NTC thermistors for temperature measurement

SMD NTC thermistors
with nickel barrier termination,
case size 0603

Series/Type: **B573**V**
Date: March 2006

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Applications

- Temperature measurement and compensation in
  - mobile phone applications (e.g. battery pack, TCXO, LCD)
  - data systems
  - automotive electronics

Features

- Multilayer SMD NTC with inner electrodes
- Excellent long-term ageing stability in high-temperature and high-humidity environment
- Superior resistance stability during soldering (change <1%)

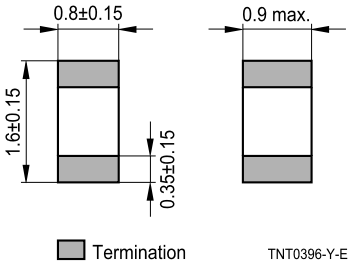
Options

Alternative resistance ratings, resistance tolerance and B value tolerances available on request

Delivery mode

Cardboard tape, 180-mm reel (standard);
330-mm reel (on request)

Dimensional drawing



Dimensions in mm
Approx. weight 6 mg

General technical data

Climatic category	(IEC 60068-1)		55/125/56	
Max. power	(at 25 °C, on PCB)	P_{25} [1]	180	mW
Resistance tolerance		$\Delta R_R/R_R$	±3, ±5	%
Rated temperature		T_R	25	°C
Dissipation factor	(on PCB)	δ_{th} [1]	approx. 3	mW/K
Thermal cooling time constant	(on PCB)	τ_c [1]	approx. 4	s
Heat capacity		C_{th} [1]	approx. 12	mJ/K

1) Depends on mounting situation

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Electrical specification and ordering codes

R_{25} Ω	No. of R/T characteristic	$B_{25/50}$ K	$B_{25/85}$ K	$B_{25/100}$ K	Ordering code
47	8501	3500	3540	3550 ±3%	B57311V2470+060
100	8501	3500	3540	3550 ±3%	B57311V2101+060
150	8501	3500	3540	3550 ±3%	B57311V2151+060
220	8501	3500	3540	3550 ±3%	B57311V2221+060
330	8501	3500	3540	3550 ±3%	B57311V2331+060
680	8502	3940	3980	4000 ±3%	B57321V2681+060
1.0 k	8502	3940	3980	4000 ±3%	B57321V2102+060
1.5 k	8502	3940	3980	4000 ±3%	B57321V2152+060
2.2 k	8502	3940	3980	4000 ±3%	B57321V2222+060
4.7 k	8500	3590	3635	3650 ±3%	B57301V2472+060
10 k	8502	3940	3980	4000 ±3%	B57321V2103+060
10 k	8505	3380	3435	3460 ±3%	B57351V2103+060
47 k	8502	3940	3980	4000 ±3%	B57321V2473+060

+ = Resistance tolerance
H = ±3%
J = ±5%

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Reliability data

SMD NTC thermistors are tested in accordance with IEC 60068. The parts are mounted on a standardized PCB in accordance with IEC 60539-1.

Test	Standard	Test conditions	$\Delta R_{25}/R_{25}$ (typical)	Remarks
Storage in dry heat	IEC 60068-2-2 JIS C 0021	Storage at upper category temperature T: (125 ±2) °C t: 1000 h	< 2%	
Storage in damp heat, steady state	IEC 60068-2-78 JIS C 0022	Temperature of air: (40 ±2) °C Relative humidity of air: (93 +2/−3)% Duration: 56 days	< 2%	
Rapid temperature cycling	IEC 60068-2-14 JIS C 0025	Lower test temperature: −55 °C Upper test temperature: 125 °C Number of cycles: 100	< 2%	
Endurance		P_{max}: 180 mW T: (65 ±2) °C t: 1000 h	< 2%	
Solderability	IEC 60068-2-58 JIS C 0054	Solderability: (215 ±3) °C, (3 ±0.3) s (235 ±5) °C, (2 ±0.2) s Resistance to soldering heat: (260 ±5) °C, (10 ±1) s		95% of terminations wetted
Resistance drift after soldering		Reflow soldering profile Wave soldering profile	< 1% < 2%[2)]	

2) For B57351V2103+060

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R/T characteristics

	B57311V2470H060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 47 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	2662	2232	3092	16.1	2.5	6.5
−50.0	1933	1642	2224	15.1	2.4	6.3
−45.0	1420	1221	1619	14.0	2.3	6.1
−40.0	1054	916.7	1191	13.0	2.2	5.9
−35.0	789.9	694.8	885.1	12.0	2.1	5.7
−30.0	597.9	531.3	664.4	11.1	2.0	5.5
−25.0	456.6	409.8	503.4	10.2	1.9	5.3
−20.0	351.8	318.7	384.9	9.4	1.8	5.1
−15.0	273.3	249.9	296.8	8.6	1.7	5.0
−10.0	214.0	197.3	230.7	7.8	1.6	4.8
−5.0	168.9	157.0	180.8	7.0	1.5	4.7
0.0	134.2	125.7	142.7	6.3	1.4	4.5
5.0	107.4	101.4	113.5	5.6	1.3	4.4
10.0	86.56	82.28	90.84	4.9	1.2	4.3
15.0	70.19	67.18	73.20	4.3	1.0	4.1
20.0	57.27	55.17	59.36	3.7	0.9	4.0
25.0	**47.00**	**45.59**	**48.41**	**3.0**	**0.8**	**3.9**
30.0	38.79	37.38	40.20	3.6	1.0	3.8
35.0	32.19	30.84	33.55	4.2	1.1	3.7
40.0	26.86	25.58	28.13	4.8	1.3	3.6
45.0	22.52	21.32	23.71	5.3	1.5	3.5
50.0	18.97	17.87	20.07	5.8	1.7	3.4
55.0	16.05	15.04	17.07	6.3	1.9	3.3
60.0	13.65	12.72	14.58	6.8	2.1	3.2
65.0	11.65	10.81	12.50	7.3	2.3	3.1
70.0	9.992	9.219	10.76	7.7	2.5	3.0
75.0	8.601	7.897	9.304	8.2	2.8	3.0
80.0	7.432	6.792	8.072	8.6	3.0	2.9
85.0	6.446	5.864	7.028	9.0	3.2	2.8
90.0	5.611	5.081	6.141	9.4	3.4	2.7
95.0	4.901	4.418	5.383	9.8	3.7	2.7
100.0	4.295	3.855	4.734	10.2	3.9	2.6
105.0	3.776	3.375	4.176	10.6	4.2	2.5
110.0	3.330	2.964	3.695	11.0	4.4	2.5
115.0	2.945	2.612	3.279	11.3	4.7	2.4
120.0	2.613	2.308	2.918	11.7	4.9	2.4
125.0	2.324	2.045	2.604	12.0	5.2	2.3

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	B57311V2470J060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 47 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	2662	2179	3145	18.1	2.8	6.5
−50.0	1933	1604	2263	17.1	2.7	6.3
−45.0	1420	1193	1647	16.0	2.6	6.1
−40.0	1054	895.6	1212	15.0	2.6	5.9
−35.0	789.9	679.0	900.9	14.0	2.5	5.7
−30.0	597.9	519.4	676.4	13.1	2.4	5.5
−25.0	456.6	400.7	512.6	12.2	2.3	5.3
−20.0	351.8	311.7	391.9	11.4	2.2	5.1
−15.0	273.3	244.4	302.2	10.6	2.1	5.0
−10.0	214.0	193.0	235.0	9.8	2.0	4.8
−5.0	168.9	153.6	184.2	9.0	1.9	4.7
0.0	134.2	123.1	145.4	8.3	1.8	4.5
5.0	107.4	99.24	115.6	7.6	1.7	4.4
10.0	86.56	80.55	92.57	6.9	1.6	4.3
15.0	70.19	65.77	74.60	6.3	1.5	4.1
20.0	57.27	54.03	60.51	5.7	1.4	4.0
25.0	**47.00**	**44.65**	**49.35**	**5.0**	**1.3**	**3.9**
30.0	38.79	36.60	40.98	5.6	1.5	3.8
35.0	32.19	30.19	34.19	6.2	1.7	3.7
40.0	26.86	25.04	28.67	6.8	1.9	3.6
45.0	22.52	20.87	24.16	7.3	2.1	3.5
50.0	18.97	17.49	20.45	7.8	2.3	3.4
55.0	16.05	14.72	17.39	8.3	2.5	3.3
60.0	13.65	12.45	14.85	8.8	2.7	3.2
65.0	11.65	10.57	12.73	9.3	3.0	3.1
70.0	9.992	9.019	10.96	9.7	3.2	3.0
75.0	8.601	7.725	9.476	10.2	3.4	3.0
80.0	7.432	6.643	8.221	10.6	3.7	2.9
85.0	6.446	5.735	7.157	11.0	3.9	2.8
90.0	5.611	4.969	6.253	11.4	4.2	2.7
95.0	4.901	4.320	5.481	11.8	4.4	2.7
100.0	4.295	3.769	4.820	12.2	4.7	2.6
105.0	3.776	3.300	4.252	12.6	5.0	2.5
110.0	3.330	2.898	3.762	13.0	5.2	2.5
115.0	2.945	2.553	3.338	13.3	5.5	2.4
120.0	2.613	2.255	2.970	13.7	5.8	2.4
125.0	2.324	1.998	2.650	14.0	6.1	2.3

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	B57311V2101H060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 100 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	5663	4749	6578	16.1	2.5	6.5
−50.0	4113	3494	4733	15.1	2.4	6.3
−45.0	3021	2598	3444	14.0	2.3	6.1
−40.0	2242	1950	2534	13.0	2.2	5.9
−35.0	1681	1478	1883	12.0	2.1	5.7
−30.0	1272	1130	1414	11.1	2.0	5.5
−25.0	971.6	872.0	1071	10.2	1.9	5.3
−20.0	748.5	678.2	818.9	9.4	1.8	5.1
−15.0	581.5	531.6	631.4	8.6	1.7	5.0
−10.0	455.4	419.8	490.9	7.8	1.6	4.8
−5.0	359.3	334.0	384.6	7.0	1.5	4.7
0.0	285.6	267.5	303.6	6.3	1.4	4.5
5.0	228.6	215.7	241.4	5.6	1.3	4.4
10.0	184.2	175.1	193.3	4.9	1.2	4.3
15.0	149.3	142.9	155.7	4.3	1.0	4.1
20.0	121.8	117.4	126.3	3.7	0.9	4.0
25.0	**100.00**	**97.00**	**103.0**	**3.0**	**0.8**	**3.9**
30.0	82.54	79.53	85.54	3.6	1.0	3.8
35.0	68.49	65.61	71.38	4.2	1.1	3.7
40.0	57.14	54.42	59.86	4.8	1.3	3.6
45.0	47.91	45.37	50.44	5.3	1.5	3.5
50.0	40.36	38.01	42.70	5.8	1.7	3.4
55.0	34.16	32.00	36.32	6.3	1.9	3.3
60.0	29.04	27.06	31.02	6.8	2.1	3.2
65.0	24.80	22.99	26.60	7.3	2.3	3.1
70.0	21.26	19.61	22.90	7.7	2.5	3.0
75.0	18.30	16.80	19.80	8.2	2.8	3.0
80.0	15.81	14.45	17.17	8.6	3.0	2.9
85.0	13.71	12.48	14.95	9.0	3.2	2.8
90.0	11.94	10.81	13.07	9.4	3.4	2.7
95.0	10.43	9.401	11.45	9.8	3.7	2.7
100.0	9.137	8.203	10.07	10.2	3.9	2.6
105.0	8.033	7.181	8.885	10.6	4.2	2.5
110.0	7.085	6.307	7.862	11.0	4.4	2.5
115.0	6.267	5.556	6.977	11.3	4.7	2.4
120.0	5.559	4.910	6.209	11.7	4.9	2.4
125.0	4.945	4.351	5.540	12.0	5.2	2.3

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	B57311V2101J060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 100 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	5663	4635	6691	18.1	2.8	6.5
−50.0	4113	3412	4815	17.1	2.7	6.3
−45.0	3021	2537	3504	16.0	2.6	6.1
−40.0	2242	1906	2579	15.0	2.6	5.9
−35.0	1681	1445	1917	14.0	2.5	5.7
−30.0	1272	1105	1439	13.1	2.4	5.5
−25.0	971.6	852.6	1091	12.2	2.3	5.3
−20.0	748.5	663.2	833.9	11.4	2.2	5.1
−15.0	581.5	520.0	643.1	10.6	2.1	5.0
−10.0	455.4	410.7	500.0	9.8	2.0	4.8
−5.0	359.3	326.8	391.8	9.0	1.9	4.7
0.0	285.6	261.8	309.3	8.3	1.8	4.5
5.0	228.6	211.2	246.0	7.6	1.7	4.4
10.0	184.2	171.4	196.9	6.9	1.6	4.3
15.0	149.3	139.9	158.7	6.3	1.5	4.1
20.0	121.8	114.9	128.7	5.7	1.4	4.0
25.0	**100.00**	**95.00**	**105.0**	**5.0**	**1.3**	**3.9**
30.0	82.54	77.88	87.19	5.6	1.5	3.8
35.0	68.49	64.24	72.75	6.2	1.7	3.7
40.0	57.14	53.28	61.00	6.8	1.9	3.6
45.0	47.91	44.41	51.40	7.3	2.1	3.5
50.0	40.36	37.20	43.51	7.8	2.3	3.4
55.0	34.16	31.32	37.00	8.3	2.5	3.3
60.0	29.04	26.48	31.60	8.8	2.7	3.2
65.0	24.80	22.50	27.10	9.3	3.0	3.1
70.0	21.26	19.19	23.33	9.7	3.2	3.0
75.0	18.30	16.44	20.16	10.2	3.4	3.0
80.0	15.81	14.13	17.49	10.6	3.7	2.9
85.0	13.71	12.20	15.23	11.0	3.9	2.8
90.0	11.94	10.57	13.30	11.4	4.2	2.7
95.0	10.43	9.192	11.66	11.8	4.4	2.7
100.0	9.137	8.020	10.25	12.2	4.7	2.6
105.0	8.033	7.021	9.046	12.6	5.0	2.5
110.0	7.085	6.165	8.004	13.0	5.2	2.5
115.0	6.267	5.431	7.102	13.3	5.5	2.4
120.0	5.559	4.799	6.320	13.7	5.8	2.4
125.0	4.945	4.252	5.639	14.0	6.1	2.3

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	B57311V2151H060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 150 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	8495	7123	9867	16.1	2.5	6.5
−50.0	6170	5241	7099	15.1	2.4	6.3
−45.0	4531	3896	5166	14.0	2.3	6.1
−40.0	3363	2926	3800	13.0	2.2	5.9
−35.0	2521	2217	2825	12.0	2.1	5.7
−30.0	1908	1696	2120	11.1	2.0	5.5
−25.0	1457	1308	1607	10.2	1.9	5.3
−20.0	1123	1017	1228	9.4	1.8	5.1
−15.0	872.3	797.4	947.2	8.6	1.7	5.0
−10.0	683.1	629.8	736.3	7.8	1.6	4.8
−5.0	539.0	501.0	576.9	7.0	1.5	4.7
0.0	428.4	401.3	455.4	6.3	1.4	4.5
5.0	342.9	323.6	362.1	5.6	1.3	4.4
10.0	276.2	262.6	289.9	4.9	1.2	4.3
15.0	224.0	214.4	233.6	4.3	1.0	4.1
20.0	182.8	176.1	189.5	3.7	0.9	4.0
25.0	**150.0**	**145.5**	**154.5**	**3.0**	**0.8**	**3.9**
30.0	123.8	119.3	128.3	3.6	1.0	3.8
35.0	102.7	98.42	107.1	4.2	1.1	3.7
40.0	85.71	81.63	89.79	4.8	1.3	3.6
45.0	71.86	68.05	75.66	5.3	1.5	3.5
50.0	60.54	57.02	64.06	5.8	1.7	3.4
55.0	51.24	48.00	54.47	6.3	1.9	3.3
60.0	43.56	40.60	46.52	6.8	2.1	3.2
65.0	37.19	34.49	39.90	7.3	2.3	3.1
70.0	31.89	29.42	34.35	7.7	2.5	3.0
75.0	27.45	25.20	29.69	8.2	2.8	3.0
80.0	23.72	21.68	25.76	8.6	3.0	2.9
85.0	20.57	18.71	22.43	9.0	3.2	2.8
90.0	17.91	16.22	19.60	9.4	3.4	2.7
95.0	15.64	14.10	17.18	9.8	3.7	2.7
100.0	13.71	12.30	15.11	10.2	3.9	2.6
105.0	12.05	10.77	13.33	10.6	4.2	2.5
110.0	10.63	9.461	11.79	11.0	4.4	2.5
115.0	9.400	8.335	10.47	11.3	4.7	2.4
120.0	8.339	7.365	9.313	11.7	4.9	2.4
125.0	7.418	6.526	8.310	12.0	5.2	2.3

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	B57311V2151J060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 150 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	8495	6953	10037	18.1	2.8	6.5
−50.0	6170	5118	7222	17.1	2.7	6.3
−45.0	4531	3806	5257	16.0	2.6	6.1
−40.0	3363	2858	3868	15.0	2.6	5.9
−35.0	2521	2167	2875	14.0	2.5	5.7
−30.0	1908	1658	2159	13.1	2.4	5.5
−25.0	1457	1279	1636	12.2	2.3	5.3
−20.0	1123	994.8	1251	11.4	2.2	5.1
−15.0	872.3	779.9	964.6	10.6	2.1	5.0
−10.0	683.1	616.1	750.0	9.8	2.0	4.8
−5.0	539.0	490.2	587.7	9.0	1.9	4.7
0.0	428.4	392.7	464.0	8.3	1.8	4.5
5.0	342.9	316.7	369.0	7.6	1.7	4.4
10.0	276.2	257.1	295.4	6.9	1.6	4.3
15.0	224.0	209.9	238.1	6.3	1.5	4.1
20.0	182.8	172.4	193.1	5.7	1.4	4.0
25.0	**150.0**	**142.5**	**157.5**	**5.0**	**1.3**	**3.9**
30.0	123.8	116.8	130.8	5.6	1.5	3.8
35.0	102.7	96.36	109.1	6.2	1.7	3.7
40.0	85.71	79.91	91.50	6.8	1.9	3.6
45.0	71.86	66.62	77.10	7.3	2.1	3.5
50.0	60.54	55.81	65.27	7.8	2.3	3.4
55.0	51.24	46.98	55.50	8.3	2.5	3.3
60.0	43.56	39.73	47.39	8.8	2.7	3.2
65.0	37.19	33.74	40.64	9.3	3.0	3.1
70.0	31.89	28.78	34.99	9.7	3.2	3.0
75.0	27.45	24.65	30.24	10.2	3.4	3.0
80.0	23.72	21.20	26.24	10.6	3.7	2.9
85.0	20.57	18.30	22.84	11.0	3.9	2.8
90.0	17.91	15.86	19.96	11.4	4.2	2.7
95.0	15.64	13.79	17.49	11.8	4.4	2.7
100.0	13.71	12.03	15.38	12.2	4.7	2.6
105.0	12.05	10.53	13.57	12.6	5.0	2.5
110.0	10.63	9.248	12.01	13.0	5.2	2.5
115.0	9.400	8.147	10.65	13.3	5.5	2.4
120.0	8.339	7.198	9.480	13.7	5.8	2.4
125.0	7.418	6.378	8.458	14.0	6.1	2.3

SMD

	B57311V2221H060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 220 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	12459	10447	14471	16.1	2.5	6.5
−50.0	9049	7687	10412	15.1	2.4	6.3
−45.0	6646	5715	7577	14.0	2.3	6.1
−40.0	4932	4291	5574	13.0	2.2	5.9
−35.0	3698	3252	4143	12.0	2.1	5.7
−30.0	2799	2487	3110	11.1	2.0	5.5
−25.0	2137	1918	2356	10.2	1.9	5.3
−20.0	1647	1492	1802	9.4	1.8	5.1
−15.0	1279	1170	1389	8.6	1.7	5.0
−10.0	1002	923.7	1080	7.8	1.6	4.8
−5.0	790.5	734.8	846.2	7.0	1.5	4.7
0.0	628.3	588.6	668.0	6.3	1.4	4.5
5.0	502.9	474.6	531.1	5.6	1.3	4.4
10.0	405.2	385.1	425.2	4.9	1.2	4.3
15.0	328.5	314.5	342.6	4.3	1.0	4.1
20.0	268.1	258.2	277.9	3.7	0.9	4.0
25.0	**220.0**	**213.4**	**226.6**	**3.0**	**0.8**	**3.9**
30.0	181.6	175.0	188.2	3.6	1.0	3.8
35.0	150.7	144.3	157.0	4.2	1.1	3.7
40.0	125.7	119.7	131.7	4.8	1.3	3.6
45.0	105.4	99.81	111.0	5.3	1.5	3.5
50.0	88.79	83.63	93.95	5.8	1.7	3.4
55.0	75.15	70.40	79.89	6.3	1.9	3.3
60.0	63.89	59.54	68.23	6.8	2.1	3.2
65.0	54.55	50.58	58.52	7.3	2.3	3.1
70.0	46.77	43.15	50.39	7.7	2.5	3.0
75.0	40.26	36.97	43.55	8.2	2.8	3.0
80.0	34.79	31.79	37.78	8.6	3.0	2.9
85.0	30.17	27.45	32.90	9.0	3.2	2.8
90.0	26.26	23.78	28.74	9.4	3.4	2.7
95.0	22.94	20.68	25.20	9.8	3.7	2.7
100.0	20.10	18.05	22.16	10.2	3.9	2.6
105.0	17.67	15.80	19.55	10.6	4.2	2.5
110.0	15.59	13.88	17.30	11.0	4.4	2.5
115.0	13.79	12.22	15.35	11.3	4.7	2.4
120.0	12.23	10.80	13.66	11.7	4.9	2.4
125.0	10.88	9.572	12.19	12.0	5.2	2.3

SMD

	B57311V2221J060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 220 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	12459	10198	14721	18.1	2.8	6.5
−50.0	9049	7506	10593	17.1	2.7	6.3
−45.0	6646	5582	7710	16.0	2.6	6.1
−40.0	4932	4192	5673	15.0	2.6	5.9
−35.0	3698	3178	4217	14.0	2.5	5.7
−30.0	2799	2431	3166	13.1	2.4	5.5
−25.0	2137	1876	2399	12.2	2.3	5.3
−20.0	1647	1459	1835	11.4	2.2	5.1
−15.0	1279	1144	1415	10.6	2.1	5.0
−10.0	1002	903.6	1100	9.8	2.0	4.8
−5.0	790.5	719.0	862.0	9.0	1.9	4.7
0.0	628.3	576.0	680.5	8.3	1.8	4.5
5.0	502.9	464.5	541.2	7.6	1.7	4.4
10.0	405.2	377.0	433.3	6.9	1.6	4.3
15.0	328.5	307.9	349.2	6.3	1.5	4.1
20.0	268.1	252.9	283.2	5.7	1.4	4.0
25.0	**220.0**	**209.0**	**231.0**	**5.0**	**1.3**	**3.9**
30.0	181.6	171.3	191.8	5.6	1.5	3.8
35.0	150.7	141.3	160.0	6.2	1.7	3.7
40.0	125.7	117.2	134.2	6.8	1.9	3.6
45.0	105.4	97.70	113.1	7.3	2.1	3.5
50.0	88.79	81.85	95.73	7.8	2.3	3.4
55.0	75.15	68.90	81.40	8.3	2.5	3.3
60.0	63.89	58.26	69.51	8.8	2.7	3.2
65.0	54.55	49.49	59.61	9.3	3.0	3.1
70.0	46.77	42.22	51.32	9.7	3.2	3.0
75.0	40.26	36.16	44.36	10.2	3.4	3.0
80.0	34.79	31.10	38.48	10.6	3.7	2.9
85.0	30.17	26.84	33.50	11.0	3.9	2.8
90.0	26.26	23.26	29.27	11.4	4.2	2.7
95.0	22.94	20.22	25.66	11.8	4.4	2.7
100.0	20.10	17.64	22.56	12.2	4.7	2.6
105.0	17.67	15.45	19.90	12.6	5.0	2.5
110.0	15.59	13.56	17.61	13.0	5.2	2.5
115.0	13.79	11.95	15.62	13.3	5.5	2.4
120.0	12.23	10.56	13.90	13.7	5.8	2.4
125.0	10.88	9.354	12.41	14.0	6.1	2.3

SMD

	B57311V2331H060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 330 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	18689	15671	21707	16.1	2.5	6.5
−50.0	13574	11530	15618	15.1	2.4	6.3
−45.0	9969	8572	11365	14.0	2.3	6.1
−40.0	7399	6436	8361	13.0	2.2	5.9
−35.0	5546	4878	6215	12.0	2.1	5.7
−30.0	4198	3731	4665	11.1	2.0	5.5
−25.0	3206	2878	3535	10.2	1.9	5.3
−20.0	2470	2238	2702	9.4	1.8	5.1
−15.0	1919	1754	2084	8.6	1.7	5.0
−10.0	1503	1385	1620	7.8	1.6	4.8
−5.0	1186	1102	1269	7.0	1.5	4.7
0.0	942.4	882.9	1002	6.3	1.4	4.5
5.0	754.3	711.9	796.7	5.6	1.3	4.4
10.0	607.7	577.7	637.8	4.9	1.2	4.3
15.0	492.8	471.7	514.0	4.3	1.0	4.1
20.0	402.1	387.4	416.8	3.7	0.9	4.0
25.0	**330.0**	**320.1**	**339.9**	**3.0**	**0.8**	**3.9**
30.0	272.4	262.5	282.3	3.6	1.0	3.8
35.0	226.0	216.5	235.5	4.2	1.1	3.7
40.0	188.6	179.6	197.5	4.8	1.3	3.6
45.0	158.1	149.7	166.5	5.3	1.5	3.5
50.0	133.2	125.4	140.9	5.8	1.7	3.4
55.0	112.7	105.6	119.8	6.3	1.9	3.3
60.0	95.83	89.31	102.4	6.8	2.1	3.2
65.0	81.82	75.87	87.78	7.3	2.3	3.1
70.0	70.15	64.73	75.58	7.7	2.5	3.0
75.0	60.39	55.45	65.33	8.2	2.8	3.0
80.0	52.18	47.69	56.68	8.6	3.0	2.9
85.0	45.26	41.17	49.35	9.0	3.2	2.8
90.0	39.39	35.67	43.11	9.4	3.4	2.7
95.0	34.41	31.02	37.79	9.8	3.7	2.7
100.0	30.15	27.07	33.24	10.2	3.9	2.6
105.0	26.51	23.70	29.32	10.6	4.2	2.5
110.0	23.38	20.81	25.94	11.0	4.4	2.5
115.0	20.68	18.34	23.02	11.3	4.7	2.4
120.0	18.35	16.20	20.49	11.7	4.9	2.4
125.0	16.32	14.36	18.28	12.0	5.2	2.3

SMD

	B57311V2331J060					
R/T No.	8501					
T (°C)	$B_{25/100}$ = 3550 K, R_{25} = 330 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	18689	15297	22081	18.1	2.8	6.5
−50.0	13574	11259	15889	17.1	2.7	6.3
−45.0	9969	8373	11565	16.0	2.6	6.1
−40.0	7399	6288	8509	15.0	2.6	5.9
−35.0	5546	4767	6326	14.0	2.5	5.7
−30.0	4198	3647	4749	13.1	2.4	5.5
−25.0	3206	2813	3599	12.2	2.3	5.3
−20.0	2470	2189	2752	11.4	2.2	5.1
−15.0	1919	1716	2122	10.6	2.1	5.0
−10.0	1503	1355	1650	9.8	2.0	4.8
−5.0	1186	1078	1293	9.0	1.9	4.7
0.0	942.4	864.0	1021	8.3	1.8	4.5
5.0	754.3	696.8	811.7	7.6	1.7	4.4
10.0	607.7	565.6	649.9	6.9	1.6	4.3
15.0	492.8	461.8	523.8	6.3	1.5	4.1
20.0	402.1	379.3	424.8	5.7	1.4	4.0
25.0	**330.0**	**313.5**	**346.5**	**5.0**	**1.3**	**3.9**
30.0	272.4	257.0	287.7	5.6	1.5	3.8
35.0	226.0	212.0	240.1	6.2	1.7	3.7
40.0	188.6	175.8	201.3	6.8	1.9	3.6
45.0	158.1	146.6	169.6	7.3	2.1	3.5
50.0	133.2	122.8	143.6	7.8	2.3	3.4
55.0	112.7	103.3	122.1	8.3	2.5	3.3
60.0	95.83	87.40	104.3	8.8	2.7	3.2
65.0	81.82	74.24	89.41	9.3	3.0	3.1
70.0	70.15	63.33	76.98	9.7	3.2	3.0
75.0	60.39	54.24	66.54	10.2	3.4	3.0
80.0	52.18	46.64	57.72	10.6	3.7	2.9
85.0	45.26	40.26	50.25	11.0	3.9	2.8
90.0	39.39	34.89	43.90	11.4	4.2	2.7
95.0	34.41	30.33	38.48	11.8	4.4	2.7
100.0	30.15	26.47	33.84	12.2	4.7	2.6
105.0	26.51	23.17	29.85	12.6	5.0	2.5
110.0	23.38	20.35	26.41	13.0	5.2	2.5
115.0	20.68	17.92	23.44	13.3	5.5	2.4
120.0	18.35	15.84	20.86	13.7	5.8	2.4
125.0	16.32	14.03	18.61	14.0	6.1	2.3

SMD

	B57321V2681H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 680 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	65387	53742	77033	17.8	2.4	7.4
−50.0	45486	37946	53027	16.6	2.3	7.1
−45.0	32046	27112	36981	15.4	2.2	6.9
−40.0	22852	19591	26113	14.3	2.1	6.6
−35.0	16485	14311	18659	13.2	2.1	6.4
−30.0	12023	10562	13485	12.2	2.0	6.2
−25.0	8862	7873	9851	11.2	1.9	6.0
−20.0	6597	5924	7271	10.2	1.8	5.8
−15.0	4959	4498	5419	9.3	1.7	5.6
−10.0	3761	3445	4077	8.4	1.5	5.4
−5.0	2878	2661	3095	7.6	1.4	5.3
0.0	2221	2071	2370	6.7	1.3	5.1
5.0	1727	1625	1830	5.9	1.2	4.9
10.0	1354	1284	1424	5.2	1.1	4.8
15.0	1069	1021	1116	4.4	1.0	4.7
20.0	849.6	817.9	881.4	3.7	0.8	4.5
25.0	**680.0**	**659.6**	**700.4**	**3.0**	**0.7**	**4.4**
30.0	547.8	527.4	568.1	3.7	0.9	4.3
35.0	444.0	424.6	463.3	4.4	1.1	4.1
40.0	362.0	343.9	380.0	5.0	1.2	4.0
45.0	296.8	280.2	313.3	5.6	1.4	3.9
50.0	244.7	229.6	259.8	6.2	1.6	3.8
55.0	202.8	189.1	216.4	6.7	1.8	3.7
60.0	168.9	156.6	181.2	7.3	2.0	3.6
65.0	141.4	130.3	152.4	7.8	2.2	3.5
70.0	118.9	109.0	128.8	8.3	2.4	3.4
75.0	100.4	91.53	109.3	8.8	2.6	3.3
80.0	85.16	77.22	93.09	9.3	2.9	3.2
85.0	72.54	65.43	79.64	9.8	3.1	3.2
90.0	62.03	55.67	68.40	10.3	3.3	3.1
95.0	53.26	47.56	58.96	10.7	3.6	3.0
100.0	45.89	40.78	51.00	11.1	3.8	2.9
105.0	39.69	35.10	44.28	11.6	4.0	2.9
110.0	34.44	30.31	38.57	12.0	4.3	2.8
115.0	29.99	26.27	33.70	12.4	4.5	2.7
120.0	26.19	22.85	29.54	12.8	4.8	2.7
125.0	22.95	19.93	25.97	13.2	5.0	2.6

SMD

	B57321V2681J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 680 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	65387	52434	78341	19.8	2.7	7.4
−50.0	45486	37036	53936	18.6	2.6	7.1
−45.0	32046	26471	37622	17.4	2.5	6.9
−40.0	22852	19134	26570	16.3	2.4	6.6
−35.0	16485	13981	18989	15.2	2.4	6.4
−30.0	12023	10322	13725	14.2	2.3	6.2
−25.0	8862	7696	10028	13.2	2.2	6.0
−20.0	6597	5792	7403	12.2	2.1	5.8
−15.0	4959	4399	5518	11.3	2.0	5.6
−10.0	3761	3370	4153	10.4	1.9	5.4
−5.0	2878	2603	3153	9.6	1.8	5.3
0.0	2221	2027	2415	8.7	1.7	5.1
5.0	1727	1590	1864	7.9	1.6	4.9
10.0	1354	1256	1451	7.2	1.5	4.8
15.0	1069	999.8	1138	6.4	1.4	4.7
20.0	849.6	800.9	898.4	5.7	1.3	4.5
25.0	**680.0**	**646.0**	**714.0**	**5.0**	**1.1**	**4.4**
30.0	547.8	516.5	579.1	5.7	1.3	4.3
35.0	444.0	415.7	472.2	6.4	1.5	4.1
40.0	362.0	336.7	387.2	7.0	1.7	4.0
45.0	296.8	274.3	319.3	7.6	1.9	3.9
50.0	244.7	224.7	264.6	8.2	2.1	3.8
55.0	202.8	185.1	220.5	8.7	2.4	3.7
60.0	168.9	153.2	184.6	9.3	2.6	3.6
65.0	141.4	127.5	155.2	9.8	2.8	3.5
70.0	118.9	106.6	131.1	10.3	3.0	3.4
75.0	100.4	89.52	111.3	10.8	3.2	3.3
80.0	85.16	75.52	94.80	11.3	3.5	3.2
85.0	72.54	63.98	81.09	11.8	3.7	3.2
90.0	62.03	54.43	69.64	12.3	4.0	3.1
95.0	53.26	46.49	60.02	12.7	4.2	3.0
100.0	45.89	39.86	51.92	13.1	4.5	2.9
105.0	39.69	34.30	45.07	13.6	4.7	2.9
110.0	34.44	29.63	39.25	14.0	5.0	2.8
115.0	29.99	25.67	34.30	14.4	5.3	2.7
120.0	26.19	22.32	30.06	14.8	5.5	2.7
125.0	22.95	19.47	26.43	15.2	5.8	2.6

SMD

	B57321V2102H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 1000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	96158	79032	113280	17.8	2.4	7.4
−50.0	66892	55803	77980	16.6	2.3	7.1
−45.0	47127	39870	54384	15.4	2.2	6.9
−40.0	33606	28810	38402	14.3	2.1	6.6
−35.0	24243	21045	27440	13.2	2.1	6.4
−30.0	17681	15532	19830	12.2	2.0	6.2
−25.0	13032	11578	14486	11.2	1.9	6.0
−20.0	9702	8712	10692	10.2	1.8	5.8
−15.0	7292	6615	7969	9.3	1.7	5.6
−10.0	5531	5067	5996	8.4	1.5	5.4
−5.0	4232	3913	4552	7.6	1.4	5.3
0.0	3266	3046	3486	6.7	1.3	5.1
5.0	2540	2389	2691	5.9	1.2	4.9
10.0	1991	1888	2094	5.2	1.1	4.8
15.0	1572	1502	1641	4.4	1.0	4.7
20.0	1249	1203	1296	3.7	0.8	4.5
25.0	**1000.0**	**970.0**	**1030**	**3.0**	**0.7**	**4.4**
30.0	805.5	775.6	835.4	3.7	0.9	4.3
35.0	652.9	624.4	681.3	4.4	1.1	4.1
40.0	532.3	505.8	558.8	5.0	1.2	4.0
45.0	436.4	412.1	460.8	5.6	1.4	3.9
50.0	359.8	337.6	382.0	6.2	1.6	3.8
55.0	298.2	278.1	318.3	6.7	1.8	3.7
60.0	248.4	230.3	266.4	7.3	2.0	3.6
65.0	207.9	191.6	224.1	7.8	2.2	3.5
70.0	174.8	160.2	189.3	8.3	2.4	3.4
75.0	147.6	134.6	160.7	8.8	2.6	3.3
80.0	125.2	113.6	136.9	9.3	2.9	3.2
85.0	106.7	96.23	117.1	9.8	3.1	3.2
90.0	91.23	81.87	100.6	10.3	3.3	3.1
95.0	78.32	69.94	86.70	10.7	3.6	3.0
100.0	67.49	59.97	75.01	11.1	3.8	2.9
105.0	58.36	51.61	65.11	11.6	4.0	2.9
110.0	50.65	44.58	56.71	12.0	4.3	2.8
115.0	44.10	38.64	49.56	12.4	4.5	2.7
120.0	38.52	33.60	43.44	12.8	4.8	2.7
125.0	33.75	29.31	38.19	13.2	5.0	2.6

SMD

	B57321V2102J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 1000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	96158	77109	115210	19.8	2.7	7.4
−50.0	66892	54465	79318	18.6	2.6	7.1
−45.0	47127	38927	55326	17.4	2.5	6.9
−40.0	33606	28138	39074	16.3	2.4	6.6
−35.0	24243	20560	27925	15.2	2.4	6.4
−30.0	17681	15179	20184	14.2	2.3	6.2
−25.0	13032	11317	14747	13.2	2.2	6.0
−20.0	9702	8518	10886	12.2	2.1	5.8
−15.0	7292	6469	8115	11.3	2.0	5.6
−10.0	5531	4956	6107	10.4	1.9	5.4
−5.0	4232	3828	4637	9.6	1.8	5.3
0.0	3266	2981	3551	8.7	1.7	5.1
5.0	2540	2338	2742	7.9	1.6	4.9
10.0	1991	1848	2134	7.2	1.5	4.8
15.0	1572	1470	1673	6.4	1.4	4.7
20.0	1249	1178	1321	5.7	1.3	4.5
25.0	**1000.0**	**950.0**	**1050**	**5.0**	**1.1**	**4.4**
30.0	805.5	759.5	851.5	5.7	1.3	4.3
35.0	652.9	611.4	694.4	6.4	1.5	4.1
40.0	532.3	495.1	569.4	7.0	1.7	4.0
45.0	436.4	403.4	469.5	7.6	1.9	3.9
50.0	359.8	330.4	389.2	8.2	2.1	3.8
55.0	298.2	272.2	324.2	8.7	2.4	3.7
60.0	248.4	225.3	271.4	9.3	2.6	3.6
65.0	207.9	187.5	228.3	9.8	2.8	3.5
70.0	174.8	156.7	192.8	10.3	3.0	3.4
75.0	147.6	131.6	163.6	10.8	3.2	3.3
80.0	125.2	111.1	139.4	11.3	3.5	3.2
85.0	106.7	94.09	119.3	11.8	3.7	3.2
90.0	91.23	80.05	102.4	12.3	4.0	3.1
95.0	78.32	68.37	88.27	12.7	4.2	3.0
100.0	67.49	58.62	76.36	13.1	4.5	2.9
105.0	58.36	50.45	66.28	13.6	4.7	2.9
110.0	50.65	43.57	57.73	14.0	5.0	2.8
115.0	44.10	37.76	50.44	14.4	5.3	2.7
120.0	38.52	32.83	44.21	14.8	5.5	2.7
125.0	33.75	28.64	38.87	15.2	5.8	2.6

SMD

	B57321V2152H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 1500 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	144240	118550	169930	17.8	2.4	7.4
−50.0	100340	83704	116970	16.6	2.3	7.1
−45.0	70690	59805	81576	15.4	2.2	6.9
−40.0	50409	43215	57603	14.3	2.1	6.6
−35.0	36364	31567	41160	13.2	2.1	6.4
−30.0	26522	23299	29746	12.2	2.0	6.2
−25.0	19548	17367	21730	11.2	1.9	6.0
−20.0	14553	13068	16038	10.2	1.8	5.8
−15.0	10938	9923	11954	9.3	1.7	5.6
−10.0	8297	7600	8994	8.4	1.5	5.4
−5.0	6349	5869	6828	7.6	1.4	5.3
0.0	4899	4569	5228	6.7	1.3	5.1
5.0	3810	3584	4036	5.9	1.2	4.9
10.0	2986	2831	3141	5.2	1.1	4.8
15.0	2357	2253	2462	4.4	1.0	4.7
20.0	1874	1804	1944	3.7	0.8	4.5
25.0	**1500**	**1455**	**1545**	**3.0**	**0.7**	**4.4**
30.0	1208	1163	1253	3.7	0.9	4.3
35.0	979.3	936.7	1022	4.4	1.1	4.1
40.0	798.4	758.7	838.2	5.0	1.2	4.0
45.0	654.7	618.1	691.2	5.6	1.4	3.9
50.0	539.7	506.5	573.0	6.2	1.6	3.8
55.0	447.3	417.2	477.4	6.7	1.8	3.7
60.0	372.6	345.4	399.7	7.3	2.0	3.6
65.0	311.8	287.5	336.2	7.8	2.2	3.5
70.0	262.2	240.4	284.0	8.3	2.4	3.4
75.0	221.5	201.9	241.0	8.8	2.6	3.3
80.0	187.8	170.3	205.4	9.3	2.9	3.2
85.0	160.0	144.3	175.7	9.8	3.1	3.2
90.0	136.8	122.8	150.9	10.3	3.3	3.1
95.0	117.5	104.9	130.1	10.7	3.6	3.0
100.0	101.2	89.96	112.5	11.1	3.8	2.9
105.0	87.54	77.42	97.67	11.6	4.0	2.9
110.0	75.97	66.87	85.07	12.0	4.3	2.8
115.0	66.15	57.96	74.34	12.4	4.5	2.7
120.0	57.78	50.40	65.16	12.8	4.8	2.7
125.0	50.63	43.97	57.29	13.2	5.0	2.6

SMD

	B57321V2152J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 1500 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	144240	115660	172810	19.8	2.7	7.4
−50.0	100340	81697	118980	18.6	2.6	7.1
−45.0	70690	58391	82989	17.4	2.5	6.9
−40.0	50409	42207	58611	16.3	2.4	6.6
−35.0	36364	30840	41888	15.2	2.4	6.4
−30.0	26522	22768	30276	14.2	2.3	6.2
−25.0	19548	16976	22121	13.2	2.2	6.0
−20.0	14553	12777	16329	12.2	2.1	5.8
−15.0	10938	9704	12173	11.3	2.0	5.6
−10.0	8297	7434	9160	10.4	1.9	5.4
−5.0	6349	5742	6955	9.6	1.8	5.3
0.0	4899	4471	5326	8.7	1.7	5.1
5.0	3810	3507	4113	7.9	1.6	4.9
10.0	2986	2772	3200	7.2	1.5	4.8
15.0	2357	2205	2509	6.4	1.4	4.7
20.0	1874	1767	1982	5.7	1.3	4.5
25.0	**1500**	**1425**	**1575**	**5.0**	**1.1**	**4.4**
30.0	1208	1139	1277	5.7	1.3	4.3
35.0	979.3	917.1	1042	6.4	1.5	4.1
40.0	798.4	742.7	854.2	7.0	1.7	4.0
45.0	654.7	605.0	704.3	7.6	1.9	3.9
50.0	539.7	495.7	583.8	8.2	2.1	3.8
55.0	447.3	408.2	486.3	8.7	2.4	3.7
60.0	372.6	338.0	407.1	9.3	2.6	3.6
65.0	311.8	281.2	342.4	9.8	2.8	3.5
70.0	262.2	235.1	289.3	10.3	3.0	3.4
75.0	221.5	197.5	245.4	10.8	3.2	3.3
80.0	187.8	166.6	209.1	11.3	3.5	3.2
85.0	160.0	141.1	178.9	11.8	3.7	3.2
90.0	136.8	120.1	153.6	12.3	4.0	3.1
95.0	117.5	102.6	132.4	12.7	4.2	3.0
100.0	101.2	87.93	114.5	13.1	4.5	2.9
105.0	87.54	75.67	99.42	13.6	4.7	2.9
110.0	75.97	65.35	86.59	14.0	5.0	2.8
115.0	66.15	56.63	75.66	14.4	5.3	2.7
120.0	57.78	49.24	66.32	14.8	5.5	2.7
125.0	50.63	42.95	58.30	15.2	5.8	2.6

SMD

	B57321V2222H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 2200 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	211550	173870	249220	17.8	2.4	7.4
−50.0	147160	122770	171560	16.6	2.3	7.1
−45.0	103680	87714	119640	15.4	2.2	6.9
−40.0	73933	63383	84484	14.3	2.1	6.6
−35.0	53334	46299	60368	13.2	2.1	6.4
−30.0	38899	34171	43627	12.2	2.0	6.2
−25.0	28671	25471	31870	11.2	1.9	6.0
−20.0	21344	19166	23523	10.2	1.8	5.8
−15.0	16043	14553	17533	9.3	1.7	5.6
−10.0	12169	11146	13192	8.4	1.5	5.4
−5.0	9311	8608	10015	7.6	1.4	5.3
0.0	7185	6701	7668	6.7	1.3	5.1
5.0	5588	5256	5920	5.9	1.2	4.9
10.0	4379	4153	4606	5.2	1.1	4.8
15.0	3457	3304	3611	4.4	1.0	4.7
20.0	2749	2646	2851	3.7	0.8	4.5
25.0	**2200**	**2134**	**2266**	**3.0**	**0.7**	**4.4**
30.0	1772	1706	1838	3.7	0.9	4.3
35.0	1436	1374	1499	4.4	1.1	4.1
40.0	1171	1113	1229	5.0	1.2	4.0
45.0	960.2	906.6	1014	5.6	1.4	3.9
50.0	791.6	742.8	840.4	6.2	1.6	3.8
55.0	656.0	611.9	700.2	6.7	1.8	3.7
60.0	546.4	506.6	586.2	7.3	2.0	3.6
65.0	457.3	421.6	493.0	7.8	2.2	3.5
70.0	384.5	352.5	416.6	8.3	2.4	3.4
75.0	324.8	296.1	353.5	8.8	2.6	3.3
80.0	275.5	249.8	301.2	9.3	2.9	3.2
85.0	234.7	211.7	257.7	9.8	3.1	3.2
90.0	200.7	180.1	221.3	10.3	3.3	3.1
95.0	172.3	153.9	190.7	10.7	3.6	3.0
100.0	148.5	131.9	165.0	11.1	3.8	2.9
105.0	128.4	113.6	143.2	11.6	4.0	2.9
110.0	111.4	98.08	124.8	12.0	4.3	2.8
115.0	97.02	85.00	109.0	12.4	4.5	2.7
120.0	84.74	73.92	95.57	12.8	4.8	2.7
125.0	74.25	64.48	84.03	13.2	5.0	2.6

SMD

	B57321V2222J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 2200 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	211550	169640	253460	19.8	2.7	7.4
−50.0	147160	119820	174500	18.6	2.6	7.1
−45.0	103680	85640	121720	17.4	2.5	6.9
−40.0	73933	61904	85963	16.3	2.4	6.6
−35.0	53334	45232	61435	15.2	2.4	6.4
−30.0	38899	33393	44405	14.2	2.3	6.2
−25.0	28671	24898	32444	13.2	2.2	6.0
−20.0	21344	18739	23949	12.2	2.1	5.8
−15.0	16043	14232	17854	11.3	2.0	5.6
−10.0	12169	10903	13435	10.4	1.9	5.4
−5.0	9311	8422	10201	9.6	1.8	5.3
0.0	7185	6557	7812	8.7	1.7	5.1
5.0	5588	5144	6032	7.9	1.6	4.9
10.0	4379	4065	4694	7.2	1.5	4.8
15.0	3457	3235	3680	6.4	1.4	4.7
20.0	2749	2591	2906	5.7	1.3	4.5
25.0	**2200**	**2090**	**2310**	**5.0**	**1.1**	**4.4**
30.0	1772	1671	1873	5.7	1.3	4.3
35.0	1436	1345	1528	6.4	1.5	4.1
40.0	1171	1089	1253	7.0	1.7	4.0
45.0	960.2	887.4	1033	7.6	1.9	3.9
50.0	791.6	727.0	856.2	8.2	2.1	3.8
55.0	656.0	598.8	713.3	8.7	2.4	3.7
60.0	546.4	495.7	597.1	9.3	2.6	3.6
65.0	457.3	412.5	502.2	9.8	2.8	3.5
70.0	384.5	344.8	424.3	10.3	3.0	3.4
75.0	324.8	289.6	360.0	10.8	3.2	3.3
80.0	275.5	244.3	306.7	11.3	3.5	3.2
85.0	234.7	207.0	262.4	11.8	3.7	3.2
90.0	200.7	176.1	225.3	12.3	4.0	3.1
95.0	172.3	150.4	194.2	12.7	4.2	3.0
100.0	148.5	129.0	168.0	13.1	4.5	2.9
105.0	128.4	111.0	145.8	13.6	4.7	2.9
110.0	111.4	95.85	127.0	14.0	5.0	2.8
115.0	97.02	83.06	111.0	14.4	5.3	2.7
120.0	84.74	72.22	97.26	14.8	5.5	2.7
125.0	74.25	63.00	85.51	15.2	5.8	2.6

SMD

	B57301V2472H060					
R/T No.	8500					
T (°C)	$B_{25/100}$ = 3650 K, R_{25} = 4700 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	300410	250790	350030	16.5	2.4	6.8
−50.0	215680	182480	248880	15.4	2.4	6.5
−45.0	156720	134280	179150	14.3	2.3	6.3
−40.0	115170	99862	130470	13.3	2.2	6.1
−35.0	85545	75020	96069	12.3	2.1	5.8
−30.0	64190	56900	71480	11.4	2.0	5.6
−25.0	48632	43550	53714	10.5	1.9	5.5
−20.0	37184	33622	40745	9.6	1.8	5.3
−15.0	28679	26172	31186	8.7	1.7	5.1
−10.0	22303	20534	24073	7.9	1.6	4.9
−5.0	17483	16232	18735	7.2	1.5	4.8
0.0	13808	12923	14694	6.4	1.4	4.6
5.0	10985	10360	11610	5.7	1.3	4.5
10.0	8799	8360	9239	5.0	1.1	4.4
15.0	7095	6788	7402	4.3	1.0	4.2
20.0	5757	5546	5969	3.7	0.9	4.1
25.0	**4700**	**4559**	**4841**	**3.0**	**0.8**	**4.0**
30.0	3859	3718	4000	3.7	0.9	3.9
35.0	3186	3051	3322	4.2	1.1	3.8
40.0	2645	2518	2772	4.8	1.3	3.7
45.0	2207	2089	2325	5.4	1.5	3.6
50.0	1851	1742	1960	5.9	1.7	3.5
55.0	1559	1459	1659	6.4	1.9	3.4
60.0	1319	1228	1411	6.9	2.1	3.3
65.0	1122	1039	1204	7.4	2.3	3.2
70.0	957.4	882.1	1033	7.9	2.5	3.1
75.0	820.6	752.3	888.9	8.3	2.7	3.0
80.0	706.1	644.1	768.0	8.8	3.0	3.0
85.0	609.8	553.7	665.9	9.2	3.2	2.9
90.0	528.6	477.7	579.5	9.6	3.4	2.8
95.0	459.8	413.7	506.0	10.0	3.6	2.8
100.0	401.4	359.5	443.2	10.4	3.9	2.7
105.0	351.5	313.4	389.5	10.8	4.1	2.6
110.0	308.7	274.2	343.3	11.2	4.4	2.6
115.0	272.1	240.6	303.5	11.6	4.6	2.5
120.0	240.4	211.8	269.1	11.9	4.9	2.4
125.0	213.1	186.9	239.2	12.3	5.1	2.4

SMD

	B57301V2472J060					
R/T No.	8500					
T (°C)	$B_{25/100}$ = 3650 K, R_{25} = 4700 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	300410	244780	356040	18.5	2.7	6.8
−50.0	215680	178170	253190	17.4	2.7	6.5
−45.0	156720	131140	182290	16.3	2.6	6.3
−40.0	115170	97559	132780	15.3	2.5	6.1
−35.0	85545	73309	97780	14.3	2.4	5.8
−30.0	64190	55616	72764	13.4	2.4	5.6
−25.0	48632	42577	54687	12.5	2.3	5.5
−20.0	37184	32878	41489	11.6	2.2	5.3
−15.0	28679	25598	31759	10.7	2.1	5.1
−10.0	22303	20088	24519	9.9	2.0	4.9
−5.0	17483	15882	19084	9.2	1.9	4.8
0.0	13808	12647	14970	8.4	1.8	4.6
5.0	10985	10140	11830	7.7	1.7	4.5
10.0	8799	8184	9415	7.0	1.6	4.4
15.0	7095	6646	7544	6.3	1.5	4.2
20.0	5757	5430	6084	5.7	1.4	4.1
25.0	**4700**	**4465**	**4935**	**5.0**	**1.3**	**4.0**
30.0	3859	3641	4077	5.7	1.5	3.9
35.0	3186	2988	3385	6.2	1.7	3.8
40.0	2645	2465	2825	6.8	1.9	3.7
45.0	2207	2045	2369	7.4	2.1	3.6
50.0	1851	1705	1997	7.9	2.3	3.5
55.0	1559	1428	1690	8.4	2.5	3.4
60.0	1319	1202	1437	8.9	2.7	3.3
65.0	1122	1016	1227	9.4	2.9	3.2
70.0	957.4	862.9	1052	9.9	3.2	3.1
75.0	820.6	735.8	905.3	10.3	3.4	3.0
80.0	706.1	630.0	782.1	10.8	3.6	3.0
85.0	609.8	541.5	678.1	11.2	3.9	2.9
90.0	528.6	467.2	590.1	11.6	4.1	2.8
95.0	459.8	404.5	515.2	12.0	4.4	2.8
100.0	401.4	351.5	451.3	12.4	4.6	2.7
105.0	351.5	306.4	396.5	12.8	4.9	2.6
110.0	308.7	268.0	349.5	13.2	5.2	2.6
115.0	272.1	235.1	309.0	13.6	5.4	2.5
120.0	240.4	206.9	273.9	13.9	5.7	2.4
125.0	213.1	182.7	243.5	14.3	6.0	2.4

SMD

	B57321V2103H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 10000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	961580	790320	1132800	17.8	2.4	7.4
−50.0	668920	558030	779810	16.6	2.3	7.1
−45.0	471270	398700	543840	15.4	2.2	6.9
−40.0	336060	288100	384020	14.3	2.1	6.6
−35.0	242430	210450	274400	13.2	2.1	6.4
−30.0	176810	155320	198300	12.2	2.0	6.2
−25.0	130320	115780	144860	11.2	1.9	6.0
−20.0	97020	87120	106920	10.2	1.8	5.8
−15.0	72923	66151	79695	9.3	1.7	5.6
−10.0	55314	50666	59962	8.4	1.5	5.4
−5.0	42325	39128	45522	7.6	1.4	5.3
0.0	32657	30458	34856	6.7	1.3	5.1
5.0	25400	23890	26910	5.9	1.2	4.9
10.0	19907	18875	20938	5.2	1.1	4.8
15.0	15716	15017	16415	4.4	1.0	4.7
20.0	12494	12027	12961	3.7	0.8	4.5
25.0	**10000**	**9700**	**10300**	**3.0**	**0.7**	**4.4**
30.0	8055	7756	8354	3.7	0.9	4.3
35.0	6529	6244	6813	4.4	1.1	4.1
40.0	5323	5058	5588	5.0	1.2	4.0
45.0	4364	4121	4608	5.6	1.4	3.9
50.0	3598	3376	3820	6.2	1.6	3.8
55.0	2982	2781	3183	6.7	1.8	3.7
60.0	2484	2303	2664	7.3	2.0	3.6
65.0	2079	1916	2241	7.8	2.2	3.5
70.0	1748	1602	1893	8.3	2.4	3.4
75.0	1476	1346	1607	8.8	2.6	3.3
80.0	1252	1136	1369	9.3	2.9	3.2
85.0	1067	962.3	1171	9.8	3.1	3.2
90.0	912.3	818.7	1006	10.3	3.3	3.1
95.0	783.2	699.4	867.0	10.7	3.6	3.0
100.0	674.9	599.7	750.1	11.1	3.8	2.9
105.0	583.6	516.1	651.1	11.6	4.0	2.9
110.0	506.5	445.8	567.1	12.0	4.3	2.8
115.0	441.0	386.4	495.6	12.4	4.5	2.7
120.0	385.2	336.0	434.4	12.8	4.8	2.7
125.0	337.5	293.1	381.9	13.2	5.0	2.6

SMD

	B57321V2103J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 10000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	961580	771090	1152100	19.8	2.7	7.4
−50.0	668920	544650	793180	18.6	2.6	7.1
−45.0	471270	389270	553260	17.4	2.5	6.9
−40.0	336060	281380	390740	16.3	2.4	6.6
−35.0	242430	205600	279250	15.2	2.4	6.4
−30.0	176810	151790	201840	14.2	2.3	6.2
−25.0	130320	113170	147470	13.2	2.2	6.0
−20.0	97020	85179	108860	12.2	2.1	5.8
−15.0	72923	64693	81153	11.3	2.0	5.6
−10.0	55314	49560	61068	10.4	1.9	5.4
−5.0	42325	38282	46368	9.6	1.8	5.3
0.0	32657	29805	35510	8.7	1.7	5.1
5.0	25400	23382	27418	7.9	1.6	4.9
10.0	19907	18477	21336	7.2	1.5	4.8
15.0	15716	14703	16729	6.4	1.4	4.7
20.0	12494	11778	13211	5.7	1.3	4.5
25.0	**10000**	**9500**	**10500**	**5.0**	**1.1**	**4.4**
30.0	8055	7595	8515	5.7	1.3	4.3
35.0	6529	6114	6944	6.4	1.5	4.1
40.0	5323	4951	5694	7.0	1.7	4.0
45.0	4364	4034	4695	7.6	1.9	3.9
50.0	3598	3304	3892	8.2	2.1	3.8
55.0	2982	2722	3242	8.7	2.4	3.7
60.0	2484	2253	2714	9.3	2.6	3.6
65.0	2079	1875	2283	9.8	2.8	3.5
70.0	1748	1567	1928	10.3	3.0	3.4
75.0	1476	1316	1636	10.8	3.2	3.3
80.0	1252	1111	1394	11.3	3.5	3.2
85.0	1067	940.9	1193	11.8	3.7	3.2
90.0	912.3	800.5	1024	12.3	4.0	3.1
95.0	783.2	683.7	882.7	12.7	4.2	3.0
100.0	674.9	586.2	763.6	13.1	4.5	2.9
105.0	583.6	504.5	662.8	13.6	4.7	2.9
110.0	506.5	435.7	577.3	14.0	5.0	2.8
115.0	441.0	377.6	504.4	14.4	5.3	2.7
120.0	385.2	328.3	442.1	14.8	5.5	2.7
125.0	337.5	286.4	388.7	15.2	5.8	2.6

SMD

	B57351V2103H060					
R/T No.	8505					
T (°C)	$B_{25/100}$ = 3460 K, R_{25} = 10000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	503650	423990	583310	15.8	2.5	6.3
−50.0	369790	315240	424330	14.8	2.4	6.1
−45.0	274310	236640	311970	13.7	2.3	5.9
−40.0	205500	179280	231710	12.8	2.2	5.7
−35.0	155410	137040	173780	11.8	2.2	5.5
−30.0	118600	105640	131550	10.9	2.1	5.3
−25.0	91293	82104	100480	10.1	2.0	5.1
−20.0	70862	64316	77409	9.2	1.9	5.0
−15.0	55444	50762	60126	8.4	1.7	4.8
−10.0	43713	40356	47071	7.7	1.6	4.7
−5.0	34718	32306	37129	6.9	1.5	4.5
0.0	27767	26036	29499	6.2	1.4	4.4
5.0	22359	21117	23600	5.6	1.3	4.3
10.0	18120	17233	19007	4.9	1.2	4.1
15.0	14776	14147	15405	4.3	1.1	4.0
20.0	12121	11679	12563	3.6	0.9	3.9
25.0	**10000**	**9700**	**10300**	**3.0**	**0.8**	**3.8**
30.0	8295	7995	8596	3.6	1.0	3.7
35.0	6918	6629	7207	4.2	1.2	3.6
40.0	5798	5525	6072	4.7	1.4	3.5
45.0	4883	4628	5139	5.2	1.5	3.4
50.0	4132	3895	4370	5.7	1.7	3.3
55.0	3512	3293	3731	6.2	1.9	3.2
60.0	2998	2797	3200	6.7	2.1	3.1
65.0	2570	2386	2755	7.2	2.4	3.0
70.0	2212	2044	2381	7.6	2.6	3.0
75.0	1911	1758	2065	8.0	2.8	2.9
80.0	1658	1517	1798	8.5	3.0	2.8
85.0	1443	1315	1571	8.9	3.2	2.7
90.0	1260	1143	1377	9.3	3.5	2.7
95.0	1104	997.4	1211	9.7	3.7	2.6
100.0	970.7	873.1	1068	10.0	3.9	2.5
105.0	856.0	766.8	945.1	10.4	4.2	2.5
110.0	757.1	675.5	838.7	10.8	4.4	2.4
115.0	671.6	596.9	746.3	11.1	4.7	2.4
120.0	597.4	528.9	665.9	11.5	5.0	2.3
125.0	532.8	470.0	595.7	11.8	5.2	2.3

SMD

	B57351V2103J060					
R/T No.	8505					
T (°C)	$B_{25/100}$ = 3460 K, R_{25} = 10000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	503650	413910	593390	17.8	2.8	6.3
−50.0	369790	307840	431730	16.8	2.8	6.1
−45.0	274310	231150	317460	15.7	2.7	5.9
−40.0	205500	175170	235820	14.8	2.6	5.7
−35.0	155410	133930	176890	13.8	2.5	5.5
−30.0	118600	103270	133920	12.9	2.4	5.3
−25.0	91293	80278	102310	12.1	2.3	5.1
−20.0	70862	62898	78826	11.2	2.3	5.0
−15.0	55444	49653	61235	10.4	2.2	4.8
−10.0	43713	39482	47945	9.7	2.1	4.7
−5.0	34718	31612	37823	8.9	2.0	4.5
0.0	27767	25480	30054	8.2	1.9	4.4
5.0	22359	20670	24047	7.6	1.8	4.3
10.0	18120	16871	19369	6.9	1.7	4.1
15.0	14776	13851	15701	6.3	1.6	4.0
20.0	12121	11437	12805	5.6	1.4	3.9
25.0	**10000**	**9500**	**10500**	**5.0**	**1.3**	**3.8**
30.0	8295	7829	8762	5.6	1.5	3.7
35.0	6918	6490	7345	6.2	1.7	3.6
40.0	5798	5409	6188	6.7	1.9	3.5
45.0	4883	4530	5237	7.2	2.1	3.4
50.0	4132	3812	4452	7.7	2.4	3.3
55.0	3512	3223	3802	8.2	2.6	3.2
60.0	2998	2737	3260	8.7	2.8	3.1
65.0	2570	2335	2806	9.2	3.0	3.0
70.0	2212	2000	2425	9.6	3.2	3.0
75.0	1911	1719	2104	10.0	3.5	2.9
80.0	1658	1484	1831	10.5	3.7	2.8
85.0	1443	1286	1600	10.9	4.0	2.7
90.0	1260	1118	1402	11.3	4.2	2.7
95.0	1104	975.3	1233	11.7	4.5	2.6
100.0	970.7	853.7	1088	12.0	4.7	2.5
105.0	856.0	749.7	962.2	12.4	5.0	2.5
110.0	757.1	660.4	853.8	12.8	5.3	2.4
115.0	671.6	583.5	759.7	13.1	5.5	2.4
120.0	597.4	517.0	677.8	13.5	5.8	2.3
125.0	532.8	459.3	606.4	13.8	6.1	2.3

SMD

	B57321V2473H060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 47000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 3%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	4519400	3714500	5324300	17.8	2.4	7.4
−50.0	3143900	2622700	3665100	16.6	2.3	7.1
−45.0	2215000	1873900	2556000	15.4	2.2	6.9
−40.0	1579500	1354100	1804900	14.3	2.1	6.6
−35.0	1139400	989110	1289700	13.2	2.1	6.4
−30.0	831030	730020	932030	12.2	2.0	6.2
−25.0	612510	544150	680860	11.2	1.9	6.0
−20.0	456000	409460	502530	10.2	1.8	5.8
−15.0	342740	310910	374570	9.3	1.7	5.6
−10.0	259980	238130	281820	8.4	1.5	5.4
−5.0	198930	183900	213950	7.6	1.4	5.3
0.0	153490	143150	163830	6.7	1.3	5.1
5.0	119380	112280	126480	5.9	1.2	4.9
10.0	93561	88713	98409	5.2	1.1	4.8
15.0	73864	70580	77149	4.4	1.0	4.7
20.0	58723	56529	60917	3.7	0.8	4.5
25.0	**47000**	**45590**	**48410**	**3.0**	**0.7**	**4.4**
30.0	37860	36454	39266	3.7	0.9	4.3
35.0	30685	29348	32022	4.4	1.1	4.1
40.0	25018	23772	26263	5.0	1.2	4.0
45.0	20513	19368	21658	5.6	1.4	3.9
50.0	16911	15869	17954	6.2	1.6	3.8
55.0	14015	13072	14958	6.7	1.8	3.7
60.0	11673	10824	12523	7.3	2.0	3.6
65.0	9770	9007	10533	7.8	2.2	3.5
70.0	8215	7531	8899	8.3	2.4	3.4
75.0	6939	6326	7551	8.8	2.6	3.3
80.0	5886	5337	6434	9.3	2.9	3.2
85.0	5014	4523	5505	9.8	3.1	3.2
90.0	4288	3848	4727	10.3	3.3	3.1
95.0	3681	3287	4075	10.7	3.6	3.0
100.0	3172	2819	3525	11.1	3.8	2.9
105.0	2743	2426	3060	11.6	4.0	2.9
110.0	2380	2095	2666	12.0	4.3	2.8
115.0	2073	1816	2329	12.4	4.5	2.7
120.0	1810	1579	2042	12.8	4.8	2.7
125.0	1586	1378	1795	13.2	5.0	2.6

SMD

	B57321V2473J060					
R/T No.	8502					
T (°C)	$B_{25/100}$ = 4000 K, R_{25} = 47000 Ω, T_R = 25 °C, $\Delta R_R/R_R$ = ± 5%					
	R_{nom}[Ω]	R_{min}[Ω]	R_{max}[Ω]	$\Delta R_R/R_R$[±%]	ΔT[±°C]	α (%/K)
−55.0	4519400	3624100	5414700	19.8	2.7	7.4
−50.0	3143900	2559900	3728000	18.6	2.6	7.1
−45.0	2215000	1829600	2600300	17.4	2.5	6.9
−40.0	1579500	1322500	1836500	16.3	2.4	6.6
−35.0	1139400	966320	1312500	15.2	2.4	6.4
−30.0	831030	713400	948650	14.2	2.3	6.2
−25.0	612510	531900	693110	13.2	2.2	6.0
−20.0	456000	400340	511650	12.2	2.1	5.8
−15.0	342740	304060	381420	11.3	2.0	5.6
−10.0	259980	232930	287020	10.4	1.9	5.4
−5.0	198930	179920	217930	9.6	1.8	5.3
0.0	153490	140080	166900	8.7	1.7	5.1
5.0	119380	109900	128860	7.9	1.6	4.9
10.0	93561	86841	100280	7.2	1.5	4.8
15.0	73864	69102	78626	6.4	1.4	4.7
20.0	58723	55355	62092	5.7	1.3	4.5
25.0	**47000**	**44650**	**49350**	**5.0**	**1.1**	**4.4**
30.0	37860	35696	40023	5.7	1.3	4.3
35.0	30685	28735	32636	6.4	1.5	4.1
40.0	25018	23272	26763	7.0	1.7	4.0
45.0	20513	18958	22068	7.6	1.9	3.9
50.0	16911	15531	18292	8.2	2.1	3.8
55.0	14015	12792	15239	8.7	2.4	3.7
60.0	11673	10590	12757	9.3	2.6	3.6
65.0	9770	8812	10729	9.8	2.8	3.5
70.0	8215	7367	9064	10.3	3.0	3.4
75.0	6939	6187	7690	10.8	3.2	3.3
80.0	5886	5220	6552	11.3	3.5	3.2
85.0	5014	4422	5605	11.8	3.7	3.2
90.0	4288	3762	4813	12.3	4.0	3.1
95.0	3681	3213	4149	12.7	4.2	3.0
100.0	3172	2755	3589	13.1	4.5	2.9
105.0	2743	2371	3115	13.6	4.7	2.9
110.0	2380	2048	2713	14.0	5.0	2.8
115.0	2073	1775	2371	14.4	5.3	2.7
120.0	1810	1543	2078	14.8	5.5	2.7
125.0	1586	1346	1827	15.2	5.8	2.6

SMD

Cautions and warnings

General

See "Important notes" at the end of this document.

Storage

- Store thermistors only in original packaging. Do not open the package before storage.
- Storage conditions in original packaging: storage temperature −25 °C ... +45 °C, relative humidity ≤75% annual mean, maximum 95%, dew precipitation is inadmissible.
- Do not store SMDs where they are exposed to heat or direct sunlight. Otherwise, the packing material may be deformed or SMDs may stick together, causing problems during mounting.
- Avoid contamination of thermistors surface during storage, handling and processing.
- Avoid storage of thermistor in harmful environments like corrosive gases (SOx, Cl etc).
- After opening the factory seals, such as polyvinyl-sealed packages, use the SMDs as soon as possible.
- Solder thermistors after shipment from EPCOS within the time specified:
  SMDs: 12 months
  Leaded components: 24 months

Handling

- NTC thermistors must not be dropped. Chip-offs must not be caused during handling of NTCs.
- Components must not be touched with bare hands. Gloves are recommended.
- Avoid contamination of thermistor surface during handling.

Soldering

- Use resin-type flux or non-activated flux.
- Insufficient preheating may cause ceramic cracks.
- Rapid cooling by dipping in solvent is not recommended.
- Complete removal of flux is recommended.

Mounting

- When NTC thermistors are encapsulated with sealing material or overmolded with plastic material, the precautions given in chapter “Mounting instructions”, “Sealing, potting and overmolding” must be observed.
- Electrode must not be scratched before/during/after the mounting process.
- Contacts and housings used for assembly with thermistor have to be clean before mounting.
- During operation, the thermistor’s surface temperature can be very high (ICL). Ensure that adjacent components are placed at a sufficient distance from the thermistor to allow for proper cooling ot the thermistors.
- Ensure that adjacent materials are designed for operation at temperatures comparable to the surface temperature of the thermistor. Be sure that surrounding parts and materials can withstand this temperature.
- Make sure that thermistors (ICLs) are adequately ventilated to avoid overheating.
- Avoid contamination of thermistor surface during processing.

Operation

- Use thermistors only within the specified operating temperature range.
- Use thermistors only within the specified voltage and current ranges (ICLs).
- Environmental conditions must not harm the thermistors. Use thermistors only in normal atmospheric conditions.
- Contact of NTC thermistors with any liquids and solvents should be prevented. It must be ensured that no water enters the NTC thermistor (e.g. through plug terminals). For measurement purposes (checking the specified resistance vs. temperature), the component must not be immersed in water but in suitable liquids (e.g. Galden).
- Avoid dewing and condensation.
- Be sure to provide an appropriate fail-safe function to prevent secondary product damage caused by malfunction (e.g. use VDR for limitation of overvoltage condition).

Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain **statements about the suitability of our products for certain areas of application**. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out **that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application**. As a rule, EPCOS is either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether an EPCOS product with the properties described in the product specification is suitable for use in a particular customer application.
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