



THINKING ELECTRONIC INDUSTRIAL CO., LTD.

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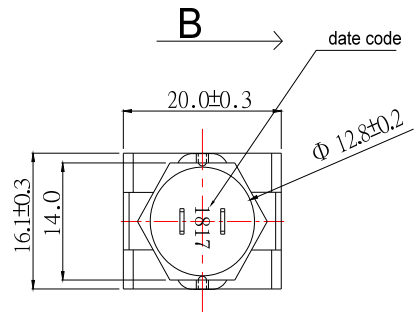


SPECIFICATION FOR APPROVAL

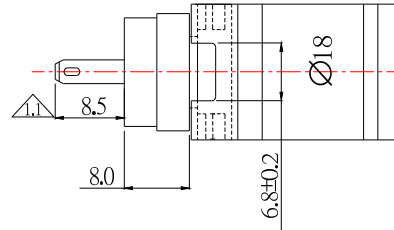
CUSTOMER	Ozdisan-Baff
CERTIFIED	
MODEL/TYPE	
PART NO.	NTSF0103FZE65(RoHS)
APPLICATION	
CUSTOMER P/N	
ISSUE DATE	May.10.2021
REV. NO	1.1
REV. DATE	Jun.24.2021

FOR CUSTOMER APPROVAL	CHECKED BY
	Xingqi Lee
	APPROVED BY
	FM.Chu

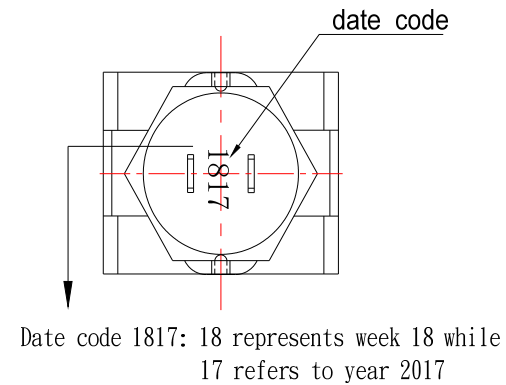
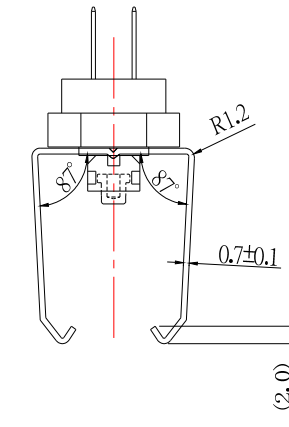
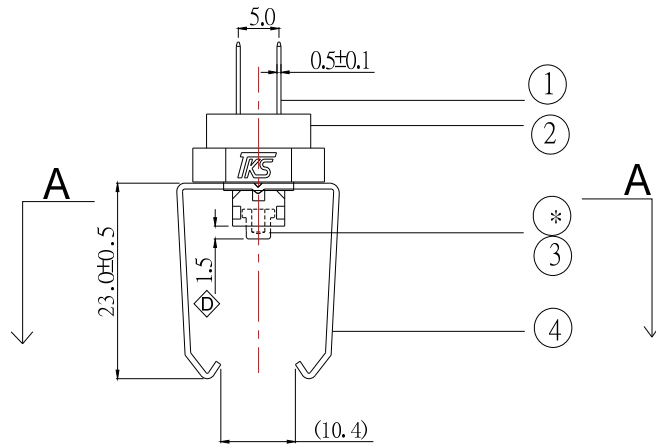




Section A-A



Section B-B



A. Material List

NO.	ITEM	DESCRIPTION
*	Element	NTC thermistor
1	Terminal	A110150BL8
2	Body	PA66+30%GF(Gray)
3	Cap	Φ4.0*3.5(Nickel-plated brass)
4	Clip(For Φ18 tube)	23.0*20.0*0.7t(Stainless steel SK7)

B. Electrical Characteristic

ITEM	VALUE
R25°C	10KΩ±1%
B25/85	3435K±1%

Rev.	Date	Subjects of Change	ECN No.	Designed by	Checked by	Approved by	Customer	Ozdisan-Baff
1.1	2021/6/24	Change the terminal type from A110030BL-2 to A110150BL8, and change the dimension from 6.4 to 8.5		Qiu Ping Lee	Xingqi Lee	FM Chu	Tol: ± 0.3mm	Unit: mm Scale:
1.0	2021/5/10	New Released		Qiu Ping Lee	Xingqi Lee	FM Chu	Thinking P/N	NTSF0103FZE65
							Drawing NO.	SF1711023
							Date	2021/6/24
							<i>THINKING ELECTRONIC INDUSTRIAL CO.,LTD</i>	



THINKING ELECTRONIC INDUSTRIAL CO.,LTD
SUBJECT: CERTIFICATION OF MATERIALS

CUSTOMER: Ozdisan-Baff

THINKING P/N: NTSF0103FZE65

NO	PART NAME	PART P/N	Q'TY	FLAMMABILITY SOLID BURNING CLASS	UL FILE NO
*	Element	NTC Thermistor	1		
1	Terminal	\triangle A110150BL8	2		
2	Body	PA66+30%GF(Gray)	---		
3	Cap	Φ 4.0*3.5(Nickel-plated brass)	1		
4	Clip(For Φ 18 tube)	23.0*20.0*0.7t(Stainless steel SK7)	1		
REMARK					

Approved by: FM Chu

Checked by: Xingqi Lee

Designed by: Qiu Ping Lee

Specification of NTC Thermistor for Temperature Measurement and Control

PART NO . NTSF0103FZE65 _____

CUSTOMER P/N . _____

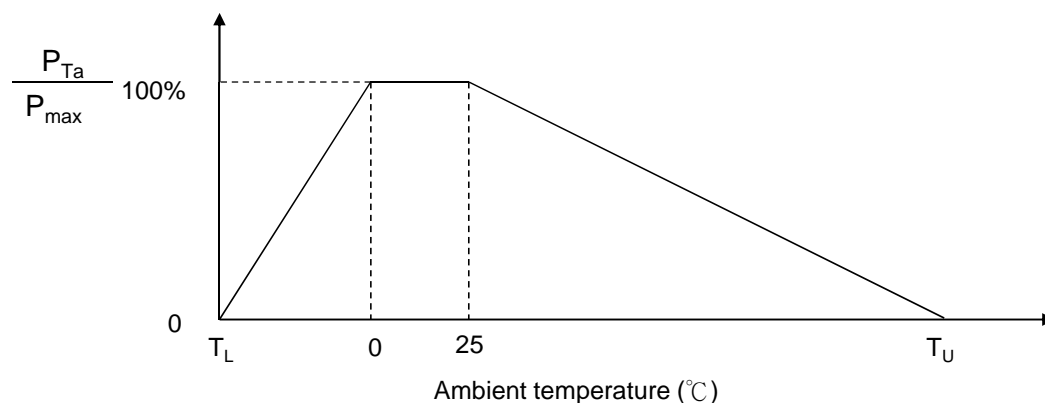
1. Electrical characteristics

	Parameter	Symbol	Test Conditions	Min.	Nor.	Max.	Unit.
a.	Resistance At 25°C	$R_{25^{\circ}\text{C}}$	$T_a=25^{\circ}\text{C} \pm 0.05^{\circ}\text{C}$ $P_T \leq 0.1\text{mW}$	9.900	10.00	10.100	K Ω
b.	B Constant	$B_{25/85}$	$(1779.71 * \ln(R_{25}/R_{85}))$	3400.65	3435.00	3469.35	K
d.	Thermal Dissipation Constant (in air)	δ	$T_a=25^{\circ}\text{C}$	approx. 0.7			mW/°C
c.	Thermal Response Time(in water)	τ	$25^{\circ}\text{C} \rightarrow 85^{\circ}\text{C}$ $T_1=25+(85-25)*63.2\%=62.9^{\circ}\text{C}$	-----	-----	5	Sec
d.	Hi-Pot Test	-----	1000V AC 1Sec	-----	-----	10	m A
e.	Insulation test	-----	DC 100V 1Sec	100	-----	-----	M Ω

2. Maximun Ratings

	Parameter	Specification	Unit
a.	Operation Temperature Range	-30-----+125	°C
b.	Max. Power Dissipation at 25°C	4	mW

Max. Power Dissipation Derating Curve



Note: T_L = Minimum Temp. of Operating Temp. Range (°C)

T_U = Maximum Temp. of Operating Temp. Range (°C)

3. Reliability Test

No.	Item	Test Conditions	Variable
a.	Temp. cycle test (in air)	$-25 \pm 3^{\circ}\text{C} \times 30\text{min} \rightarrow +25^{\circ}\text{C} \times 5\text{min}$ $90 \pm 2^{\circ}\text{C} \times 30\text{min} \rightarrow +25^{\circ}\text{C} \times 5\text{min}$ } 100Cycles	Within $\pm 1\%$
b.	High temp. Test	$125 \pm 5^{\circ}\text{C} * 1000 \text{ HRS}$ (in air)	Within $\pm 1\%$
c.	Low temp. Test	$-30^{\circ}\text{C} * 1000 \text{ HRS}$ (in air)	Within $\pm 1\%$
d.	Humidity test	$40 \pm 2^{\circ}\text{C} 95\% \text{ RH} * 1000 \text{ HRS}$	Within $\pm 1\%$

*This product is made by high temperature resistant glass which contains lead.

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:

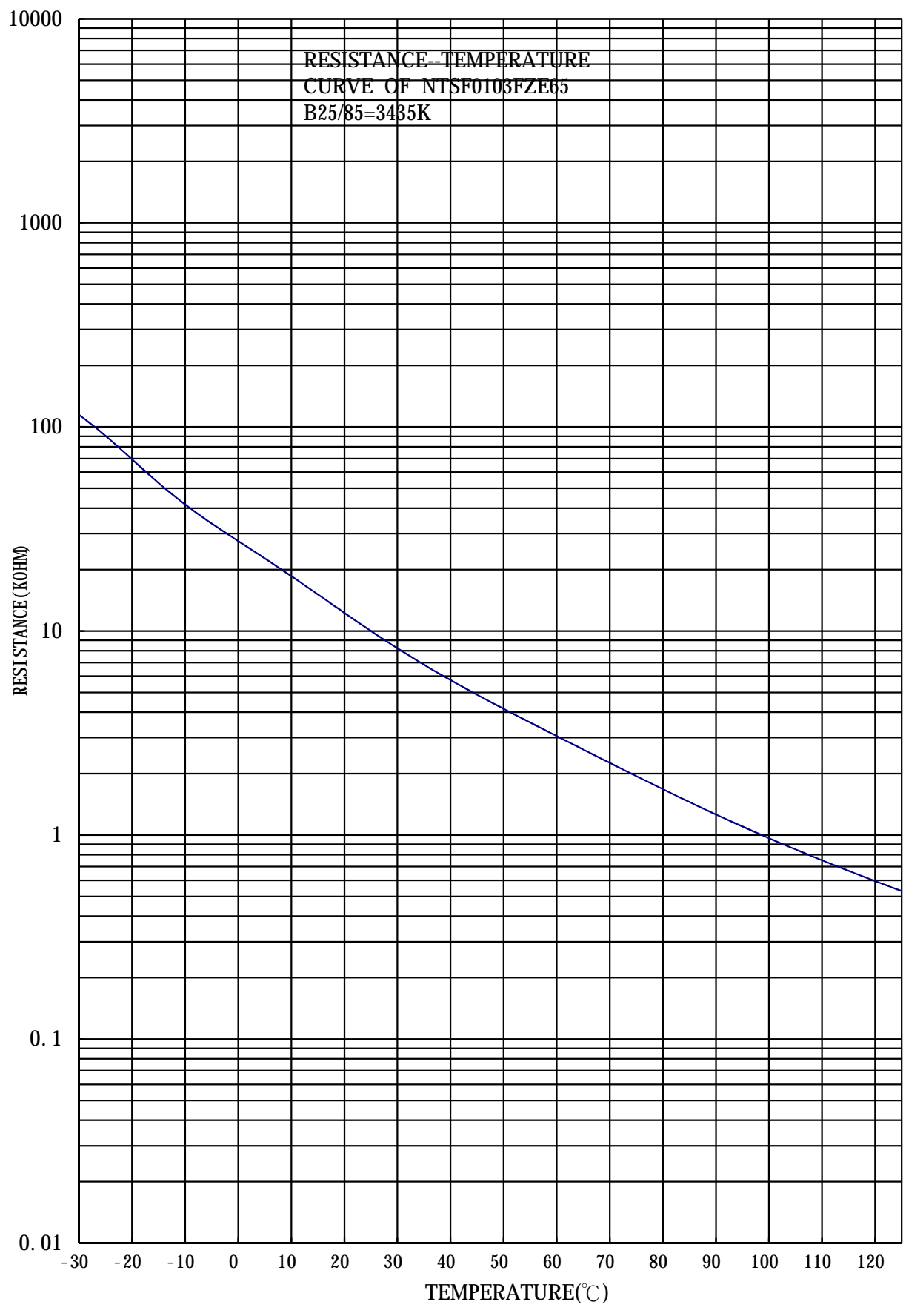
Do not store this product in corrosive gas (Sulfuric acid gas, Chlorine gas, etc.) or in direct sunlight.

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. : NTSF0103FZE65

R25=10KΩ ±1%

B25/85 = 3435 K ± 1%

Temperature (°C)	Rmax. (KΩ)	Rnor. (KΩ)	Rmin. (KΩ)	Temperature Tol. (°C)	
-30	118.686	114.679	110.796	-0.77	0.77
-29	113.400	109.621	105.957	-0.75	0.74
-28	108.238	104.679	101.227	-0.72	0.71
-27	103.180	99.8346	96.5881	-0.69	0.68
-26	98.2214	95.0832	92.0360	-0.66	0.66
-25	93.3716	90.4336	87.5794	-0.63	0.63
-24	88.6473	85.9022	83.2337	-0.61	0.61
-23	84.0692	81.5086	79.0181	-0.58	0.59
-22	79.6583	77.2732	74.9521	-0.56	0.57
-21	75.4337	73.2147	71.0538	-0.55	0.56
-20	71.4111	69.3480	67.3378	-0.53	0.55
-19	67.6016	65.6842	63.8148	-0.52	0.54
-18	64.0116	62.2296	60.4912	-0.52	0.54
-17	60.6428	58.9862	57.3691	-0.51	0.53
-16	57.4929	55.9519	54.4468	-0.51	0.53
-15	54.5561	53.1214	51.7192	-0.51	0.53
-14	51.8235	50.4863	49.1787	-0.51	0.53
-13	49.2844	48.0366	46.8158	-0.51	0.54
-12	46.9265	45.7606	44.6192	-0.51	0.54
-11	44.7364	43.6456	42.5771	-0.52	0.54
-10	42.7007	41.6787	40.6771	-0.52	0.55
-9	40.8056	39.8469	38.9068	-0.52	0.55
-8	39.0380	38.1376	37.2542	-0.53	0.55
-7	37.3852	36.5385	35.7074	-0.53	0.55
-6	35.8352	35.0383	34.2557	-0.53	0.55
-5	34.3770	33.6264	32.8888	-0.53	0.55
-4	33.0006	32.2930	31.5975	-0.53	0.55
-3	31.6968	31.0296	30.3734	-0.53	0.55
-2	30.4575	29.8282	29.2089	-0.52	0.54
-1	29.2758	28.6821	28.0977	-0.52	0.53
0	28.1455	27.5855	27.0339	-0.51	0.52
1	27.0613	26.5332	26.0128	-0.50	0.51
2	26.0190	25.5211	25.0303	-0.49	0.50
3	25.0148	24.5457	24.0830	-0.48	0.49
4	24.0459	23.6042	23.1683	-0.47	0.48
5	23.1099	22.6943	22.2840	-0.46	0.47
6	22.2050	21.8143	21.4284	-0.44	0.45
7	21.3299	20.9630	20.6003	-0.43	0.44
8	20.4835	20.1392	19.7987	-0.42	0.43
9	19.6650	19.3423	19.0230	-0.40	0.41
10	18.8740	18.5718	18.2727	-0.39	0.40
11	18.1102	17.8275	17.5475	-0.38	0.39
12	17.3731	17.1090	16.8472	-0.37	0.38
13	16.6627	16.4161	16.1716	-0.36	0.37

14	15.9786	15.7487	15.5206	-0.34	0.36
15	15.3208	15.1067	14.8940	-0.33	0.34
16	14.6889	14.4897	14.2917	-0.32	0.33
17	14.0827	13.8975	13.7133	-0.31	0.32
18	13.5018	13.3298	13.1586	-0.30	0.31
19	12.9458	12.7862	12.6273	-0.29	0.31
20	12.4142	12.2662	12.1188	-0.28	0.30
21	11.9064	11.7693	11.6327	-0.28	0.29
22	11.4218	11.2949	11.1684	-0.27	0.28
23	10.9597	10.8424	10.7253	-0.26	0.27
24	10.5193	10.4110	10.3027	-0.25	0.26
25	10.1000	10.0000	9.90000	-0.24	0.26
26	9.70861	9.60864	9.50876	-0.26	0.27
27	9.33590	9.23613	9.13650	-0.27	0.28
28	8.98109	8.88163	8.78239	-0.28	0.29
29	8.64337	8.54434	8.44560	-0.29	0.31
30	8.32193	8.22344	8.12530	-0.31	0.32
31	8.01597	7.91810	7.82064	-0.32	0.34
32	7.72469	7.62753	7.53083	-0.33	0.35
33	7.44733	7.35093	7.25506	-0.35	0.36
34	7.18310	7.08754	6.99256	-0.36	0.38
35	6.93130	6.83662	6.74257	-0.38	0.39
36	6.69120	6.59745	6.50437	-0.39	0.41
37	6.46212	6.36935	6.27727	-0.41	0.42
38	6.24342	6.15165	6.06061	-0.42	0.44
39	6.03448	5.94373	5.85376	-0.44	0.45
40	5.83470	5.74500	5.65611	-0.45	0.47
41	5.64353	5.55490	5.46711	-0.47	0.48
42	5.46045	5.37290	5.28623	-0.48	0.50
43	5.28496	5.19851	5.11297	-0.50	0.51
44	5.11661	5.03127	4.94686	-0.51	0.53
45	4.95497	4.87074	4.78747	-0.52	0.54
46	4.79962	4.71652	4.63440	-0.54	0.55
47	4.65021	4.56824	4.48726	-0.55	0.57
48	4.50639	4.42555	4.34572	-0.57	0.58
49	4.36783	4.28813	4.20945	-0.58	0.59
50	4.23425	4.15568	4.07815	-0.59	0.61
51	4.10537	4.02793	3.95156	-0.61	0.62
52	3.98095	3.90464	3.82941	-0.62	0.63
53	3.86074	3.78557	3.71148	-0.63	0.64
54	3.74455	3.67051	3.59756	-0.64	0.66
55	3.63218	3.55926	3.48746	-0.66	0.67
56	3.52346	3.45166	3.38099	-0.67	0.68
57	3.41822	3.34754	3.27800	-0.68	0.69
58	3.31631	3.24675	3.17833	-0.69	0.70
59	3.21761	3.14915	3.08185	-0.70	0.71
60	3.12198	3.05463	2.98843	-0.71	0.72
61	3.02931	2.96305	2.89796	-0.72	0.73
62	2.93949	2.87433	2.81033	-0.73	0.74
63	2.85244	2.78836	2.72544	-0.75	0.76
64	2.76805	2.70504	2.64321	-0.76	0.77
65	2.68624	2.62430	2.56354	-0.77	0.78
66	2.60694	2.54606	2.48635	-0.78	0.79

67	2.53008	2.47024	2.41158	-0.79	0.80
68	2.45557	2.39677	2.33915	-0.80	0.81
69	2.38336	2.32559	2.26900	-0.81	0.82
70	2.31338	2.25663	2.20105	-0.82	0.83
71	2.24558	2.18983	2.13526	-0.83	0.84
72	2.17989	2.12513	2.07155	-0.85	0.86
73	2.11625	2.06248	2.00988	-0.86	0.87
74	2.05463	2.00182	1.95018	-0.87	0.88
75	1.99495	1.94310	1.89241	-0.88	0.89
76	1.93717	1.88626	1.83651	-0.90	0.90
77	1.88124	1.83126	1.78243	-0.91	0.92
78	1.82710	1.77804	1.73012	-0.92	0.93
79	1.77472	1.72655	1.67953	-0.94	0.94
80	1.72403	1.67675	1.63060	-0.95	0.96
81	1.67500	1.62859	1.58330	-0.96	0.97
82	1.62757	1.58201	1.53758	-0.98	0.99
83	1.58169	1.53698	1.49338	-0.99	1.00
84	1.53733	1.49344	1.45065	-1.01	1.02
85	1.49443	1.45135	1.40937	-1.02	1.03
86	1.45295	1.41066	1.36947	-1.04	1.05
87	1.41284	1.37134	1.33092	-1.06	1.06
88	1.37407	1.33333	1.29366	-1.07	1.08
89	1.33658	1.29659	1.25767	-1.09	1.10
90	1.30034	1.26108	1.22289	-1.11	1.11
91	1.26531	1.22677	1.18928	-1.12	1.13
92	1.23143	1.19360	1.15681	-1.14	1.15
93	1.19868	1.16154	1.12543	-1.16	1.17
94	1.16701	1.13054	1.09510	-1.18	1.18
95	1.13639	1.10058	1.06579	-1.20	1.20
96	1.10677	1.07161	1.03746	-1.21	1.22
97	1.07813	1.04360	1.01008	-1.23	1.24
98	1.05042	1.01651	0.98360	-1.25	1.26
99	1.02361	0.99031	0.95800	-1.27	1.27
100	0.99767	0.96496	0.93323	-1.29	1.29
101	0.97256	0.94044	0.90928	-1.31	1.31
102	0.94826	0.91670	0.88610	-1.33	1.33
103	0.92472	0.89372	0.86367	-1.35	1.35
104	0.90193	0.87148	0.84196	-1.37	1.37
105	0.87986	0.84993	0.82095	-1.39	1.39
106	0.85847	0.82907	0.80059	-1.41	1.41
107	0.83774	0.80885	0.78087	-1.43	1.43
108	0.81764	0.78925	0.76177	-1.45	1.45
109	0.79815	0.77025	0.74325	-1.47	1.47
110	0.77925	0.75183	0.72529	-1.49	1.48
111	0.76091	0.73396	0.70788	-1.51	1.50
112	0.74311	0.71662	0.69100	-1.53	1.52
113	0.72584	0.69979	0.67461	-1.55	1.54
114	0.70906	0.68345	0.65870	-1.57	1.56
115	0.69276	0.66758	0.64326	-1.59	1.58
116	0.67692	0.65217	0.62826	-1.61	1.60
117	0.66153	0.63719	0.61369	-1.62	1.61
118	0.64657	0.62264	0.59953	-1.64	1.63
119	0.63201	0.60848	0.58577	-1.66	1.65
120	0.61786	0.59472	0.57239	-1.68	1.67
121	0.60408	0.58133	0.55937	-1.70	1.69

122	0.59068	0.56830	0.54671	-1.72	1.70
123	0.57762	0.55561	0.53439	-1.74	1.72
124	0.56492	0.54327	0.52239	-1.75	1.74
125	0.55254	0.53124	0.51072	-1.77	1.75