

852 27392396

ATTN: PAUL LIAI

SEMITEC HK

From: EMILY CHAN

JAN. 21, 1999 [ DATA FOR REFERENCE ]

103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number 103AT  
 Resistance 10.00kΩ at 25 °C, 7-7, KINSHI 1-CHOME,  
 Resistance Tolerance ± 1%  
 B Value 3435K at 25/85 °C TEL (3) 3621-2704  
 B Value Tolerance ± 1% FAX (3) 3623-7776

Ishizuka Electronics Corp.  
 7-7, KINSHI 1-CHOME,  
 SUMIDA-KU, TOKYO 130 JAPAN

Temp. (°C)	Rmax. (kΩ)	Rst. (kΩ)	Rmin. (kΩ)	Tolerance (°C)
-5	34.66	33.90	33.15	+0.6
-4.9	34.50	33.75	33.01	+0.6
-4.8	34.35	33.60	32.86	+0.6
-4.7	34.20	33.45	32.72	+0.6
-4.6	34.05	33.31	32.58	+0.6
-4.5	33.89	33.16	32.44	+0.6
-4.4	33.74	33.01	32.30	+0.6
-4.3	33.59	32.87	32.15	+0.5
-4.2	33.45	32.72	32.02	+0.5
-4.1	33.30	32.58	31.88	+0.5
-4	33.15	32.44	31.74	+0.5
-3.9	33.00	32.30	31.60	+0.5
-3.8	32.86	32.15	31.46	+0.5
-3.7	32.71	32.01	31.33	+0.5
-3.6	32.57	31.87	31.19	+0.5
-3.5	32.42	31.73	31.06	+0.5
-3.4	32.28	31.60	30.92	+0.5
-3.3	32.14	31.46	30.79	+0.5
-3.2	32.00	31.32	30.66	+0.5
-3.1	31.86	31.19	30.52	+0.5
-3	31.72	31.05	30.39	+0.5
-2.9	31.58	30.91	30.26	+0.5
-2.8	31.44	30.78	30.13	+0.5
-2.7	31.30	30.65	30.00	+0.5
-2.6	31.16	30.51	29.87	+0.5
-2.5	31.03	30.38	29.75	+0.5
-2.4	30.89	30.25	29.62	+0.5
-2.3	30.76	30.12	29.49	+0.5
-2.2	30.62	29.99	29.36	+0.5
-2.1	30.49	29.86	29.24	+0.5
-2	30.36	29.73	29.11	+0.5
-1.9	30.22	29.60	28.99	+0.5
-1.8	30.09	29.47	28.87	+0.5
-1.7	29.96	29.35	28.74	+0.5
-1.6	29.83	29.22	28.62	+0.5
-1.5	29.70	29.10	28.50	+0.5
-1.4	29.57	28.97	28.38	+0.5
-1.3	29.44	28.85	28.26	+0.5
-1.2	29.32	28.72	28.14	+0.5
-1.1	29.19	28.60	28.02	+0.5
-1	29.06	28.48	27.90	+0.5
-0.9	28.94	28.35	27.78	+0.5
-0.8	28.81	28.23	27.66	+0.5
-0.7	28.69	28.11	27.55	+0.5
-0.6	28.56	27.99	27.43	+0.5
-0.5	28.44	27.87	27.31	+0.5
-0.4	28.32	27.75	27.20	+0.5
-0.3	28.20	27.64	27.08	+0.5
-0.2	28.08	27.52	26.97	+0.5
-0.1	27.95	27.40	26.85	+0.5
0	27.83	27.28	26.74	+0.5

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## JAN. 21, 1999 [ DATA FOR REFERENCE ]

## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number 103AT  
 Resistance 10.00k $\Omega$  at 25 $^{\circ}$ C:7-7,KINSHI 1-CHOME,  
 Resistance Tolerance  $\pm$  1% SUMIDA-KU,TOKYO 130 JAPAN  
 B Value 3435K at 25/85 $^{\circ}$ C TEL (3) 3621-2704  
 B Value Tolerance  $\pm$  1% FAX (3) 3623-7776

Temp. ( $^{\circ}$ C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	Tolerance ( $^{\circ}$ C)
0	27.83	27.28	26.74	-0.5 + 0.5
0.1	27.72	27.17	26.63	-0.5 + 0.5
0.2	27.59	27.05	26.51	-0.5 + 0.5
0.3	27.47	26.93	26.40	-0.5 + 0.5
0.4	27.35	26.82	26.29	-0.5 + 0.5
0.5	27.23	26.70	26.17	-0.5 + 0.5
0.6	27.11	26.58	26.06	-0.5 + 0.5
0.7	27.00	26.47	25.95	-0.5 + 0.5
0.8	26.88	26.36	25.84	-0.5 + 0.5
0.9	26.76	26.24	25.73	-0.5 + 0.5
1	26.65	26.13	25.62	-0.5 + 0.5
1.1	26.53	26.02	25.51	-0.5 + 0.5
1.2	26.42	25.91	25.40	-0.5 + 0.5
1.3	26.30	25.80	25.30	-0.5 + 0.5
1.4	26.19	25.69	25.19	-0.5 + 0.5
1.5	26.07	25.58	25.08	-0.5 + 0.5
1.6	25.96	25.47	24.98	-0.5 + 0.5
1.7	25.85	25.36	24.87	-0.5 + 0.5
1.8	25.74	25.25	24.77	-0.5 + 0.5
1.9	25.63	25.14	24.66	-0.5 + 0.5
2	25.52	25.03	24.56	-0.5 + 0.5
2.1	25.41	24.93	24.45	-0.5 + 0.5
2.2	25.30	24.82	24.35	-0.5 + 0.5
2.3	25.19	24.72	24.25	-0.5 + 0.5
2.4	25.08	24.61	24.15	-0.5 + 0.5
2.5	24.97	24.51	24.04	-0.5 + 0.5
2.6	24.87	24.40	23.94	-0.5 + 0.5
2.7	24.76	24.30	23.84	-0.5 + 0.5
2.8	24.65	24.20	23.74	-0.5 + 0.5
2.9	24.55	24.09	23.64	-0.5 + 0.5
3	24.44	23.99	23.54	-0.5 + 0.5
3.1	24.34	23.89	23.45	-0.5 + 0.5
3.2	24.23	23.79	23.35	-0.5 + 0.5
3.3	24.13	23.69	23.25	-0.5 + 0.5
3.4	24.03	23.59	23.15	-0.5 + 0.5
3.5	23.93	23.49	23.06	-0.5 + 0.5
3.6	23.82	23.39	22.96	-0.5 + 0.5
3.7	23.72	23.29	22.86	-0.5 + 0.5
3.8	23.62	23.19	22.77	-0.5 + 0.5
3.9	23.52	23.09	22.67	-0.5 + 0.5
4	23.42	23.00	22.58	-0.5 + 0.5
4.1	23.32	22.90	22.49	-0.5 + 0.5
4.2	23.22	22.80	22.40	-0.5 + 0.5
4.3	23.13	22.71	22.30	-0.5 + 0.5
4.4	23.03	22.61	22.21	-0.5 + 0.5
4.5	22.93	22.52	22.11	-0.5 + 0.5
4.6	22.83	22.43	22.02	-0.5 + 0.5
4.7	22.74	22.33	21.93	-0.5 + 0.5
4.8	22.64	22.24	21.84	-0.5 + 0.5
4.9	22.55	22.15	21.75	-0.5 + 0.5
5	22.45	22.05	21.66	-0.5 + 0.5

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## [ DATA FOR REFERENCE ]

## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00k $\Omega$ 

at 25 °C

± 1 %

Ishizuka Electronics Corp.

Resistance Tolerance

± 1 %

SUMIDA-KU, TOKYO 130, JAPAN

B Value

3435K

at 25/85 °C

TEL (3) 3621-2704

B Value Tolerance

± 1 %

FAX (3) 3623-7776

Temp. (°C)	R <sub>max.</sub> (k $\Omega$ )	R <sub>st.</sub> (k $\Omega$ )	R <sub>min.</sub> (k $\Omega$ )	Tolerance (°C)
5	22.45	22.05	21.66	-0.5
5.1	22.36	21.96	21.57	+0.5
5.2	22.26	21.87	21.48	+0.5
5.3	22.17	21.78	21.39	+0.5
5.4	22.07	21.69	21.31	+0.5
5.5	21.98	21.60	21.22	+0.5
5.6	21.89	21.51	21.13	+0.5
5.7	21.80	21.42	21.04	+0.5
5.8	21.71	21.33	20.96	+0.5
5.9	21.62	21.24	20.87	+0.5
6	21.53	21.15	20.79	+0.5
6.1	21.44	21.07	20.70	+0.5
6.2	21.35	20.98	20.62	+0.5
6.3	21.26	20.89	20.53	+0.5
6.4	21.17	20.81	20.45	+0.5
6.5	21.08	20.72	20.36	+0.5
6.6	20.99	20.63	20.28	+0.5
6.7	20.90	20.55	20.20	+0.5
6.8	20.82	20.46	20.11	+0.5
6.9	20.73	20.38	20.03	+0.5
7	20.64	20.30	19.95	+0.5
7.1	20.56	20.21	19.87	+0.5
7.2	20.47	20.13	19.79	+0.5
7.3	20.39	20.05	19.71	+0.5
7.4	20.30	19.96	19.63	+0.5
7.5	20.22	19.88	19.55	+0.5
7.6	20.14	19.80	19.47	+0.5
7.7	20.05	19.72	19.39	+0.5
7.8	19.97	19.64	19.31	+0.5
7.9	19.89	19.56	19.23	+0.5
8	19.81	19.48	19.16	+0.5
8.1	19.72	19.40	19.08	+0.5
8.2	19.64	19.32	19.00	+0.5
8.3	19.56	19.24	18.93	+0.5
8.4	19.48	19.16	18.85	+0.5
8.5	19.40	19.09	18.77	+0.5
8.6	19.32	19.01	18.70	+0.5
8.7	19.24	18.93	18.62	+0.5
8.8	19.16	18.85	18.55	+0.5
8.9	19.08	18.78	18.47	+0.5
9	19.01	18.70	18.40	+0.5
9.1	18.93	18.63	18.32	+0.5
9.2	18.85	18.55	18.25	+0.5
9.3	18.77	18.47	18.18	+0.5
9.4	18.70	18.40	18.11	+0.5
9.5	18.62	18.33	18.03	+0.5
9.6	18.55	18.25	17.96	+0.5
9.7	18.47	18.18	17.89	+0.5
9.8	18.39	18.10	17.82	+0.5
9.9	18.32	18.03	17.75	+0.5
10	18.25	17.96	17.68	+0.5

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## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00 k $\Omega$  at 25  $^{\circ}$ C

Ishizuka Electronics Corp.

Resistance Tolerance

 $\pm 1\%$ 

7-7, KINSHI 1-CHOME,

B Value

3435K at 25/85  $^{\circ}$ C

SUMIDA-KU, TOKYO 130 JAPAN

B Value Tolerance

 $\pm 1\%$ 

TEL (3) 3621-2704

FAX (3) 3623-7776

Temp. ( $^{\circ}$ C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	Tolerance ( $^{\circ}$ C)
10	18.25	17.96	17.68	-0.4
10.1	18.17	17.89	17.61	+0.4
10.2	18.09	17.81	17.53	+0.4
10.3	18.02	17.74	17.46	+0.4
10.4	17.95	17.67	17.39	+0.4
10.5	17.87	17.60	17.32	+0.4
10.6	17.80	17.52	17.25	+0.4
10.7	17.73	17.45	17.18	+0.4
10.8	17.65	17.38	17.11	+0.4
10.9	17.58	17.31	17.04	+0.4
11	17.51	17.24	16.98	+0.4
11.1	17.44	17.17	16.91	+0.4
11.2	17.37	17.10	16.84	+0.4
11.3	17.29	17.03	16.77	+0.4
11.4	17.22	16.96	16.70	+0.4
11.5	17.15	16.89	16.64	+0.4
11.6	17.08	16.83	16.57	+0.4
11.7	17.01	16.76	16.50	+0.4
11.8	16.94	16.69	16.44	+0.4
11.9	16.87	16.62	16.37	+0.4
12	16.81	16.56	16.31	+0.4
12.1	16.74	16.49	16.24	+0.4
12.2	16.67	16.42	16.18	+0.4
12.3	16.60	16.36	16.11	+0.4
12.4	16.53	16.29	16.05	+0.4
12.5	16.47	16.23	15.99	+0.4
12.6	16.40	16.16	15.92	+0.4
12.7	16.33	16.10	15.86	+0.4
12.8	16.27	16.03	15.80	+0.4
12.9	16.20	15.97	15.73	+0.4
13	16.14	15.90	15.67	+0.4
13.1	16.07	15.84	15.61	+0.4
13.2	16.01	15.78	15.55	+0.4
13.3	15.94	15.71	15.49	+0.4
13.4	15.88	15.65	15.42	+0.4
13.5	15.81	15.59	15.36	+0.4
13.6	15.75	15.53	15.30	+0.4
13.7	15.69	15.46	15.24	+0.4
13.8	15.62	15.40	15.18	+0.4
13.9	15.56	15.34	15.12	+0.4
14	15.50	15.28	15.06	+0.4
14.1	15.44	15.22	15.00	+0.4
14.2	15.37	15.16	14.94	+0.4
14.3	15.31	15.10	14.89	+0.4
14.4	15.25	15.04	14.83	+0.4
14.5	15.19	14.98	14.77	+0.4
14.6	15.13	14.92	14.71	+0.4
14.7	15.07	14.86	14.65	+0.4
14.8	15.01	14.80	14.60	+0.4
14.9	14.95	14.74	14.54	+0.4
15	14.89	14.69	14.48	+0.4

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JAN. 21, 1999

## [ DATA FOR REFERENCE ]

## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00k $\Omega$  at 25 $^{\circ}$ C:7-7,KINSHI 1-CHOME,

Resistance Tolerance

SUMIDA-KU,TOKYO 130 JAPAN

B Value

3435K at 25/85 $^{\circ}$ C TEL (3) 3621-2704

B Value Tolerance

 $\pm 1\%$  FAX (3) 3623-7776

Temp. ( $^{\circ}$ C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	Tolerance ( $^{\circ}$ C)
15	14.89	14.69	14.48	-0.4
15.1	14.83	14.63	14.43	+0.4
15.2	14.77	14.57	14.37	+0.4
15.3	14.71	14.51	14.31	+0.4
15.4	14.65	14.46	14.26	+0.4
15.5	14.60	14.40	14.20	+0.4
15.6	14.54	14.34	14.15	+0.4
15.7	14.48	14.29	14.15	+0.4
15.8	14.42	14.23	14.09	+0.4
15.9	14.37	14.17	14.04	+0.4
16	14.31	14.12	13.98	+0.4
16.1	14.25	14.06	13.93	+0.4
16.2	14.20	14.01	13.87	+0.4
16.3	14.14	13.95	13.82	+0.4
16.4	14.08	13.90	13.77	+0.4
16.5	14.03	13.84	13.71	+0.4
16.6	13.97	13.79	13.66	+0.4
16.7	13.92	13.74	13.61	+0.4
16.8	13.86	13.68	13.56	+0.4
16.9	13.81	13.63	13.50	+0.4
17	13.75	13.58	13.45	+0.4
17.1	13.70	13.52	13.40	+0.4
17.2	13.65	13.47	13.35	+0.4
17.3	13.59	13.42	13.30	+0.4
17.4	13.54	13.37	13.24	+0.4
17.5	13.49	13.31	13.19	+0.4
17.6	13.43	13.26	13.14	+0.4
17.7	13.38	13.21	13.09	+0.4
17.8	13.33	13.16	13.04	+0.4
17.9	13.28	13.11	12.99	+0.4
18	13.22	13.06	12.94	+0.4
18.1	13.17	13.01	12.89	+0.4
18.2	13.12	12.96	12.84	+0.4
18.3	13.07	12.91	12.79	+0.4
18.4	13.02	12.86	12.75	+0.4
18.5	12.97	12.81	12.70	+0.4
18.6	12.92	12.76	12.65	+0.4
18.7	12.87	12.71	12.60	+0.4
18.8	12.82	12.66	12.55	+0.4
18.9	12.77	12.61	12.50	+0.4
19	12.72	12.56	12.46	+0.4
19.1	12.67	12.52	12.41	+0.4
19.2	12.62	12.47	12.36	+0.4
19.3	12.57	12.42	12.32	+0.4
19.4	12.52	12.37	12.27	+0.4
19.5	12.47	12.32	12.22	+0.4
19.6	12.43	12.28	12.18	+0.4
19.7	12.38	12.23	12.13	+0.4
19.8	12.33	12.18	12.08	+0.4
19.9	12.28	12.14	12.04	+0.4
20	12.24	12.09	11.99	+0.4
		12.09	11.95	+0.4

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JAN. 21, 1999 [ DATA FOR REFERENCE ]

# 103AT-2

## TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance 10.00k $\Omega$  at 25 °C: 7-7, KINSHI 1-CHOME,

Ishizuka Electronics Corp.

Resistance Tolerance  $\pm 1\%$

B Value 3435K at 25/85 °C TEL (3) 3621-2704

B Value Tolerance  $\pm 1\%$  FAX (3) 3623-7776

Temp. (°C)	R <sub>max.</sub> (k $\Omega$ )	R <sub>st.</sub> (k $\Omega$ )	R <sub>min.</sub> (k $\Omega$ )	Tolerance (°C)
20	12.24	12.09	11.95	-0.4
20.1	12.19	12.04	11.90	+0.4
20.2	12.14	12.00	11.86	-0.4
20.3	12.09	11.95	11.81	+0.4
20.4	12.05	11.91	11.77	-0.4
20.5	12.00	11.86	11.72	+0.4
20.6	11.95	11.81	11.68	-0.4
20.7	11.91	11.77	11.63	+0.4
20.8	11.86	11.72	11.59	-0.4
20.9	11.81	11.68	11.54	+0.4
21	11.77	11.63	11.50	-0.3
21.1	11.72	11.59	11.46	+0.4
21.2	11.68	11.55	11.41	-0.3
21.3	11.63	11.50	11.37	+0.4
21.4	11.59	11.46	11.33	-0.3
21.5	11.54	11.41	11.28	+0.3
21.6	11.50	11.37	11.24	-0.3
21.7	11.45	11.33	11.20	+0.3
21.8	11.41	11.28	11.16	-0.3
21.9	11.37	11.24	11.12	+0.3
22	11.32	11.20	11.07	-0.3
22.1	11.28	11.16	11.03	+0.3
22.2	11.24	11.11	10.99	-0.3
22.3	11.19	11.07	10.95	+0.3
22.4	11.15	11.03	10.91	-0.3
22.5	11.11	10.99	10.87	+0.3
22.6	11.06	10.95	10.83	-0.3
22.7	11.02	10.90	10.79	+0.3
22.8	10.98	10.86	10.75	-0.3
22.9	10.94	10.82	10.71	+0.3
23	10.90	10.78	10.66	-0.3
23.1	10.86	10.74	10.63	+0.3
23.2	10.81	10.70	10.59	-0.3
23.3	10.77	10.66	10.55	+0.3
23.4	10.73	10.62	10.51	-0.3
23.5	10.69	10.58	10.47	+0.3
23.6	10.65	10.54	10.43	-0.3
23.7	10.61	10.50	10.39	+0.3
23.8	10.57	10.46	10.35	-0.3
23.9	10.53	10.42	10.31	+0.3
24	10.49	10.38	10.27	-0.3
24.1	10.45	10.34	10.24	+0.3
24.2	10.41	10.30	10.20	-0.3
24.3	10.37	10.27	10.16	+0.3
24.4	10.33	10.23	10.12	-0.3
24.5	10.29	10.19	10.08	+0.3
24.6	10.25	10.15	10.05	-0.3
24.7	10.22	10.11	10.01	+0.3
24.8	10.18	10.08	9.97	-0.3
24.9	10.14	10.04	9.94	+0.3
25	10.10	10.00	9.90	-0.3

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## [ DATA FOR REFERENCE ]

## 103AT-2

## TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00k $\Omega$ 

Resistance Tolerance

 $\pm 1\%$ 

B Value

at 25 $^{\circ}$ C

1%

Ishizuka Electronics Corp.

SUMIDA-KU, TOKYO 130 JAPAN

B Value Tolerance

 $\pm 1\%$ at 25/85 $^{\circ}$ C

3621-2704

FAX (3) 3623-7776

Temp. ( $^{\circ}$ C)	R <sub>max.</sub> (k $\Omega$ )	R <sub>st.</sub> (k $\Omega$ )	R <sub>min.</sub> (k $\Omega$ )	Tolerance ( $^{\circ}$ C)
25	10.10	10.00	9.900	-0.3 + 0.3
25.1	10.06	9.963	9.863	-0.3 + 0.3
25.2	10.03	9.925	9.825	-0.3 + 0.3
25.3	9.988	9.888	9.788	-0.3 + 0.3
25.4	9.951	9.851	9.751	-0.3 + 0.3
25.5	9.914	9.814	9.714	-0.3 + 0.3
25.6	9.877	9.778	9.678	-0.3 + 0.3
25.7	9.841	9.741	9.641	-0.3 + 0.3
25.8	9.805	9.705	9.605	-0.3 + 0.3
25.9	9.768	9.668	9.569	-0.3 + 0.3
26	9.732	9.632	9.533	-0.3 + 0.3
26.1	9.696	9.597	9.497	-0.3 + 0.3
26.2	9.661	9.561	9.461	-0.3 + 0.3
26.3	9.625	9.525	9.425	-0.3 + 0.3
26.4	9.590	9.490	9.390	-0.3 + 0.3
26.5	9.554	9.455	9.355	-0.3 + 0.3
26.6	9.519	9.420	9.320	-0.3 + 0.3
26.7	9.484	9.385	9.285	-0.3 + 0.3
26.8	9.450	9.350	9.250	-0.3 + 0.3
26.9	9.415	9.315	9.215	-0.3 + 0.3
27	9.380	9.281	9.181	-0.3 + 0.3
27.1	9.346	9.246	9.147	-0.3 + 0.3
27.2	9.312	9.212	9.113	-0.3 + 0.3
27.3	9.278	9.178	9.079	-0.3 + 0.3
27.4	9.244	9.144	9.045	-0.3 + 0.3
27.5	9.210	9.110	9.011	-0.3 + 0.3
27.6	9.177	9.077	8.977	-0.3 + 0.3
27.7	9.143	9.043	8.944	-0.3 + 0.3
27.8	9.110	9.010	8.911	-0.3 + 0.3
27.9	9.077	8.977	8.878	-0.3 + 0.3
28	9.043	8.944	8.845	-0.3 + 0.3
28.1	9.011	8.911	8.812	-0.3 + 0.3
28.2	8.978	8.878	8.779	-0.3 + 0.3
28.3	8.945	8.846	8.747	-0.3 + 0.3
28.4	8.913	8.813	8.714	-0.3 + 0.3
28.5	8.880	8.781	8.682	-0.3 + 0.3
28.6	8.848	8.749	8.650	-0.3 + 0.3
28.7	8.816	8.717	8.618	-0.3 + 0.3
28.8	8.784	8.685	8.586	-0.3 + 0.3
28.9	8.752	8.653	8.554	-0.3 + 0.3
29	8.721	8.622	8.523	-0.3 + 0.3
29.1	8.689	8.590	8.491	-0.3 + 0.3
29.2	8.658	8.559	8.460	-0.3 + 0.3
29.3	8.627	8.528	8.429	-0.3 + 0.3
29.4	8.595	8.496	8.398	-0.3 + 0.3
29.5	8.564	8.466	8.367	-0.3 + 0.3
29.6	8.534	8.435	8.336	-0.3 + 0.3
29.7	8.503	8.404	8.306	-0.3 + 0.3
29.8	8.472	8.373	8.275	-0.3 + 0.3
29.9	8.442	8.343	8.245	-0.3 + 0.3
30	8.411	8.313	8.214	-0.3 + 0.3

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JAN. 21, 1999 [ DATA FOR REFERENCE ]

103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]  
103AT

Type Number  
Resistance  
Resistance Tolerance  
B Value  
B Value Tolerance

Ishizuka Electronics Corp.  
7-7, KINSHI 1-CHOME,  
SUMIDA-KU, TOKYO 130 JAPAN  
TEL (3) 3621-2704  
FAX (3) 3623-7776

10.00 k $\Omega$  at 25  $^{\circ}$ C  $\pm$  1 %  
3435 K at 25/85  $^{\circ}$ C  $\pm$  1 %

Temp. ( $^{\circ}$ C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	range ( $^{\circ}$ C)
30	8.411	8.313	8.214	-0.4
30.1	8.381	8.283	8.184	+0.4
30.2	8.351	8.252	8.154	+0.4
30.3	8.320	8.222	8.124	+0.4
30.4	8.290	8.192	8.094	+0.4
30.5	8.260	8.162	8.064	+0.4
30.6	8.230	8.132	8.034	+0.4
30.7	8.201	8.102	8.005	+0.4
30.8	8.171	8.073	7.975	+0.4
30.9	8.142	8.044	7.946	+0.4
31	8.112	8.014	7.917	+0.4
31.1	8.083	7.985	7.887	+0.4
31.2	8.054	7.956	7.859	+0.4
31.3	8.025	7.927	7.830	+0.4
31.4	7.996	7.898	7.801	+0.4
31.5	7.968	7.870	7.772	+0.4
31.6	7.939	7.841	7.744	+0.4
31.7	7.910	7.813	7.716	+0.4
31.8	7.882	7.785	7.687	+0.4
31.9	7.854	7.756	7.659	+0.4
32	7.826	7.728	7.631	+0.4
32.1	7.798	7.700	7.603	+0.4
32.2	7.770	7.673	7.576	+0.4
32.3	7.742	7.645	7.548	+0.4
32.4	7.714	7.617	7.521	+0.4
32.5	7.687	7.590	7.493	+0.4
32.6	7.659	7.563	7.466	+0.4
32.7	7.632	7.535	7.439	+0.4
32.8	7.605	7.508	7.412	+0.4
32.9	7.578	7.481	7.385	+0.4
33	7.551	7.454	7.358	+0.4
33.1	7.524	7.428	7.331	+0.4
33.2	7.497	7.401	7.305	+0.4
33.3	7.471	7.374	7.278	+0.4
33.4	7.444	7.348	7.252	+0.4
33.5	7.418	7.322	7.226	+0.4
33.6	7.392	7.295	7.200	+0.4
33.7	7.365	7.269	7.174	+0.4
33.8	7.339	7.243	7.148	+0.4
33.9	7.313	7.217	7.122	+0.4
34	7.288	7.192	7.096	+0.4
34.1	7.262	7.166	7.071	+0.4
34.2	7.236	7.141	7.045	+0.4
34.3	7.211	7.115	7.020	+0.4
34.4	7.185	7.090	6.995	+0.4
34.5	7.160	7.065	6.970	+0.4
34.6	7.135	7.039	6.945	+0.4
34.7	7.110	7.014	6.920	+0.4
34.8	7.085	6.990	6.895	+0.4
34.9	7.060	6.965	6.870	+0.4
35	7.035	6.940	6.846	+0.4

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## [ DATA FOR REFERENCE ]

## 103AT-2

## TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00k $\Omega$ 

Resistance Tolerance

 $\pm 1\%$ 

B Value

3435K

B Value Tolerance

 $\pm 1\%$ Ishizuka Electronics Corp.  
at 25 °C: 7-7, KINSHI 1-CHOME,  
SUMIDA-KU, TOKYO 130 JAPAN  
at 25/85 °C TEL (3) 3621-2704  
FAX (3) 3623-7776

Temp. (°C)	R <sub>max.</sub> (k $\Omega$ )	R <sub>st.</sub> (k $\Omega$ )	R <sub>min.</sub> (k $\Omega$ )	Tolerance (°C)
35	7.035	6.940	6.846	-0.4
35.1	7.010	6.915	6.821	+0.4
35.2	6.986	6.891	6.797	-0.4
35.3	6.961	6.867	6.772	+0.4
35.4	6.937	6.842	6.748	-0.4
35.5	6.913	6.818	6.724	+0.4
35.6	6.888	6.794	6.700	-0.4
35.7	6.864	6.770	6.676	+0.4
35.8	6.840	6.746	6.652	-0.4
35.9	6.817	6.722	6.629	+0.4
36	6.793	6.699	6.605	-0.4
36.1	6.769	6.675	6.582	+0.4
36.2	6.746	6.652	6.558	-0.4
36.3	6.722	6.628	6.535	+0.5
36.4	6.699	6.605	6.512	-0.4
36.5	6.675	6.582	6.489	+0.5
36.6	6.652	6.559	6.466	-0.5
36.7	6.629	6.536	6.443	+0.5
36.8	6.606	6.513	6.420	-0.5
36.9	6.583	6.490	6.397	+0.5
37	6.560	6.467	6.375	-0.5
37.1	6.538	6.445	6.352	+0.5
37.2	6.515	6.422	6.330	-0.5
37.3	6.492	6.400	6.307	+0.5
37.4	6.470	6.377	6.285	-0.5
37.5	6.448	6.355	6.263	+0.5
37.6	6.425	6.333	6.241	-0.5
37.7	6.403	6.311	6.219	+0.5
37.8	6.381	6.289	6.197	-0.5
37.9	6.359	6.267	6.175	+0.5
38	6.337	6.245	6.154	-0.5
38.1	6.315	6.223	6.132	+0.5
38.2	6.294	6.202	6.110	-0.5
38.3	6.272	6.180	6.089	+0.5
38.4	6.251	6.159	6.068	-0.5
38.5	6.229	6.137	6.046	+0.5
38.6	6.208	6.116	6.025	-0.5
38.7	6.186	6.095	6.004	+0.5
38.8	6.165	6.074	5.983	-0.5
38.9	6.144	6.053	5.962	+0.5
39	6.123	6.032	5.942	-0.5
39.1	6.102	6.011	5.921	+0.5
39.2	6.081	5.990	5.900	-0.5
39.3	6.061	5.970	5.880	+0.5
39.4	6.040	5.949	5.859	-0.5
39.5	6.019	5.929	5.839	+0.5
39.6	5.999	5.908	5.818	-0.5
39.7	5.978	5.888	5.798	+0.5
39.8	5.958	5.868	5.778	-0.5
39.9	5.938	5.847	5.758	+0.5
40	5.918	5.827	5.738	-0.5

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[ DATA FOR REFERENCE ]

103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number 103AT  
 Resistance 10.00 kΩ at 25 °C  
 Resistance Tolerance ± 1 %  
 B Value 3435K at 25/85 °C  
 B Value Tolerance ± 1 %

Ishizuka Electronics Corp.  
 7-7, KINSHI 1-CHOME,  
 SUMIDA-KU, TOKYO 130, JAPAN  
 TEL (3) 3621-2704  
 FAX (3) 3623-7776

Temp. (°C)	Rmax. (kΩ)	Rst. (kΩ)	Rmin. (kΩ)	range (°C)
40	5.918	5.827	5.738	-0.5
40.1	5.897	5.807	5.718	+0.5
40.2	5.877	5.787	5.698	+0.5
40.3	5.857	5.767	5.678	+0.5
40.4	5.837	5.747	5.658	+0.5
40.5	5.817	5.727	5.638	+0.5
40.6	5.797	5.707	5.619	+0.5
40.7	5.777	5.688	5.599	+0.5
40.8	5.757	5.668	5.579	+0.5
40.9	5.738	5.648	5.560	+0.5
41	5.718	5.629	5.541	+0.5
41.1	5.698	5.609	5.521	+0.5
41.2	5.679	5.590	5.502	+0.5
41.3	5.660	5.571	5.483	+0.5
41.4	5.640	5.552	5.464	+0.5
41.5	5.621	5.533	5.445	+0.5
41.6	5.602	5.514	5.426	+0.5
41.7	5.583	5.495	5.407	+0.5
41.8	5.564	5.476	5.388	+0.5
41.9	5.545	5.457	5.370	+0.5
42	5.526	5.438	5.351	+0.5
42.1	5.508	5.420	5.333	+0.5
42.2	5.489	5.401	5.314	+0.5
42.3	5.470	5.383	5.296	+0.5
42.4	5.452	5.364	5.278	+0.5
42.5	5.433	5.346	5.259	+0.5
42.6	5.415	5.328	5.241	+0.5
42.7	5.397	5.309	5.223	+0.5
42.8	5.378	5.291	5.205	+0.5
42.9	5.360	5.273	5.187	+0.5
43	5.342	5.255	5.169	+0.5
43.1	5.324	5.237	5.152	+0.5
43.2	5.306	5.220	5.134	+0.5
43.3	5.288	5.202	5.116	+0.5
43.4	5.271	5.184	5.099	+0.5
43.5	5.253	5.167	5.081	+0.5
43.6	5.235	5.149	5.064	+0.5
43.7	5.218	5.132	5.046	+0.5
43.8	5.200	5.114	5.029	+0.5
43.9	5.183	5.097	5.012	+0.5
44	5.165	5.080	4.995	+0.5
44.1	5.148	5.062	4.978	+0.5
44.2	5.131	5.045	4.961	+0.5
44.3	5.114	5.028	4.944	+0.5
44.4	5.096	5.011	4.927	+0.5
44.5	5.079	4.994	4.910	+0.5
44.6	5.063	4.978	4.894	+0.5
44.7	5.046	4.961	4.877	+0.5
44.8	5.029	4.944	4.860	+0.5
44.9	5.012	4.927	4.844	+0.5
45	4.995	4.911	4.827	+0.5

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## [ DATA FOR REFERENCE ]

## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00 k $\Omega$  at 25 °C-7, KINSHI 1-CHOME,

Resistance Tolerance

 $\pm 1\%$  SUMIDA-KU, TOKYO 130 JAPAN

B Value

3435K at 25/85 °C TEL (3) 3621-2704

B Value Tolerance

 $\pm 1\%$  FAX (3) 3623-7776

Ishizuka Electronics Corp.

Temp. (°C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	Tolerance (°C)
45	4.995	4.911	4.827	-0.6
45.1	4.979	4.894	4.811	+0.6
45.2	4.962	4.878	4.795	+0.6
45.3	4.946	4.861	4.778	+0.6
45.4	4.929	4.845	4.762	+0.6
45.5	4.913	4.829	4.746	+0.6
45.6	4.897	4.813	4.730	+0.6
45.7	4.880	4.797	4.714	+0.6
45.8	4.864	4.781	4.698	+0.6
45.9	4.848	4.765	4.682	+0.6
46	4.832	4.749	4.666	+0.6
46.1	4.816	4.733	4.651	+0.6
46.2	4.800	4.717	4.635	+0.6
46.3	4.784	4.701	4.619	+0.6
46.4	4.768	4.686	4.604	+0.6
46.5	4.753	4.670	4.588	+0.6
46.6	4.737	4.654	4.573	+0.6
46.7	4.721	4.639	4.557	+0.6
46.8	4.706	4.623	4.542	+0.6
46.9	4.690	4.608	4.527	+0.6
47	4.675	4.593	4.512	+0.6
47.1	4.660	4.578	4.496	+0.6
47.2	4.644	4.562	4.481	+0.6
47.3	4.629	4.547	4.466	+0.6
47.4	4.614	4.532	4.451	+0.6
47.5	4.599	4.517	4.437	+0.6
47.6	4.584	4.502	4.422	+0.6
47.7	4.569	4.487	4.407	+0.6
47.8	4.554	4.472	4.392	+0.6
47.9	4.539	4.458	4.378	+0.6
48	4.524	4.443	4.363	+0.6
48.1	4.509	4.428	4.348	+0.6
48.2	4.494	4.414	4.334	+0.6
48.3	4.480	4.399	4.320	+0.6
48.4	4.465	4.385	4.305	+0.6
48.5	4.451	4.370	4.291	+0.6
48.6	4.436	4.356	4.277	+0.6
48.7	4.422	4.342	4.262	+0.6
48.8	4.407	4.327	4.248	+0.6
48.9	4.393	4.313	4.234	+0.6
49	4.379	4.299	4.220	+0.6
49.1	4.365	4.285	4.206	+0.6
49.2	4.350	4.271	4.206	+0.6
49.3	4.336	4.257	4.192	+0.6
49.4	4.322	4.243	4.178	+0.6
49.5	4.308	4.229	4.165	+0.6
49.6	4.294	4.215	4.151	+0.6
49.7	4.280	4.201	4.137	+0.6
49.8	4.267	4.188	4.123	+0.6
49.9	4.253	4.174	4.110	+0.6
50	4.239	4.160	4.096	+0.6

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## [ DATA FOR REFERENCE ]

## 103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

10.00 k $\Omega$ 

Resistance Tolerance

 $\pm 1\%$ 

B Value

3435K

B Value Tolerance

 $\pm 1\%$ Ishizuka Electronics Corp.  
7-7, KINSHI 1-CHOME,SUMIDA-KU, TOKYO 130 JAPAN  
TEL (3) 3621-2704  
FAX (3) 3623-7776

Temp. (°C)	R <sub>max.</sub> (k $\Omega$ )	R <sub>st.</sub> (k $\Omega$ )	R <sub>min.</sub> (k $\Omega$ )	Tolerance (°C)
50	4.239	4.160	4.083	-0.6
50.1	4.225	4.147	4.069	+0.6
50.2	4.211	4.133	4.055	+0.6
50.3	4.198	4.119	4.042	+0.6
50.4	4.184	4.106	4.029	+0.6
50.5	4.170	4.092	4.015	+0.6
50.6	4.157	4.079	4.002	+0.6
50.7	4.143	4.066	3.989	+0.6
50.8	4.130	4.052	3.976	+0.6
50.9	4.116	4.039	3.962	+0.6
51	4.103	4.026	3.949	+0.6
51.1	4.090	4.012	3.936	+0.6
51.2	4.077	4.000	3.923	+0.6
51.3	4.063	3.999	3.923	+0.6
51.4	4.050	3.986	3.910	+0.6
51.5	4.037	3.973	3.897	+0.6
51.6	4.024	3.960	3.884	+0.6
51.7	4.011	3.947	3.872	+0.6
51.8	3.998	3.934	3.859	+0.6
51.9	3.985	3.922	3.846	+0.6
52	3.972	3.909	3.834	+0.6
52.1	3.959	3.896	3.821	+0.6
52.2	3.947	3.883	3.808	+0.6
52.3	3.934	3.871	3.796	+0.6
52.4	3.921	3.858	3.783	+0.7
52.5	3.909	3.846	3.771	+0.7
52.6	3.896	3.833	3.759	+0.7
52.7	3.884	3.821	3.746	+0.7
52.8	3.871	3.808	3.734	+0.7
52.9	3.859	3.796	3.722	+0.7
53	3.846	3.784	3.710	+0.7
53.1	3.834	3.771	3.697	+0.7
53.2	3.822	3.759	3.685	+0.7
53.3	3.810	3.747	3.673	+0.7
53.4	3.797	3.735	3.661	+0.7
53.5	3.785	3.723	3.649	+0.7
53.6	3.773	3.711	3.637	+0.7
53.7	3.761	3.699	3.626	+0.7
53.8	3.749	3.687	3.614	+0.7
53.9	3.737	3.675	3.602	+0.7
54	3.725	3.663	3.590	+0.7
54.1	3.713	3.651	3.579	+0.7
54.2	3.702	3.640	3.567	+0.7
54.3	3.690	3.628	3.555	+0.7
54.4	3.678	3.616	3.544	+0.7
54.5	3.666	3.605	3.532	+0.7
54.6	3.655	3.593	3.521	+0.7
54.7	3.643	3.582	3.510	+0.7
54.8	3.632	3.570	3.498	+0.7
54.9	3.620	3.559	3.487	+0.7
55	3.609	3.547	3.476	+0.7
		3.536	3.464	+0.7

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[ DATA FOR REFERENCE ]

103AT-2

TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number 103AT  
 Resistance 10.00kΩ at 25 °C  
 Resistance Tolerance ± 1 %  
 B Value 3435K at 25/85 °C  
 B Value Tolerance ± 1 %

Ishizuka Electronics Corp.  
 7-7, KINSHI 1-CHOME,  
 SUMIDA-KU, TOKYO 130 JAPAN  
 TEL (3) 3621-2704  
 FAX (3) 3623-7776

Temp. (°C)	Rmax. (kΩ)	Rst. (kΩ)	Rmin. (kΩ)	Tolerance (°C)
55	3.609	3.536	3.464	-0.7
55.1	3.597	3.525	3.453	+0.7
55.2	3.586	3.513	3.442	+0.7
55.3	3.575	3.502	3.431	+0.7
55.4	3.563	3.491	3.420	+0.7
55.5	3.552	3.480	3.409	+0.7
55.6	3.541	3.469	3.398	+0.7
55.7	3.530	3.458	3.387	+0.7
55.8	3.519	3.447	3.376	+0.7
55.9	3.507	3.436	3.365	+0.7
56	3.496	3.425	3.354	+0.7
56.1	3.485	3.414	3.344	+0.7
56.2	3.474	3.403	3.333	+0.7
56.3	3.464	3.392	3.322	+0.7
56.4	3.453	3.382	3.312	+0.7
56.5	3.442	3.371	3.301	+0.7
56.6	3.431	3.360	3.291	+0.7
56.7	3.420	3.350	3.280	+0.7
56.8	3.410	3.339	3.270	+0.7
56.9	3.399	3.328	3.259	+0.7
57	3.388	3.318	3.249	+0.7
57.1	3.378	3.307	3.238	+0.7
57.2	3.367	3.297	3.228	+0.7
57.3	3.357	3.287	3.218	+0.7
57.4	3.346	3.276	3.207	+0.7
57.5	3.336	3.266	3.197	+0.7
57.6	3.325	3.256	3.187	+0.7
57.7	3.315	3.245	3.177	+0.7
57.8	3.305	3.235	3.167	+0.7
57.9	3.294	3.225	3.157	+0.7
58	3.284	3.215	3.147	+0.7
58.1	3.274	3.205	3.137	+0.7
58.2	3.264	3.195	3.127	+0.7
58.3	3.254	3.185	3.117	+0.7
58.4	3.243	3.175	3.107	+0.7
58.5	3.233	3.165	3.097	+0.7
58.6	3.223	3.155	3.087	+0.7
58.7	3.213	3.145	3.078	+0.7
58.8	3.203	3.135	3.068	+0.7
58.9	3.194	3.125	3.058	+0.7
59	3.184	3.116	3.049	+0.7
59.1	3.174	3.106	3.039	+0.7
59.2	3.164	3.096	3.030	+0.7
59.3	3.154	3.087	3.020	+0.7
59.4	3.145	3.077	3.010	+0.7
59.5	3.135	3.067	3.001	+0.7
59.6	3.125	3.058	2.992	+0.7
59.7	3.116	3.048	2.982	+0.7
59.8	3.106	3.039	2.973	+0.7
59.9	3.096	3.029	2.964	+0.7
60	3.087	3.020	2.954	+0.7

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## [ DATA FOR REFERENCE ]

## 103AT-2

## TEMPERATURE VS RESISTANCE CHARACTERISTICS [ITS-90]

Type Number

103AT

Resistance

Ishizuka Electronics Corp.

Resistance Tolerance

10.00k $\Omega$  at 25 °C:7-7,KINSHI 1-CHOME,

B Value

SUMIDA-KU, TOKYO 130 JAPAN

B Value Tolerance

3435K at 25/85 °C TEL (3) 3621-2704

± 1 %  
± 1 % FAX (3) 3623-7776

Temp. (°C)	Rmax. (k $\Omega$ )	Rst. (k $\Omega$ )	Rmin. (k $\Omega$ )	Tolerance (°C)
60	3.087	3.020	2.954	-0.8
60.1	3.077	3.011	2.945	+0.8
60.2	3.068	3.001	2.936	+0.8
60.3	3.058	2.992	2.926	+0.8
60.4	3.049	2.982	2.917	+0.8
60.5	3.040	2.973	2.908	+0.8
60.6	3.030	2.964	2.899	+0.8
60.7	3.021	2.955	2.890	+0.8
60.8	3.011	2.945	2.881	+0.8
60.9	3.002	2.936	2.871	+0.8
61	2.993	2.927	2.862	+0.8
61.1	2.984	2.918	2.853	+0.8
61.2	2.975	2.909	2.845	+0.8
61.3	2.965	2.900	2.836	+0.8
61.4	2.956	2.891	2.827	+0.8
61.5	2.947	2.882	2.818	+0.8
61.6	2.938	2.873	2.809	+0.8
61.7	2.929	2.864	2.800	+0.8
61.8	2.920	2.855	2.792	+0.8
61.9	2.911	2.846	2.783	+0.8
62	2.902	2.838	2.774	+0.8
62.1	2.893	2.829	2.765	+0.8
62.2	2.885	2.820	2.757	+0.8
62.3	2.876	2.811	2.748	+0.8
62.4	2.867	2.803	2.740	+0.8
62.5	2.858	2.794	2.731	+0.8
62.6	2.850	2.786	2.723	+0.8
62.7	2.841	2.777	2.714	+0.8
62.8	2.832	2.768	2.706	+0.8
62.9	2.824	2.760	2.697	+0.8
63	2.815	2.751	2.689	+0.8
63.1	2.806	2.743	2.681	+0.8
63.2	2.798	2.735	2.672	+0.8
63.3	2.789	2.726	2.664	+0.8
63.4	2.781	2.718	2.656	+0.8
63.5	2.773	2.709	2.648	+0.8
63.6	2.764	2.701	2.639	+0.8
63.7	2.756	2.693	2.631	+0.8
63.8	2.747	2.685	2.623	+0.8
63.9	2.739	2.676	2.615	+0.8
64	2.731	2.668	2.607	+0.8
64.1	2.723	2.660	2.599	+0.8
64.2	2.714	2.652	2.591	+0.8
64.3	2.706	2.644	2.583	+0.8
64.4	2.698	2.636	2.575	+0.8
64.5	2.690	2.628	2.567	+0.8
64.6	2.682	2.620	2.559	+0.8
64.7	2.674	2.612	2.551	+0.8
64.8	2.666	2.604	2.543	+0.8
64.9	2.658	2.596	2.536	+0.8
65	2.650	2.588	2.528	+0.8

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