



南京科敏电子有限公司
NANJING KEMIN ELECTRONICS CO.,LTD

编 号

KM--NSP330

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产 品 规 格 书

(第 1 次送样)

客 户:

名 称: 功率型 NTC 热敏电阻

型 号: **NSP 3R030**

拟制	周云霞	审查	徐志远	批准	李骏
日期	2021-12-8	日期	2021-12-8	日期	2021-12-8

_____ 公司 _____ 确认收到此规格书
(收到该规格书后请在上一行相应处签字回传, 多谢!)

客 户 承 认

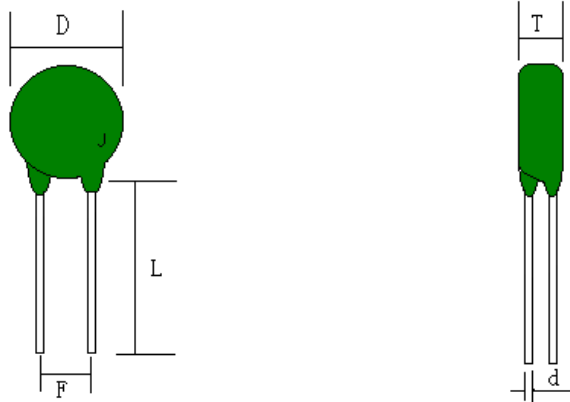
兹同意此规格书作为我公司电阻的验收标准。

工程 _____ 品质 _____ 采购 _____



1、一般参数 (Common Parameters) :

(1) 尺寸 (mm) (Size)



DMax	LMin	F	TMax	d
37.0	16.0	15.0±0.5	10.0	2.5±0.06

(2) 材料 (Materials)

- ①封装材料 (Wrapper) : 硅树脂 (Silicone)
- ②引线 (Down-lead) : 镀锡铜线 (Tinned Copper Wire)
- ③颜色 (Coating color) : 绿色 (Green)

2、主要技术参数 (Parameters of Technology) :

- ①25℃时零功率电阻值 (Ω) (Zero Power Resistance at 25℃) : 3±20%
- ②B 值 25/50 (K) (B Value) : 3000
- ③热时间常数(S) (Thermal Time Constant) : 243
- ④热耗散系数 (mW/℃) (Thermal Dissipation Constant) : 81
- ⑤工作温度 (℃) (Operating Temperature) : -40 - +200
- ⑥最大稳态电流(A) (Max Steady State Current) : 30
- ⑦最大冲击电容量(μF/240V) (Max. Shock Capacity) : 12000



3. 电气性能及要求 (electrical properties and requirements)

项目	测试方法	性能要求
零功率电阻值 Zero Power Resistance	<p>在 25℃ 下, 当由于电阻体内部发热引起的电阻值变化相对于总测量误差可以忽略不计时所测得的电阻值。</p> <p>At 25℃, the measured resistance value can be neglected compared to the general tolerance when the change of the resistance is made through its self-heat of the resistor.</p>	见电特性参数 See Electrical Parameters
B 值 B-value	<p>B 值可以用 25℃ 和 50℃ 时的零功率电阻值计算出来。其计算公式是:</p> $B = \frac{T_1 * T_2}{T_2 - T_1} * \ln \left(\frac{R_1}{R_2} \right)$ <p>The B value can be calculated using the zero power resistance value at 25℃ and 50℃. The equation is as above.</p>	见电特性参数 See Electrical Parameters
热耗散系数 Thermal Dissipation Constant	<p>在规定的温度下, 热敏电阻中耗散的功率变化与热敏电阻相应温度变化之比。其单位: mw/℃</p> <p>The ratio of the change of the dissipation power to the corresponding change of the temperature at specified temperature. The unit is: mw/℃</p>	见电特性参数 See Electrical Parameters
热时间常数 Thermal Time Constant	<p>在零功率条件下, 当温度发生变化时, 热敏电阻的温度变化为其初始的和最终的温度差的 63.2% 所需的时间。</p> <p>Under zero power condition, thermal time constant is the time required by a thermistor that its body temperature reach 63.2% of the difference between its initial and final temperature.</p>	见电特性参数 See Electrical Parameters
工作温度 Operating Temperature	<p>热敏电阻器长期连续工作所允许的温度范围。</p> <p>Allowable temperature range while the thermistor work continuously for long time</p>	-40~+180℃
	温度 40±2℃, 相对湿度 93±3%, 存放 1000±2	无可见损伤、标志清



<p>稳态湿热 Damp Heat</p>	<p>小时后，在正常状态下 1 小时。 The sample should be subjected to $40\pm 2^{\circ}\text{C}$, relative humidity $93\pm 3\%$ for 1000 ± 2 hours, then stored at room temperature and humidity for 1 hour.</p>	<p>晰、无击穿或飞弧，绝缘电阻大于 $100\text{M}\Omega$。电阻值的最大变化率在 $\pm 15\%$ 以内。 No visible damage, the mark is clear, no breakdown or arcing. Insulating resistance is $>100\text{M}\Omega$. The change ratio of the resistance is within $\pm 15\%$.</p>
<p>耐电压 Withstand Voltage</p>	<p>施加 700ACV 电压，时间 60S，电压加在电阻器引线及绝缘层之间 Applied AC voltage of 700v between the lead of the resistor and the insulating coating for 60S</p>	<p>无击穿或飞弧 No breakdown or arcing</p>
<p>耐焊接热 Resistance to Soldering Heat</p>	<p>将热敏电阻器引线在 $260\pm 10^{\circ}\text{C}$ 的焊锡液里，液面距电阻体 6mm 时间 10S。在室温下恢复到原来的状态。 Immerse the lead of the resistor into tin liquor of $260\pm 10^{\circ}\text{C}$ for 10S, the distance from the liquor surface to the resistor is 6mm. Then resume to the original state.</p>	<p>无可见损伤、电阻值的最大变化率在 $\pm 15\%$ 以内 No visible damage. The max change ratio of the resistance is within $\pm 15\%$</p>
<p>可焊性 Solderability</p>	<p>引线浸在 $260\pm 10^{\circ}\text{C}$ 的锡液里，时间 3 秒。 浸锡温度：$260\pm 5^{\circ}\text{C}$ 手锡温度：$260\pm 5^{\circ}\text{C}$ (5s) Immerse the lead into tin liquor of $260\pm 10^{\circ}\text{C}$ for 3 sec. The temperature of immerse welding: $260\pm 5^{\circ}\text{C}$, The temperature of hand welding: $260\pm 5^{\circ}\text{C}$ (5s)</p>	<p>焊锡涂布面积在 90% 以上 The covered surface area should be above 90%</p>
<p>引出端变曲强度 Bending Strength of Terminals</p>	<p>固定电阻体，在一根引出端悬挂 0.5kg 重力变曲 90 度；然后再回复，再把方向弯曲 90 度 Fix the resistor, hanging a force of 0.5kg to one terminal to bend it by 90 degree, then resume to the original state, bend it by 90 degree again.</p>	<p>无可见损伤 NO visible damage</p>
<p>振 动 Vibration</p>	<p>频率：10-50HZ；振幅：1.55mm 方向和时间：X、Y 及 Z 轴各 2 个小时 Frequency: 10-50HZ, Wave Amplitude: 1.55mm.</p>	<p>无机械损伤 No mechanical damage</p>



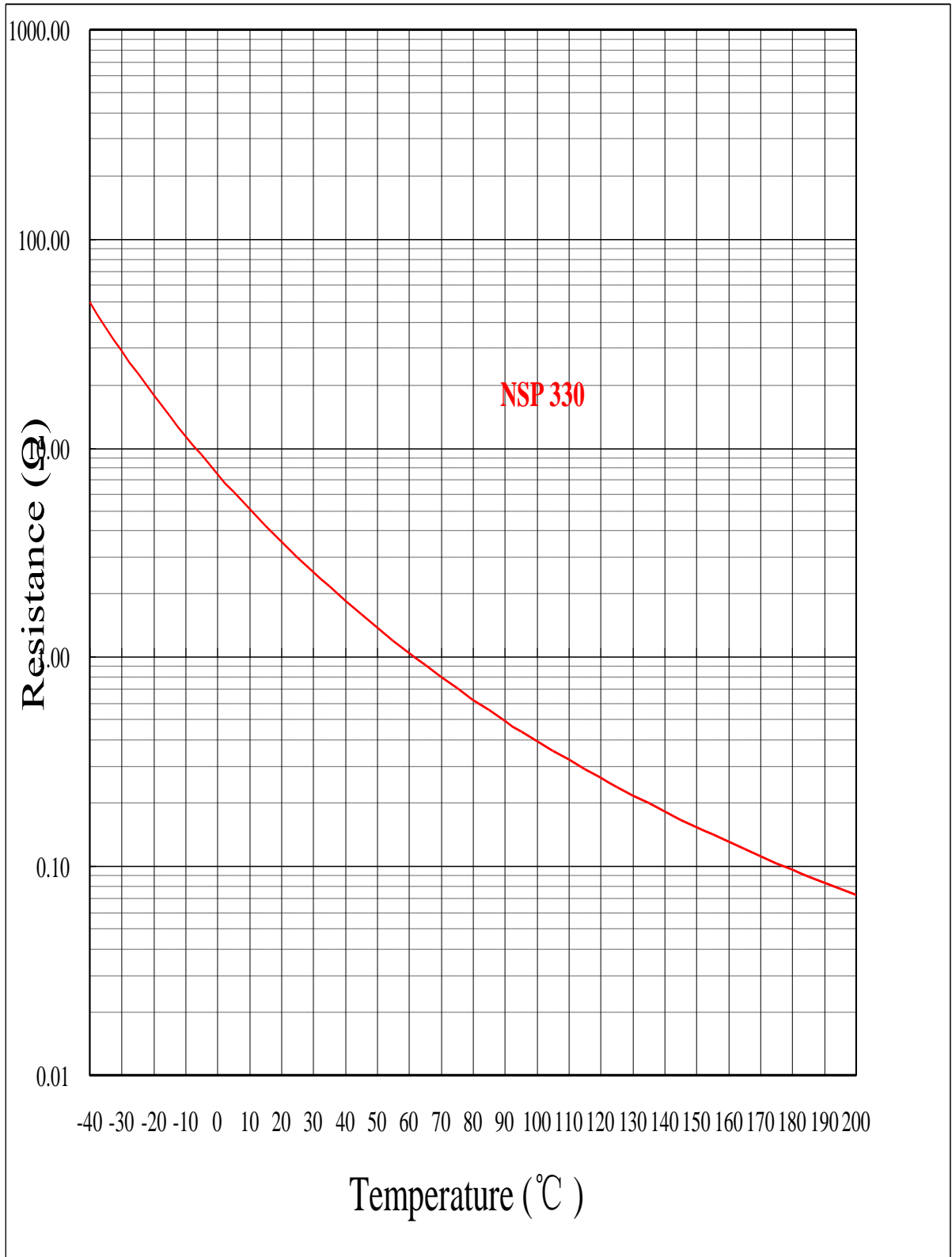
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	Direction and Time: 2 hours respectively for X, Y and Z axis.	
温度快速变化 Temperature Rapid Change	$-40^{\circ}\text{C}/30 \longrightarrow 25^{\circ}\text{C}/5 \longrightarrow$ $+160^{\circ}\text{C}/30 \longrightarrow 25^{\circ}\text{C}/5$	电阻变化率 $\pm 20\%$ The change ratio of the resistance is \pm 20%
工作环境温度 Working environment temperature	热敏电阻器长期连续工作的环境温度范围 Thermistor long-term continuous working environment temperature range	$-40\text{--}+125^{\circ}\text{C}$
储存条件 Storage conditions	$-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ RH $\leq 75\%$	





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南京科敏电子有限公司

电话: 025-52642319

传真: 025-52643433

型号: NSP 330

R: 3 ohms ± 20%

B: 3000 °K ± 10%

网址: www.ke-min.com

温度 (°C)	阻值 (Ω)			温度系 数 (%/°C)	阻值精度偏差 (%)		测温精度偏差(°C)	
	下限值	中心值	上限值		最小	最大	最小	最大
-40.0	29.9109	49.4852	78.5944	-5.51	-39.56	58.82	-10.68	7.18
-39.0	28.4699	46.8434	73.9915	-5.46	-39.22	57.96	-10.61	7.18
-38.0	27.1096	44.3632	69.6938	-5.42	-38.89	57.10	-10.54	7.18
-37.0	25.8249	42.0336	65.6789	-5.37	-38.56	56.25	-10.47	7.18
-36.0	24.6112	39.8444	61.9260	-5.33	-38.23	55.42	-10.40	7.18
-35.0	23.4639	37.7861	58.4163	-5.28	-37.90	54.60	-10.34	7.18
-34.0	22.3790	35.8499	55.1323	-5.24	-37.58	53.79	-10.27	7.17
-33.0	21.3527	34.0278	52.0579	-5.19	-37.25	52.99	-10.20	7.17
-32.0	20.3813	32.3122	49.1782	-5.15	-36.92	52.20	-10.13	7.17
-31.0	19.4616	30.6962	46.4795	-5.11	-36.60	51.42	-10.06	7.16
-30.0	18.5903	29.1732	43.9492	-5.07	-36.28	50.65	-9.99	7.16
-29.0	17.7648	27.7373	41.5757	-5.03	-35.95	49.89	-9.93	7.15
-28.0	16.9821	26.3829	39.3481	-4.99	-35.63	49.14	-9.86	7.15
-27.0	16.2399	25.1048	37.2564	-4.95	-35.31	48.40	-9.79	7.14
-26.0	15.5357	23.8981	35.2914	-4.91	-34.99	47.67	-9.72	7.13
-25.0	14.8673	22.7585	33.4447	-4.87	-34.67	46.95	-9.65	7.12
-24.0	14.2326	21.6817	31.7082	-4.83	-34.36	46.24	-9.58	7.12
-23.0	13.6298	20.6638	30.0746	-4.79	-34.04	45.54	-9.51	7.11
-22.0	13.0570	19.7012	28.5371	-4.75	-33.72	44.85	-9.44	7.10
-21.0	12.5126	18.7905	27.0895	-4.71	-33.41	44.17	-9.37	7.09
-20.0	11.9948	17.9286	25.7259	-4.68	-33.10	43.49	-9.30	7.08
-19.0	11.5023	17.1125	24.4407	-4.64	-32.78	42.82	-9.23	7.07
-18.0	11.0336	16.3395	23.2291	-4.60	-32.47	42.17	-9.16	7.05
-17.0	10.5875	15.6071	22.0863	-4.57	-32.16	41.51	-9.09	7.04
-16.0	10.1626	14.9128	21.0079	-4.53	-31.85	40.87	-9.02	7.03
-15.0	9.7579	14.2543	19.9899	-4.50	-31.54	40.24	-8.95	7.01
-14.0	9.3722	13.6297	19.0285	-4.46	-31.24	39.61	-8.87	7.00
-13.0	9.0045	13.0370	18.1202	-4.43	-30.93	38.99	-8.80	6.98
-12.0	8.6539	12.4742	17.2617	-4.40	-30.63	38.38	-8.73	6.97
-11.0	8.3195	11.9397	16.4499	-4.36	-30.32	37.77	-8.66	6.95
-10.0	8.0004	11.4320	15.6820	-4.33	-30.02	37.18	-8.59	6.93



-9.0	7.6958	10.9494	14.9554	-4.30	-29.71	36.59	-8.51	6.92
-8.0	7.4049	10.4906	14.2675	-4.26	-29.41	36.00	-8.44	6.90
-7.0	7.1271	10.0542	13.6161	-4.23	-29.11	35.43	-8.37	6.88
-6.0	6.8617	9.6391	12.9989	-4.20	-28.81	34.86	-8.30	6.86
-5.0	6.6081	9.2439	12.4140	-4.17	-28.51	34.29	-8.22	6.84
-4.0	6.3655	8.8678	11.8595	-4.14	-28.22	33.74	-8.15	6.82
-3.0	6.1336	8.5095	11.3335	-4.11	-27.92	33.19	-8.08	6.80
-2.0	5.9118	8.1682	10.8345	-4.08	-27.62	32.64	-8.00	6.77
-1.0	5.6995	7.8430	10.3609	-4.05	-27.33	32.10	-7.93	6.75
0.0	5.4963	7.5329	9.9112	-4.02	-27.04	31.57	-7.86	6.73
1.0	5.3017	7.2372	9.4841	-3.99	-26.74	31.05	-7.78	6.70
2.0	5.1154	6.9552	9.0784	-3.96	-26.45	30.53	-7.71	6.68
3.0	4.9369	6.6860	8.6927	-3.93	-26.16	30.01	-7.63	6.65
4.0	4.7658	6.4291	8.3260	-3.90	-25.87	29.50	-7.56	6.63
5.0	4.6019	6.1838	7.9772	-3.88	-25.58	29.00	-7.48	6.60
6.0	4.4446	5.9495	7.6454	-3.85	-25.29	28.50	-7.41	6.57
7.0	4.2939	5.7257	7.3296	-3.82	-25.01	28.01	-7.33	6.54
8.0	4.1492	5.5118	7.0289	-3.79	-24.72	27.53	-7.26	6.52
9.0	4.0104	5.3073	6.7426	-3.77	-24.44	27.04	-7.18	6.49
10.0	3.8772	5.1118	6.4699	-3.74	-24.15	26.57	-7.10	6.46
11.0	3.7493	4.9247	6.2100	-3.71	-23.87	26.10	-7.03	6.43
12.0	3.6264	4.7458	5.9622	-3.69	-23.59	25.63	-6.95	6.39
13.0	3.5084	4.5745	5.7259	-3.66	-23.30	25.17	-6.87	6.36
14.0	3.3950	4.4105	5.5006	-3.64	-23.02	24.71	-6.79	6.33
15.0	3.2861	4.2535	5.2856	-3.61	-22.74	24.26	-6.72	6.30
16.0	3.1813	4.1031	5.0804	-3.59	-22.47	23.82	-6.64	6.26
17.0	3.0806	3.9590	4.8844	-3.56	-22.19	23.38	-6.56	6.23
18.0	2.9837	3.8209	4.6974	-3.54	-21.91	22.94	-6.48	6.19
19.0	2.8905	3.6885	4.5186	-3.51	-21.64	22.51	-6.40	6.16
20.0	2.8008	3.5616	4.3479	-3.49	-21.36	22.08	-6.33	6.12
21.0	2.7145	3.4398	4.1847	-3.47	-21.09	21.65	-6.25	6.08
22.0	2.6314	3.3230	4.0286	-3.44	-20.81	21.23	-6.17	6.04
23.0	2.5513	3.2109	3.8794	-3.42	-20.54	20.82	-6.09	6.01
24.0	2.4743	3.1033	3.7366	-3.40	-20.27	20.41	-6.01	5.97
25.0	2.4000	3.0000	3.6000	-3.37	-20.00	20.00	-5.93	5.93
26.0	2.3128	2.9008	3.4927	-3.35	-20.27	20.40	-6.09	6.05
27.0	2.2294	2.8055	3.3892	-3.33	-20.53	20.81	-6.25	6.17
28.0	2.1495	2.7139	3.2895	-3.31	-20.80	21.21	-6.41	6.29
29.0	2.0729	2.6259	3.1933	-3.29	-21.06	21.61	-6.58	6.41
30.0	1.9996	2.5413	3.1006	-3.26	-21.32	22.01	-6.74	6.53
31.0	1.9293	2.4599	3.0111	-3.24	-21.57	22.41	-6.91	6.65



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32.0	1.8619	2.3817	2.9248	-3.22	-21.83	22.80	-7.08	6.77
33.0	1.7973	2.3064	2.8415	-3.20	-22.08	23.20	-7.25	6.90
34.0	1.7353	2.2340	2.7610	-3.18	-22.32	23.59	-7.42	7.02
35.0	1.6758	2.1643	2.6834	-3.16	-22.57	23.98	-7.59	7.14
36.0	1.6188	2.0972	2.6084	-3.14	-22.81	24.37	-7.77	7.27
37.0	1.5640	2.0326	2.5360	-3.12	-23.05	24.76	-7.94	7.39
38.0	1.5114	1.9704	2.4660	-3.10	-23.29	25.15	-8.12	7.52
39.0	1.4610	1.9105	2.3984	-3.08	-23.53	25.54	-8.30	7.64
40.0	1.4125	1.8528	2.3331	-3.06	-23.76	25.92	-8.47	7.77
41.0	1.3659	1.7971	2.2699	-3.04	-24.00	26.31	-8.66	7.89
42.0	1.3211	1.7435	2.2088	-3.02	-24.23	26.69	-8.84	8.02
43.0	1.2781	1.6918	2.1498	-3.00	-24.45	27.07	-9.02	8.15
44.0	1.2367	1.6419	2.0927	-2.98	-24.68	27.46	-9.21	8.27
45.0	1.1969	1.5938	2.0374	-2.96	-24.90	27.84	-9.39	8.40
46.0	1.1586	1.5474	1.9840	-2.95	-25.12	28.21	-9.58	8.53
47.0	1.1218	1.5026	1.9322	-2.93	-25.34	28.59	-9.77	8.66
48.0	1.0864	1.4594	1.8821	-2.91	-25.56	28.97	-9.96	8.79
49.0	1.0522	1.4177	1.8337	-2.89	-25.78	29.34	-10.15	8.92
50.0	1.0194	1.3774	1.7867	-2.87	-25.99	29.71	-10.34	9.05
51.0	0.9878	1.3385	1.7412	-2.86	-26.20	30.09	-10.54	9.18
52.0	0.9573	1.3010	1.6972	-2.84	-26.41	30.46	-10.73	9.31
53.0	0.9280	1.2647	1.6545	-2.82	-26.62	30.83	-10.93	9.44
54.0	0.8998	1.2296	1.6132	-2.80	-26.83	31.19	-11.13	9.57
55.0	0.8725	1.1957	1.5731	-2.79	-27.03	31.56	-11.33	9.70
56.0	0.8463	1.1630	1.5343	-2.77	-27.23	31.93	-11.53	9.83
57.0	0.8209	1.1313	1.4966	-2.75	-27.43	32.29	-11.73	9.97
58.0	0.7965	1.1007	1.4601	-2.74	-27.63	32.66	-11.94	10.10
59.0	0.7730	1.0711	1.4247	-2.72	-27.83	33.02	-12.14	10.23
60.0	0.7503	1.0424	1.3904	-2.70	-28.02	33.38	-12.35	10.37
61.0	0.7284	1.0147	1.3571	-2.69	-28.22	33.74	-12.56	10.50
62.0	0.7072	0.9879	1.3247	-2.67	-28.41	34.10	-12.77	10.64
63.0	0.6868	0.9619	1.2934	-2.66	-28.60	34.46	-12.98	10.77
64.0	0.6671	0.9368	1.2629	-2.64	-28.79	34.81	-13.19	10.91
65.0	0.6481	0.9125	1.2333	-2.62	-28.98	35.17	-13.40	11.04
66.0	0.6297	0.8889	1.2046	-2.61	-29.16	35.52	-13.62	11.18
67.0	0.6119	0.8661	1.1768	-2.59	-29.35	35.87	-13.84	11.32
68.0	0.5948	0.8440	1.1497	-2.58	-29.53	36.23	-14.05	11.45
69.0	0.5782	0.8226	1.1234	-2.56	-29.71	36.58	-14.27	11.59
70.0	0.5622	0.8018	1.0979	-2.55	-29.89	36.93	-14.49	11.73
71.0	0.5467	0.7817	1.0731	-2.53	-30.07	37.27	-14.72	11.87
72.0	0.5317	0.7622	1.0489	-2.52	-30.24	37.62	-14.94	12.01



73.0	0.5172	0.7433	1.0255	-2.50	-30.42	37.97	-15.16	12.15
74.0	0.5032	0.7250	1.0027	-2.49	-30.59	38.31	-15.39	12.29
75.0	0.4896	0.7072	0.9806	-2.48	-30.76	38.66	-15.62	12.43
76.0	0.4765	0.6899	0.9590	-2.46	-30.93	39.00	-15.85	12.57
77.0	0.4638	0.6732	0.9381	-2.45	-31.10	39.34	-16.08	12.71
78.0	0.4515	0.6570	0.9177	-2.43	-31.27	39.68	-16.31	12.85
79.0	0.4396	0.6412	0.8979	-2.42	-31.44	40.02	-16.54	12.99
80.0	0.4281	0.6260	0.8786	-2.41	-31.60	40.36	-16.78	13.14
81.0	0.4170	0.6111	0.8598	-2.39	-31.77	40.70	-17.01	13.28
82.0	0.4062	0.5967	0.8416	-2.38	-31.93	41.03	-17.25	13.42
83.0	0.3957	0.5827	0.8238	-2.37	-32.09	41.37	-17.49	13.57
84.0	0.3856	0.5692	0.8065	-2.35	-32.25	41.70	-17.73	13.71
85.0	0.3758	0.5560	0.7896	-2.34	-32.41	42.03	-17.97	13.86
86.0	0.3663	0.5431	0.7732	-2.33	-32.57	42.36	-18.21	14.00
87.0	0.3570	0.5307	0.7573	-2.31	-32.72	42.70	-18.46	14.15
88.0	0.3481	0.5186	0.7417	-2.30	-32.88	43.02	-18.70	14.29
89.0	0.3394	0.5068	0.7266	-2.29	-33.03	43.35	-18.95	14.44
90.0	0.3310	0.4954	0.7118	-2.27	-33.19	43.68	-19.20	14.59
91.0	0.3228	0.4843	0.6974	-2.26	-33.34	44.01	-19.45	14.73
92.0	0.3149	0.4735	0.6834	-2.25	-33.49	44.33	-19.70	14.88
93.0	0.3072	0.4630	0.6697	-2.24	-33.64	44.66	-19.96	15.03
94.0	0.2998	0.4528	0.6564	-2.23	-33.78	44.98	-20.21	15.18
95.0	0.2926	0.4428	0.6434	-2.21	-33.93	45.30	-20.47	15.33
96.0	0.2855	0.4331	0.6308	-2.20	-34.08	45.62	-20.72	15.48
97.0	0.2787	0.4237	0.6184	-2.19	-34.22	45.94	-20.98	15.63
98.0	0.2721	0.4146	0.6064	-2.18	-34.36	46.26	-21.24	15.78
99.0	0.2657	0.4057	0.5946	-2.17	-34.51	46.58	-21.50	15.93
100.0	0.2595	0.3970	0.5832	-2.15	-34.65	46.90	-21.77	16.08
101.0	0.2534	0.3886	0.5720	-2.14	-34.79	47.21	-22.03	16.23
102.0	0.2475	0.3804	0.5611	-2.13	-34.93	47.53	-22.30	16.39
103.0	0.2418	0.3724	0.5505	-2.12	-35.07	47.84	-22.56	16.54
104.0	0.2362	0.3646	0.5401	-2.11	-35.20	48.15	-22.83	16.69
105.0	0.2308	0.3570	0.5300	-2.10	-35.34	48.47	-23.10	16.84
106.0	0.2256	0.3496	0.5201	-2.09	-35.47	48.78	-23.37	17.00
107.0	0.2205	0.3424	0.5104	-2.08	-35.61	49.09	-23.65	17.15
108.0	0.2155	0.3354	0.5010	-2.07	-35.74	49.40	-23.92	17.31
109.0	0.2107	0.3285	0.4918	-2.05	-35.87	49.70	-24.20	17.46
110.0	0.2060	0.3219	0.4828	-2.04	-36.01	50.01	-24.47	17.62
111.0	0.2014	0.3154	0.4741	-2.03	-36.14	50.32	-24.75	17.78
112.0	0.1970	0.3090	0.4655	-2.02	-36.26	50.62	-25.03	17.93
113.0	0.1926	0.3029	0.4571	-2.01	-36.39	50.93	-25.31	18.09



114.0	0.1884	0.2969	0.4489	-2.00	-36.52	51.23	-25.60	18.25
115.0	0.1843	0.2910	0.4409	-1.99	-36.65	51.53	-25.88	18.41
116.0	0.1804	0.2853	0.4331	-1.98	-36.77	51.83	-26.17	18.56
117.0	0.1765	0.2797	0.4255	-1.97	-36.90	52.13	-26.45	18.72
118.0	0.1727	0.2742	0.4180	-1.96	-37.02	52.43	-26.74	18.88
119.0	0.1690	0.2689	0.4107	-1.95	-37.14	52.73	-27.03	19.04
120.0	0.1655	0.2637	0.4036	-1.94	-37.27	53.03	-27.32	19.20
121.0	0.1620	0.2587	0.3966	-1.93	-37.39	53.33	-27.62	19.36
122.0	0.1586	0.2538	0.3898	-1.92	-37.51	53.62	-27.91	19.52
123.0	0.1553	0.2489	0.3832	-1.91	-37.63	53.92	-28.21	19.69
124.0	0.1520	0.2442	0.3766	-1.90	-37.75	54.21	-28.50	19.85
125.0	0.1489	0.2396	0.3703	-1.89	-37.87	54.50	-28.80	20.01
126.0	0.1458	0.2352	0.3640	-1.88	-37.98	54.79	-29.10	20.17
127.0	0.1429	0.2308	0.3579	-1.87	-38.10	55.09	-29.40	20.34
128.0	0.1400	0.2265	0.3520	-1.86	-38.21	55.38	-29.71	20.50
129.0	0.1371	0.2223	0.3461	-1.85	-38.33	55.66	-30.01	20.66
130.0	0.1344	0.2183	0.3404	-1.85	-38.44	55.95	-30.32	20.83
131.0	0.1317	0.2143	0.3348	-1.84	-38.56	56.24	-30.62	20.99
132.0	0.1290	0.2104	0.3293	-1.83	-38.67	56.53	-30.93	21.16
133.0	0.1265	0.2066	0.3240	-1.82	-38.78	56.81	-31.24	21.33
134.0	0.1240	0.2029	0.3187	-1.81	-38.89	57.10	-31.55	21.49
135.0	0.1215	0.1993	0.3136	-1.80	-39.00	57.38	-31.87	21.66
136.0	0.1192	0.1957	0.3086	-1.79	-39.11	57.66	-32.18	21.83
137.0	0.1168	0.1922	0.3036	-1.78	-39.22	57.95	-32.50	22.00
138.0	0.1146	0.1888	0.2988	-1.77	-39.33	58.23	-32.81	22.16
139.0	0.1124	0.1855	0.2941	-1.77	-39.44	58.51	-33.13	22.33
140.0	0.1102	0.1823	0.2895	-1.76	-39.54	58.79	-33.45	22.50
141.0	0.1081	0.1791	0.2849	-1.75	-39.65	59.07	-33.78	22.67
142.0	0.1061	0.1760	0.2805	-1.74	-39.75	59.34	-34.10	22.84
143.0	0.1040	0.1730	0.2761	-1.73	-39.86	59.62	-34.42	23.01
144.0	0.1021	0.1700	0.2719	-1.72	-39.96	59.90	-34.75	23.18
145.0	0.1002	0.1671	0.2677	-1.72	-40.06	60.17	-35.08	23.35
146.0	0.0983	0.1643	0.2636	-1.71	-40.17	60.45	-35.41	23.53
147.0	0.0965	0.1615	0.2596	-1.70	-40.27	60.72	-35.74	23.70
148.0	0.0947	0.1588	0.2557	-1.69	-40.37	60.99	-36.07	23.87
149.0	0.0930	0.1562	0.2518	-1.68	-40.47	61.26	-36.40	24.05
150.0	0.0913	0.1536	0.2480	-1.68	-40.57	61.54	-36.73	24.22
151.0	0.0896	0.1510	0.2443	-1.67	-40.67	61.81	-37.07	24.39
152.0	0.0880	0.1485	0.2407	-1.66	-40.77	62.07	-37.41	24.57
153.0	0.0864	0.1461	0.2372	-1.65	-40.87	62.34	-37.75	24.74



154.0	0.0848	0.1437	0.2337	-1.64	-40.96	62.61	-38.09	24.92
155.0	0.0833	0.1414	0.2302	-1.64	-41.06	62.88	-38.43	25.10
156.0	0.0818	0.1391	0.2269	-1.63	-41.16	63.14	-38.77	25.27
157.0	0.0804	0.1368	0.2236	-1.62	-41.25	63.41	-39.12	25.45
158.0	0.0790	0.1346	0.2204	-1.61	-41.35	63.67	-39.46	25.63
159.0	0.0776	0.1325	0.2172	-1.61	-41.44	63.94	-39.81	25.80
160.0	0.0762	0.1304	0.2141	-1.60	-41.53	64.20	-40.16	25.98
161.0	0.0749	0.1283	0.2110	-1.59	-41.63	64.46	-40.51	26.16
162.0	0.0736	0.1263	0.2080	-1.58	-41.72	64.72	-40.86	26.34
163.0	0.0723	0.1243	0.2051	-1.58	-41.81	64.98	-41.22	26.52
164.0	0.0711	0.1224	0.2022	-1.57	-41.90	65.24	-41.57	26.70
165.0	0.0699	0.1205	0.1994	-1.56	-41.99	65.50	-41.93	26.88
166.0	0.0687	0.1186	0.1966	-1.56	-42.09	65.76	-42.29	27.06
167.0	0.0675	0.1168	0.1939	-1.55	-42.18	66.02	-42.65	27.24
168.0	0.0664	0.1150	0.1912	-1.54	-42.26	66.27	-43.01	27.43
169.0	0.0653	0.1132	0.1886	-1.53	-42.35	66.53	-43.37	27.61
170.0	0.0642	0.1115	0.1860	-1.53	-42.44	66.79	-43.73	27.79
171.0	0.0631	0.1098	0.1835	-1.52	-42.53	67.04	-44.10	27.97
172.0	0.0621	0.1082	0.1810	-1.51	-42.62	67.29	-44.46	28.16
173.0	0.0611	0.1066	0.1785	-1.51	-42.70	67.55	-44.83	28.34
174.0	0.0601	0.1050	0.1761	-1.50	-42.79	67.80	-45.20	28.53
175.0	0.0591	0.1034	0.1738	-1.49	-42.87	68.05	-45.57	28.71
176.0	0.0581	0.1019	0.1715	-1.49	-42.96	68.30	-45.94	28.90
177.0	0.0572	0.1004	0.1692	-1.48	-43.04	68.55	-46.32	29.08
178.0	0.0563	0.0989	0.1670	-1.47	-43.13	68.80	-46.69	29.27
179.0	0.0553	0.0975	0.1648	-1.47	-43.21	69.05	-47.07	29.46
180.0	0.0545	0.0960	0.1626	-1.46	-43.29	69.30	-47.45	29.65