



# MATERIAL TYPE: P9.7

## AVAILABLE PRODUCTS: SP

Data for material type : P9.7

Temp Range (°C)	Ratio	Beta
0 to 50	9.06	3891
0 to 70	18.64	3917
25 to 50	2.78	3934
25 to 85	9.36	3981
25 to 100	14.82	3999
25 to 125	29.79	4029
37.8 to 104.4	9.84	4027

To calculate Rt/R25 at temperatures other than those listed in the table, use the following equation:

$$Rt/R25 = \exp\{A + B/T + C/T^2 + D/T^3\}$$

where T = temperature in K

Temp Range (°C)	A	B	C	D
-50 to 0	-1.5121815 x 10 <sup>01</sup>	5.3051754 x 10 <sup>03</sup>	-2.90851754 x 10 <sup>05</sup>	1.5919020 x 10 <sup>07</sup>
0 to 50	-1.5707708 x 10 <sup>01</sup>	5.7832264 x 10 <sup>03</sup>	-4.2103540 x 10 <sup>05</sup>	2.7751459 x 10 <sup>07</sup>
50 to 100	-9.3880754 x 10 <sup>01</sup>	6.0137424 x 10 <sup>03</sup>	-5.1352303 x 10 <sup>05</sup>	3.9578581 x 10 <sup>07</sup>
100 to 150	-1.6267532 x 10 <sup>01</sup>	6.4400358 x 10 <sup>03</sup>	-6.7233836 x 10 <sup>05</sup>	5.9314090 x 10 <sup>07</sup>

To calculate the actual thermistor temperature as a function of the thermistor resistance, use the following equation:

$$1/T = a + b(\ln Rt/R25) + c(\ln Rt/R25)^2 + d(\ln Rt/R25)^3$$

Rt/R25 range	a	b	c	d
69.68 to 3.265	3.3539540 x 10 <sup>-03</sup>	2.5682855 x 10 <sup>-04</sup>	2.3119915 x 10 <sup>-06</sup>	-5.5896405 x 10 <sup>-08</sup>
3.265 to 0.3603	3.3540172 x 10 <sup>-03</sup>	2.5670858 x 10 <sup>-04</sup>	2.3927749 x 10 <sup>-06</sup>	-7.6632007 x 10 <sup>-08</sup>
0.3603 to 0.06748	3.3538682 x 10 <sup>-03</sup>	2.5624713 x 10 <sup>-04</sup>	2.0661774 x 10 <sup>-06</sup>	-9.3880754 x 10 <sup>-08</sup>
0.06748 to 0.0179	3.3534672 x 10 <sup>-03</sup>	2.5580127 x 10 <sup>-04</sup>	1.8988588 x 10 <sup>-06</sup>	-1.1502468 x 10 <sup>-07</sup>

†The deviation resulting from the tolerance on the material constant, Beta. The deviation must be added to the resistance tolerance of the part as specified at 25°C.

Temperature (°C)	Rt/R25 nominal	Temp Coef (%/°C)	β Deviation † (±%)
-50	69.680000	7.35	0.576866
-45	48.620000	7.06	0.7049465
-40	34.400000	6.79	0.8057808
-35	24.660000	6.53	0.8814745
-30	17.900000	6.30	0.9339607
-25	13.140000	6.07	0.9650157
-20	9.753000	5.86	0.9762733
-15	7.314000	5.66	0.9692375
-10	5.539000	5.47	0.9452938
-5	4.234000	5.29	0.9057197
0	3.265000	5.12	0.8516941
5	2.539000	4.95	0.6474621
10	1.989000	4.80	0.4613288
15	1.571000	4.65	0.2920942
20	1.249000	4.52	0.1386561
25	1.000000	4.38	1.11E-14
30	0.805800	4.26	0.1248089
35	0.653300	4.14	0.2366334
40	0.532800	4.02	0.3362708
45	0.437000	3.91	0.4244591
50	0.360300	3.81	0.5018821
55	0.298700	3.70	0.6382078
60	0.248800	3.61	0.7829818
65	0.208300	3.51	0.9355965
70	0.175100	3.42	1.0954843
75	0.147900	3.34	1.262115
80	0.125400	3.25	1.4349932
85	0.106800	3.17	1.6136556
90	0.091320	3.10	1.7976688
95	0.078360	3.03	1.9866274
100	0.067480	2.96	2.180152
105	0.058310	2.89	2.2616915
110	0.050550	2.82	2.3926935
115	0.043970	2.76	2.5703846
120	0.038360	2.70	2.7920885
125	0.033570	2.64	3.055226
130	0.029460	2.58	3.3573156
135	0.025930	2.53	3.6959726
140	0.022880	2.48	4.0689085
145	0.020240	2.43	4.4739296
150	0.017950	2.38	4.9089352

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