AT THERMISTOR

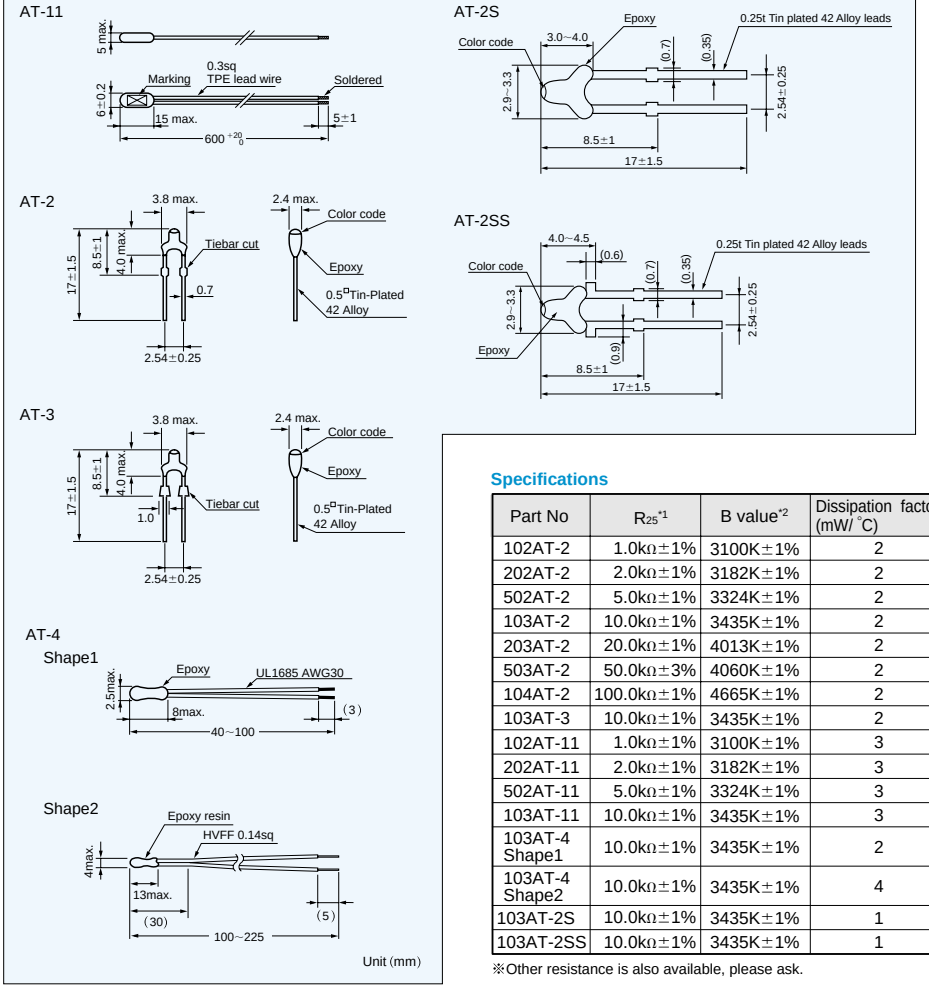
The AT thermistor is a high-precision thermal sensing device featuring extremely small B-value tolerance and resistance.
When used as a temperature gauge, the AT thermistor requires no adjustment between the control circuit and the sensor.
This insures temperature precision of ±0.3°C.
Temperature indicators and control instruments are now available for use with the thermistor.

Part number

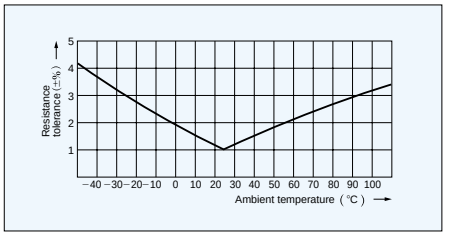
102 AT-2

- Shape
- High-precision AT thermistor
- Rated zero-power Resistance at 25°C 102 : 1(kΩ)

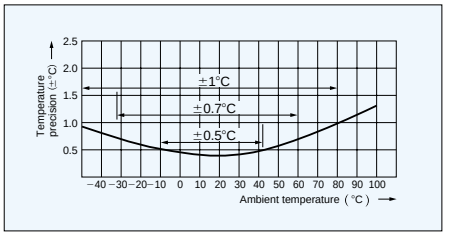
Dimensions



Resistance tolerance



Interchange precision



Specifications

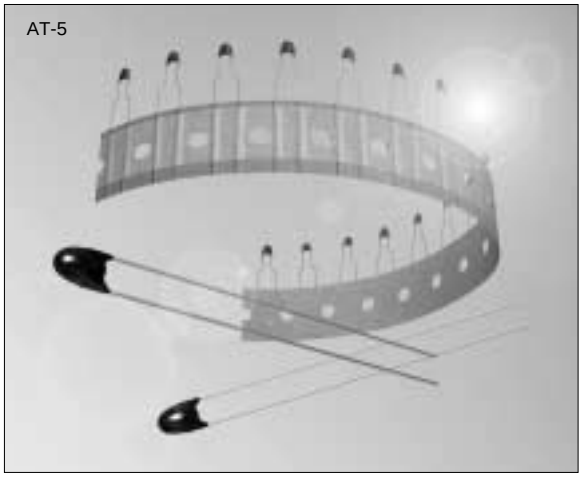
Part No	R_{25}*1	B value*2	Dissipation factor (mW/°C)	Thermal time constant (s)*3	Rated power at 25°C (mW)	Operating temp. range(°C)	Color code
102AT-2	1.0kΩ±1%	3100K±1%	2	15	10	−50~90	Black
202AT-2	2.0kΩ±1%	3182K±1%	2	15	10	−50~90	Red
502AT-2	5.0kΩ±1%	3324K±1%	2	15	10	−50~110	Yellow
103AT-2	10.0kΩ±1%	3435K±1%	2	15	10	−50~110	White
203AT-2	20.0kΩ±1%	4013K±1%	2	15	10	−50~110	None
503AT-2	50.0kΩ±3%	4060K±1%	2	15	10	−50~110	None
104AT-2	100.0kΩ±1%	4665K±1%	2	15	10	−50~110	None
103AT-3	10.0kΩ±1%	3435K±1%	2	15	10	−50~110	White
102AT-11	1.0kΩ±1%	3100K±1%	3	75	15	−50~90	None
202AT-11	2.0kΩ±1%	3182K±1%	3	75	15	−50~90	None
502AT-11	5.0kΩ±1%	3324K±1%	3	75	15	−50~105	None
103AT-11	10.0kΩ±1%	3435K±1%	3	75	15	−50~105	None
103AT-4 Shape1	10.0kΩ±1%	3435K±1%	2	10	10	−30~90	None
103AT-4 Shape2	10.0kΩ±1%	3435K±1%	4	35	20	−30~90	None
103AT-2S	10.0kΩ±1%	3435K±1%	1	15	5	−50~110	white
103AT-2SS	10.0kΩ±1%	3435K±1%	1	15	5	−50~110	white

※Other resistance is also available, please ask.

*1 R_{25} : Rated zero-power resistance value at 25°C.
*2 B value : determined by rated zero-power resistance at 25°C and 85°C.
*3 Time when thermistor temperature reaches 63.2% of the temperature difference. The value is measured in the air.

AT-5 THERMISTOR

AT-5 thermistor is available in taping.

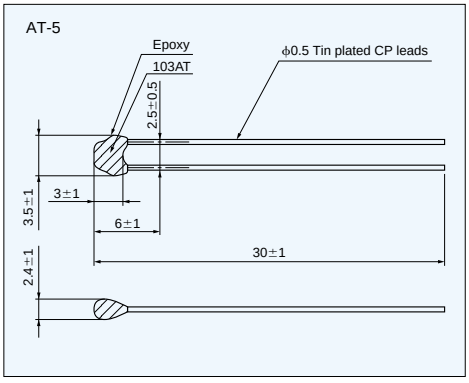


Part number

103 AT-5-TP

- Taping
- Shape
- High-precision AT thermistor
- Rated zero-power resistance at 25°C

Dimensions

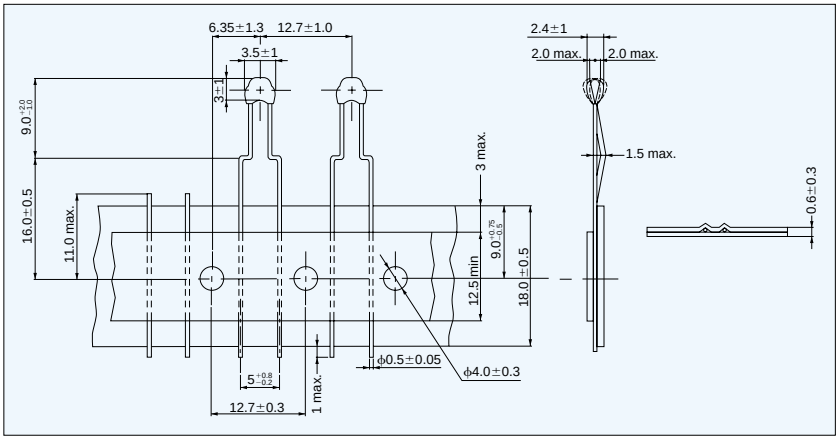


Specifications

Part No	R_{25} ※1	B value ※2	Dissipation factor (mW/ ˚C)	Thermal time constant (s)※3	Rated power at 25˚C (mW)	Operating temp. range(˚C)
103AT-5	10.0kΩ±1%	3435K±1%	2.5	15	10	−50～110

※Other resistance is also available, please ask.
*1 R_{25} : Rated zero-power resistance value at 25°C.
*2 B value : determined by rated zero-power resistance at 25°C and 85°C.
*3 Time when thermistor temperature reaches 63.2% of the temperature difference. The value is measured in the air.

Taping



Resistance -Temperature

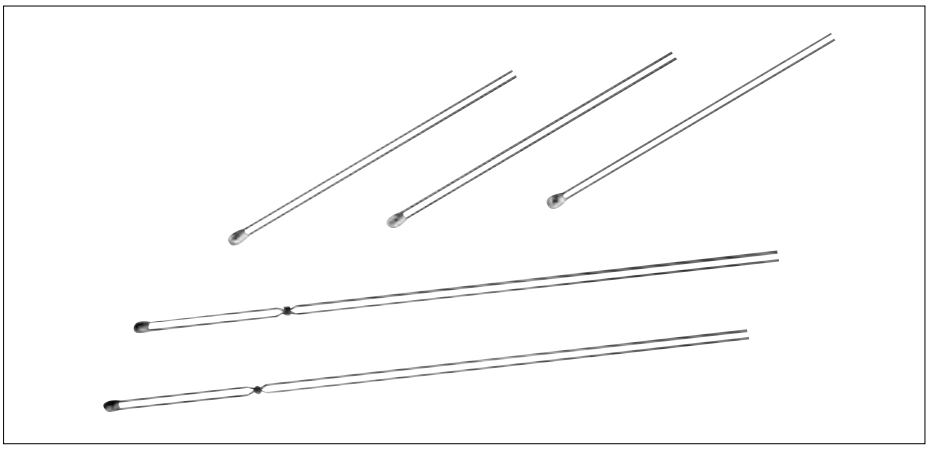
Temperature	Type						
(˚C)	102AT	202AT	502AT	103AT	203AT	503AT	104AT
−50	24.46	55.66	154.6	329.5	1253	3168	11473
−45	18.68	42.17	116.5	247.7	890.5	2257	7781
−40	14.43	32.34	88.91	188.5	642.0	1632	5366
−35	11.23	24.96	68.19	144.1	465.8	1186	3728
−30	8.834	19.48	52.87	111.3	342.5	872.8	2629
−25	6.998	15.29	41.21	86.43	253.6	646.3	1864
−20	5.594	12.11	32.44	67.77	190.0	484.3	1340
−15	4.501	9.655	25.66	53.41	143.2	364.6	969.0
−10	3.651	7.763	20.48	42.47	109.1	277.5	709.5
−5	2.979	6.277	16.43	33.90	83.75	212.3	523.3
0	2.449	5.114	13.29	27.28	64.88	164.0	390.3
5	2.024	4.188	10.80	22.05	50.53	127.5	292.5
10	1.684	3.454	8.840	17.96	39.71	99.99	221.5
15	1.408	2.862	7.267	14.69	31.36	78.77	168.6
20	1.184	2.387	6.013	12.09	24.96	62.56	129.5
25	1.000	2.000	5.000	10.00	20.00	50.00	100.0
30	0.8486	1.684	4.179	8.313	16.12	40.20	77.81

Temperature	Type						
(˚C)	102AT	202AT	502AT	103AT	203AT	503AT	104AT
35	0.7229	1.424	3.508	6.940	13.06	32.48	60.94
40	0.6189	1.211	2.961	5.827	10.65	26.43	48.10
45	0.5316	1.033	2.509	4.911	8.716	21.59	38.13
50	0.4587	0.8854	2.137	4.160	7.181	17.75	30.44
55	0.3967	0.7620	1.826	3.536	5.941	14.64	24.42
60	0.3446	0.6587	1.567	3.020	4.943	12.15	19.72
65	0.3000	0.5713	1.350	2.588	4.127	10.13	15.99
70	0.2622	0.4975	1.168	2.228	3.464	8.482	13.05
75	0.2285	0.4343	1.014	1.924	2.916	7.129	10.68
80	0.1999	0.3807	0.8835	1.668	2.468	6.022	8.796
85	0.1751	0.3346	0.7722	1.451	2.096	5.105	7.271
90	0.1536	0.2949	0.6771	1.266	1.788	4.345	6.041
95			0.5961	1.108	1.530	3.712	5.037
100			0.5265	0.9731	1.315	3.185	4.220
105			0.4654	0.8572	1.134	2.741	3.546
110			0.4128	0.7576	0.9807	2.369	2.994

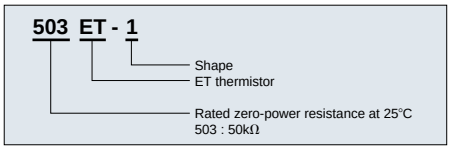
Unit(kΩ)

ET THERMISTOR

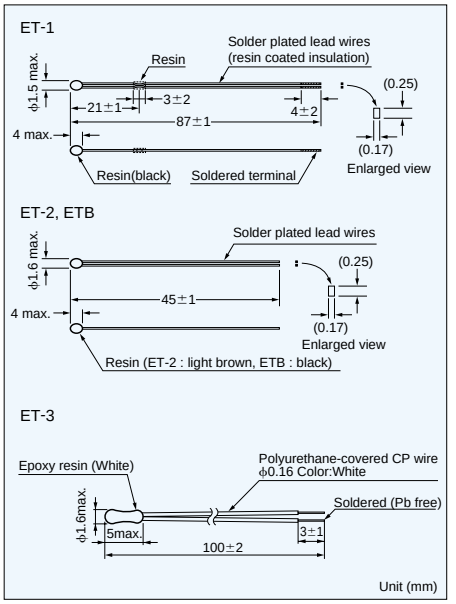
The ET thermistor is smaller version of the AT thermistor. Its fast response time and high reliability makes it Particularly suitable for use in medical equipment and thermometers. Manufactured by full-automated production line, all ET thermistors have identical size and that makes it possible to assemble sensors automatically.



Part number



Dimensions



Specifications

Part No.	R_{25}*1	B value*2	Dissipation factor (mW/°C)	Thermal time constant (s)*3	Rated power at 25°C(mW)	Operating temp. range (°C)
402ET-1(2)	4.0kΩ±3%	3100K±1%	0.7	6	3.5	−40～ 90
103ET-1(2)	10.0kΩ±3%	3250K±1%	0.7	6	3.5	−40～ 90
303ET-1(2)	30.0kΩ±3%	3760K±1%	0.7	6	3.5	−40～100
403ET-1(2)	40.0kΩ±3%	3525K±1%	0.7	6	3.5	−40～100
413ET-1(2)	41.0kΩ±3%	3435K±1%	0.7	6	3.5	−40～100
503ET-1(2)	50.0kΩ±3%	4055K±1%	0.7	6	3.5	−40～100
593ET-1(2)	59.0kΩ±3%	3617K±1%	0.7	6	3.5	−40～100
833ET-1(2)	83.0kΩ±3%	4013K±1%	0.7	6	3.5	−40～100
104ET-1(2)	100.0kΩ±3%	4132K±1%	0.7	6	3.5	−40～ 90
224ET-1(2)	226.0kΩ±3%	4021K±1%	0.7	6	3.5	−40～100
234ET-1(2)	232.0kΩ±3%	4274K±1%	0.7	6	3.5	−40～100
103ETB	10.0kΩ±2%	3435K±1%	0.7	6	3.5	−40～ 90
503ET-3	50.0kΩ±2%	4086K±1%	0.7	6	3.5	−40～100

*1 R_{25} : Rated zero-power resistance value at 25°C.
*2 B value : determined by rated zero-power resistance at 25°C and 85°C.
*3 Time when thermistor temperature reaches 63.2% of the temperature difference. The value is measured in the air.

Resistance-Temperature

Temperature (°C)	Type											
	402ET	103ET	303ET	403ET	413ET	503ET	593ET	833ET	104ET	224ET	234ET	103ETB
−40	57.71	170.9	810.7	833.3	772.8	1602	1318	2664	3325	7005	9046	204.7
−30	35.34	102.2	445.1	481.1	456.5	855.0	754.3	1421	1769	3784	4680	118.5
−20	22.38	63.07	253.7	287.5	277.9	474.4	445.8	788.5	977.5	2116	2515	71.02
−10	14.60	40.08	149.8	177.2	174.1	272.7	271.7	453.0	559.0	1225	1401	43.67
0	9.797	26.16	91.30	112.4	111.7	161.9	170.1	269.3	329.8	730.1	808.2	27.70
10	6.737	17.51	57.31	73.00	73.63	99.13	109.4	164.8	200.5	447.8	480.2	18.07
20	4.736	11.99	37.00	48.61	49.57	62.38	72.10	103.6	125.3	282.1	293.7	12.11
30	3.394	8.387	24.47	33.08	34.08	40.24	48.55	66.91	80.27	182.1	184.4	8.301
40	2.476	5.988	16.56	22.96	23.89	26.58	33.41	44.18	52.62	120.3	118.6	5.811
50	1.835	4.353	11.45	16.26	17.06	17.93	23.44	29.80	35.23	81.07	78.00	4.147
60	1.378	3.217	8.070	11.70	12.38	12.33	16.73	20.51	24.00	55.75	52.39	3.011
70	1.049	2.414	5.791	8.569	9.135	8.588	12.15	14.37	16.59	39.01	35.87	2.224
80	0.7997	1.836	4.222	6.367	6.838	6.064	8.951	10.24	11.64	27.78	24.99	1.668
90	0.6145	1.416	3.125	4.797	5.190	4.338	6.697	7.419	8.287	20.10	17.72	1.267
100			2.346	3.662	3.990	3.142	5.077	5.459		14.75	12.75	

Unit (kΩ)

Specifications for clinical thermo-meter

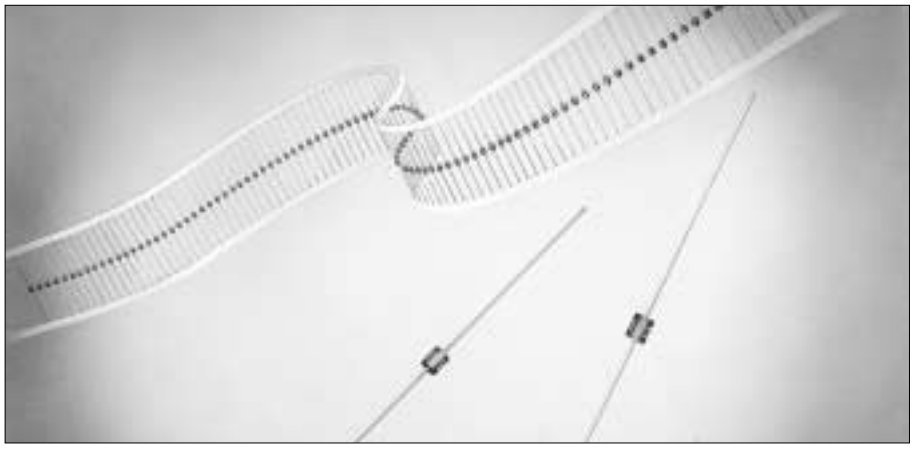
Temperature (°C)	Type			
	503ET	833ET	224ET	234ET
R_{30}	40.22	67.04	182.4	184.5
R_{37}	30.00	50.00	136.0	135.0
R_{45}	21.75	36.25	98.56	95.87
$B_{30/45}$(K)	3953	3953	3958	4209

Unit (kΩ)

ACCURATE AXIAL TYPE THERMISTOR

IT THERMISTOR

Our newly developed IT thermistors are axial leaded diode type packaged in high-density resin mold and featured strength against various operating environments.
We offer IT thermistor with ±2% tolerance for a resistance value of 25°C and ±1% for B value.
IT thermistors are the most appropriate device for accurate temperature control below 100°C.

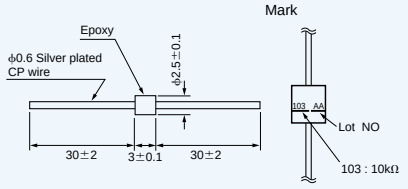


Part number

103 IT

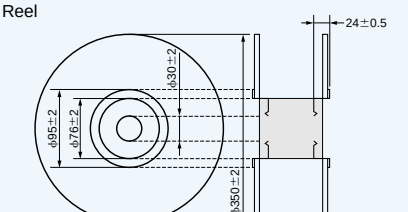
- IT thermistor
- Rated zero-power resistance at 25°C 103 : 10kΩ

Dimensions



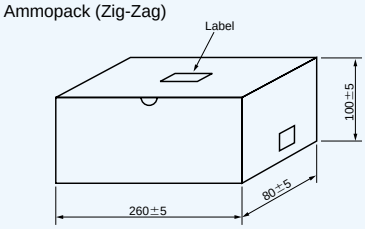
Unit (mm)

Package



Minimum quantity : 5000 pcs/reel

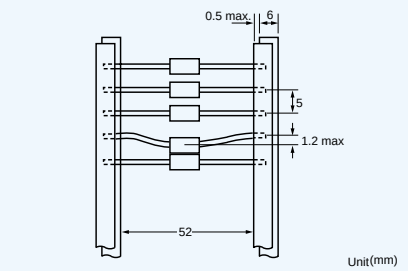
Unit (mm)



Minimum quantity : 2000 pcs/box

Unit (mm)

Taping



Unit(mm)

Specifications

Part No.	R_{25}*1	B value*2	Dissipation factor (mW/°C)	Thermal time constant (s) *3	Rated power at 25°C (mW)	Operating temp. range (°C)
302IT	3.0kΩ±2%	3860K±1%	3.6	13.5	18.0	−50～125
502IT	5.0kΩ±2%	3860K±1%	3.6	13.5	18.0	−50～125
103IT	10.0kΩ±2%	3435K±1%	3.6	13.5	18.0	−50～100
203IT	20.0kΩ±2%	3760K±1%	3.6	13.5	18.0	−50～125
303IT	30.0kΩ±2%	3760K±1%	3.6	13.5	18.0	−50～125
503IT	50.0kΩ±2%	4055K±1%	3.6	13.5	18.0	−50～125
104IT	100.0kΩ±2%	4390K±1%	3.6	13.5	18.0	−50～125

*1 R_{25} : Rated zero-power resistance value at 25°C, ±1% and 3% are also available.
*2 B value : determined by rated zero-power resistance at 25°C and 85°C.
*3 Time when thermistor temperature reaches 63.2% of the temperature difference. The value is measured in the air.

Resistance-Temperature

Temperature (°C)	Type							Temperature (°C)	Type						
	302IT	502IT	103IT	203IT	303IT	503IT	104IT		302IT	502IT	103IT	203IT	303IT	503IT	104IT
−50	182.1	303.4	367.7	1026	1539	3135	9584	50	1.109	1.849	4.147	7.632	11.45	17.93	32.51
−40	93.35	155.6	204.7	540.5	810.8	1602	4572	60	0.7744	1.291	3.011	5.380	8.070	12.33	21.61
−30	49.85	83.09	118.5	296.7	445.1	855.0	2282	70	0.5513	0.9189	2.224	3.861	5.792	8.588	14.66
−20	27.75	46.25	71.02	169.2	253.8	474.4	1191	80	0.4000	0.6667	1.668	2.815	4.223	6.064	10.13
−10	16.02	26.70	43.67	99.85	149.8	272.7	647.2	90	0.2951	0.4918	1.267	2.083	3.125	4.338	7.135
0	9.541	15.90	27.70	60.87	91.31	161.9	365.0	100	0.2210	0.3683	0.9753	1.564	2.346	3.142	5.111
10	5.876	9.793	18.07	38.21	57.32	99.13	212.5	110	0.1680	0.2800		1.190	1.785	2.302	3.720
20	3.728	6.214	12.11	24.66	36.99	62.38	127.7	120	0.1295	0.2158		0.9159	1.374	1.705	2.746
30	2.431	4.051	8.301	16.31	24.47	40.24	78.88	125	0.1142	0.1903		0.8067	1.210	1.472	2.371
40	1.623	2.705	5.811	11.04	16.56	26.58	50.03								

Unit (kΩ)