it may cause junction between lead and element to break or crack.
9. The ceramic element of this product is fragile, and care must be taken not to load an excessive press-force or not to give a shock at handling. Such forces may cause cracking or chipping.
10. If you mold by resin this product, please evaluate the quality of this product before you use it.

## **Warehouse Storage Conditions of Products**

To keep solderability of product from declining, the following storage condition is recommended.

### 1. Storage condition:

Temperature -10°C to +40°C

Humidity less than 75%RH (not dewing condition)

### 2. Storage term:

Use this product within 1 year after delivery by first-in and first-out stocking system.

### 3. Handling after unpacking:

After unpacking, reseal product promptly or store it in a sealed container with a drying agent.

### 4. Storage place:

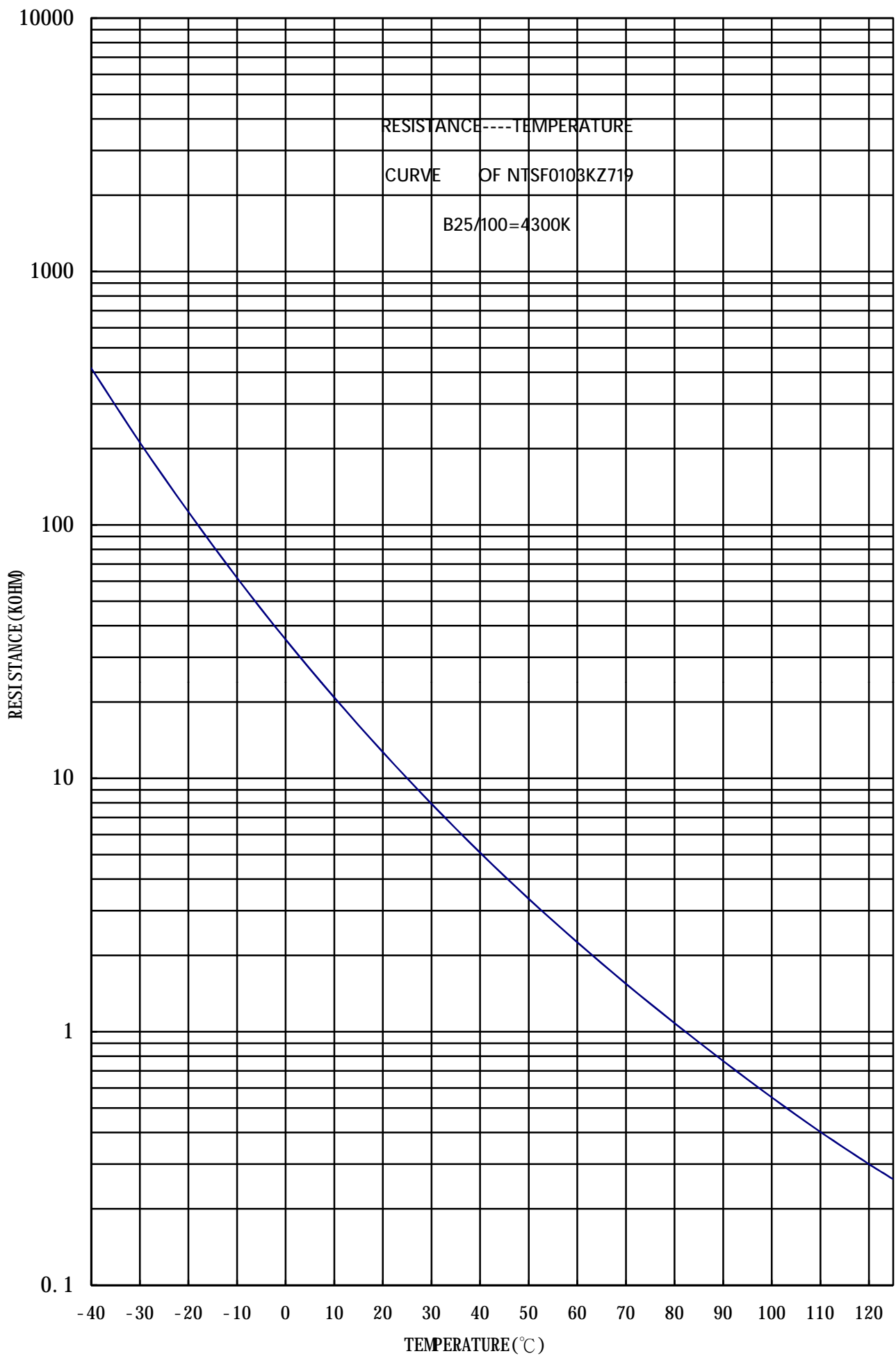
Do not store this product in corrosive gas (Sulfuric acid gas, Chlorine gas, etc.) or in direct sunlight.

## **Warn and note item**

This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure).

Do not use under the following conditions because all of these factors can deteriorate the product characteristics or cause failures and burn-out.

1. Corrosive gas or deoxidizing gas (Chlorine gas, Hydrogen sulfide gas, Ammonia gas, Sulfuric acid gas, Nitric oxide gas, etc.)
2. Volatile or flammable gas
3. Dusty conditions
4. Under vacuum, or under high or low pressure
5. Wet or humid locations; soak in the liquid or wash with liquid
6. Places with salt water, oils, chemical liquids or organic solvents and do not use directly with quick-drying glue.
7. Strong vibrations
8. Other places where similar hazardous conditions exist
9. Be sure to provide an appropriate fail-safe function on your product to prevent secondary damages that may be caused by the abnormal function or the failure of our product.



## R - T Table

Part No. : NTSF0103KZ719

R25=10K $\Omega$   $\pm$ 10%B25/100 = 4300 K  $\pm$  3%

Temperature ( $^{\circ}$ C)	Rmax. (K $\Omega$ )	Rnor. (K $\Omega$ )	Rmin. (K $\Omega$ )	Temperature Tol. ( $^{\circ}$ C)	
-40	511.024	415.426	334.335	-3.22	2.93
-39	475.984	387.743	312.702	-3.19	2.91
-38	443.432	361.971	292.521	-3.16	2.90
-37	413.244	338.022	273.728	-3.14	2.89
-36	385.274	315.788	256.245	-3.13	2.89
-35	359.366	295.150	239.985	-3.11	2.88
-34	335.363	275.991	224.859	-3.10	2.87
-33	313.116	258.199	210.784	-3.09	2.87
-32	292.484	241.665	197.678	-3.07	2.86
-31	273.337	226.290	185.468	-3.06	2.85
-30	255.555	211.984	174.083	-3.05	2.85
-29	239.029	198.662	163.461	-3.03	2.84
-28	223.661	186.249	153.544	-3.01	2.83
-27	209.360	174.677	144.281	-3.00	2.82
-26	196.046	163.881	135.624	-2.98	2.80
-25	183.644	153.807	127.529	-2.96	2.79
-24	172.087	144.400	119.956	-2.94	2.78
-23	161.313	135.615	112.870	-2.93	2.77
-22	151.265	127.406	106.2375	-2.91	2.76
-21	141.893	119.735	100.0268	-2.89	2.75
-20	133.147	112.5631	94.2100	-2.87	2.74
-19	124.984	105.8571	88.7607	-2.85	2.73
-18	117.3632	99.5849	83.6547	-2.83	2.71
-17	110.2468	93.7171	78.8691	-2.82	2.70
-16	103.5998	88.2263	74.3829	-2.80	2.69
-15	97.3896	83.0872	70.1763	-2.78	2.68
-14	91.5860	78.2758	66.2310	-2.77	2.67
-13	86.1609	73.7702	62.5298	-2.75	2.66
-12	81.0882	69.5498	59.0568	-2.73	2.65
-11	76.3435	65.5954	55.7968	-2.72	2.64
-10	71.9043	61.8890	52.7361	-2.70	2.63
-9	67.7495	58.4141	49.8614	-2.69	2.62
-8	63.8596	55.1551	47.1607	-2.67	2.61
-7	60.2163	52.0975	44.6226	-2.66	2.60
-6	56.8028	49.2278	42.2364	-2.64	2.59
-5	53.6034	46.5336	39.9923	-2.62	2.58
-4	50.6034	44.0030	37.8809	-2.61	2.57
-3	47.7894	41.6253	35.8938	-2.59	2.56
-2	45.1486	39.3904	34.0229	-2.58	2.55
-1	42.6695	37.2887	32.2606	-2.56	2.54
0	40.3412	35.3117	30.6001	-2.54	2.53
1	38.1536	33.4511	29.0349	-2.53	2.52
2	36.0973	31.6994	27.5589	-2.51	2.51



3	34.1637	30.0495	26.1664	-2.49	2.50
4	32.3447	28.4949	24.8523	-2.48	2.49
5	30.6329	27.0296	23.6117	-2.46	2.47
6	29.0212	25.6478	22.4399	-2.44	2.46
7	27.5032	24.3444	21.3329	-2.42	2.45
8	26.0729	23.1143	20.2865	-2.41	2.44
9	24.7248	21.9531	19.2972	-2.39	2.42
10	23.4536	20.8565	18.3614	-2.37	2.41
11	22.2546	19.8205	17.4760	-2.35	2.39
12	21.1232	18.8414	16.6380	-2.33	2.38
13	20.0552	17.9159	15.8447	-2.31	2.37
14	19.0468	17.0406	15.0933	-2.29	2.35
15	18.0943	16.2126	14.3814	-2.27	2.34
16	17.1944	15.4292	13.7068	-2.25	2.32
17	16.3438	14.6876	13.0673	-2.23	2.31
18	15.5396	13.9855	12.4609	-2.21	2.29
19	14.7792	13.3205	11.8858	-2.19	2.28
20	14.0598	12.6906	11.3402	-2.17	2.26
21	13.3791	12.0936	10.8224	-2.15	2.25
22	12.7348	11.5278	10.3309	-2.13	2.23
23	12.1248	10.9913	9.8642	-2.11	2.22
24	11.5472	10.4826	9.42100	-2.09	2.20
25	11.0000	10.0000	9.00000	-2.07	2.18
26	10.5111	9.54211	8.57583	-2.12	2.22
27	10.04645	9.10756	8.17385	-2.16	2.26
28	9.60476	8.69504	7.79278	-2.21	2.30
29	9.18479	8.30336	7.43146	-2.25	2.34
30	8.78538	7.93138	7.08878	-2.30	2.38
31	8.40545	7.57801	6.76370	-2.34	2.43
32	8.04396	7.24224	6.45523	-2.39	2.47
33	7.69993	6.92314	6.16247	-2.43	2.51
34	7.37245	6.61979	5.88454	-2.48	2.55
35	7.06065	6.33136	5.62063	-2.53	2.59
36	6.76372	6.05705	5.36996	-2.58	2.63
37	6.48088	5.79609	5.13183	-2.62	2.68
38	6.21140	5.54780	4.90554	-2.67	2.72
39	5.95459	5.31148	4.69045	-2.72	2.76
40	5.70980	5.08652	4.48596	-2.77	2.80
41	5.47640	4.87231	4.29150	-2.82	2.85
42	5.25383	4.66829	4.10653	-2.87	2.89
43	5.04152	4.47393	3.93054	-2.92	2.93
44	4.83895	4.28872	3.76305	-2.97	2.98
45	4.64563	4.11220	3.60362	-3.02	3.02
46	4.46109	3.94390	3.45181	-3.07	3.07
47	4.28489	3.78341	3.30722	-3.12	3.11
48	4.11661	3.63032	3.16947	-3.18	3.16
49	3.95586	3.48426	3.03820	-3.23	3.20
50	3.80225	3.34487	2.91309	-3.28	3.24
51	3.65544	3.21180	2.79379	-3.33	3.29
52	3.51508	3.08474	2.68002	-3.39	3.34
53	3.38086	2.96339	2.57149	-3.44	3.38
54	3.25248	2.84745	2.46793	-3.49	3.43

55	3.12966	2.73666	2.36908	-3.55	3.47
56	3.01211	2.63076	2.27471	-3.60	3.52
57	2.89959	2.52950	2.18458	-3.65	3.56
58	2.79185	2.43266	2.09849	-3.71	3.61
59	2.68866	2.34002	2.01622	-3.76	3.65
60	2.58980	2.25137	1.93760	-3.82	3.70
61	2.49508	2.16653	1.86243	-3.87	3.74
62	2.40428	2.08530	1.79055	-3.93	3.79
63	2.31723	2.00751	1.72179	-3.98	3.83
64	2.23376	1.93299	1.65600	-4.04	3.88
65	2.15368	1.86160	1.59303	-4.09	3.93
66	2.07686	1.79317	1.53276	-4.15	3.97
67	2.00313	1.72758	1.47504	-4.20	4.02
68	1.93235	1.66469	1.41976	-4.26	4.06
69	1.86439	1.60437	1.36680	-4.31	4.11
70	1.79913	1.54650	1.31605	-4.37	4.15
71	1.73644	1.49098	1.26741	-4.42	4.20
72	1.67620	1.43768	1.22078	-4.48	4.24
73	1.61831	1.38652	1.17605	-4.53	4.28
74	1.56266	1.33740	1.13316	-4.59	4.33
75	1.50916	1.29022	1.09201	-4.64	4.37
76	1.45771	1.24490	1.05252	-4.70	4.42
77	1.40823	1.20135	1.01462	-4.75	4.46
78	1.36062	1.15950	0.97823	-4.81	4.51
79	1.31481	1.11928	0.94330	-4.86	4.55
80	1.27073	1.08061	0.90975	-4.92	4.60
81	1.22829	1.04343	0.87752	-4.97	4.64
82	1.18744	1.00767	0.84656	-5.03	4.68
83	1.14810	0.97327	0.81681	-5.08	4.73
84	1.11022	0.94018	0.78822	-5.14	4.77
85	1.07373	0.90834	0.76075	-5.19	4.82
86	1.03858	0.87770	0.73433	-5.25	4.86
87	1.00472	0.84821	0.70893	-5.31	4.91
88	0.97208	0.81983	0.68451	-5.36	4.95
89	0.94064	0.79250	0.66102	-5.42	5.00
90	0.91033	0.76619	0.63843	-5.48	5.04
91	0.88112	0.74086	0.61669	-5.54	5.09
92	0.85296	0.71646	0.59579	-5.59	5.14
93	0.82581	0.69296	0.57567	-5.65	5.18
94	0.79964	0.67033	0.55631	-5.71	5.23
95	0.77440	0.64853	0.53769	-5.77	5.28
96	0.75006	0.62753	0.51976	-5.83	5.33
97	0.72659	0.60729	0.50251	-5.90	5.38
98	0.70395	0.58780	0.48590	-5.96	5.43
99	0.68212	0.56902	0.46992	-6.02	5.48
100	0.66107	0.55092	0.45453	-6.09	5.53
101	0.64076	0.53348	0.43972	-6.15	5.58
102	0.62117	0.51667	0.42546	-6.22	5.63
103	0.60228	0.50048	0.41173	-6.29	5.69
104	0.58406	0.48488	0.39851	-6.36	5.74
105	0.56648	0.46984	0.38579	-6.43	5.80
106	0.54952	0.45535	0.37354	-6.50	5.86

107	0.53317	0.44138	0.36174	-6.57	5.92
108	0.51739	0.42792	0.35039	-6.65	5.98
109	0.50218	0.41496	0.33946	-6.73	6.04
110	0.48750	0.40246	0.32893	-6.81	6.11
111	0.47335	0.39042	0.31880	-6.89	6.17
112	0.45970	0.37882	0.30905	-6.97	6.24
113	0.44653	0.36764	0.29966	-7.06	6.31
114	0.43384	0.35687	0.29062	-7.15	6.39
115	0.42160	0.34650	0.28192	-7.24	6.46
116	0.40980	0.33650	0.27355	-7.33	6.54
117	0.39842	0.32688	0.26550	-7.43	6.62
118	0.38746	0.31760	0.25774	-7.53	6.70
119	0.37688	0.30867	0.25028	-7.64	6.79
120	0.36670	0.30008	0.24310	-7.75	6.88
121	0.35688	0.29180	0.23620	-7.86	6.98
122	0.34742	0.28383	0.22955	-7.98	7.07
123	0.33830	0.27615	0.22317	-8.10	7.18
124	0.32953	0.26877	0.21702	-8.23	7.28
125	0.32107	0.26166	0.21111	-8.36	7.39