



MATERIAL TYPE: S10.5

AVAILABLE PRODUCTS: UD

Data for material type : S10.5

Temp Range (°C)	Ratio	Beta
0 to 50	10.12	4085
0 to 70	21.31	4096
25 to 50	2.90	4110
25 to 85	10.16	4125
25 to 100	16.22	4134
25 to 125	32.73	4141
37.8 to 104.4	10.52	4144

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	-1.7159688 x 10 ⁰¹	6.3308802 x 10 ⁰³	-4.4505347 x 10 ⁰⁵	2.4358897 x 10 ⁰⁷
0 to 50	-1.5196362 x 10 ⁰¹	5.1490779 x 10 ⁰³	-2.3665929 x 10 ⁰⁵	1.5598785 x 10 ⁰⁷
50 to 100	-1.5036719 x 10 ⁰¹	5.0946294 x 10 ⁰³	-2.4617882 x 10 ⁰⁵	1.8973654 x 10 ⁰⁷
100 to 150	-1.3982702 x 10 ⁰¹	4.1877968 x 10 ⁰³	-4.8576985 x 10 ⁰³	4.2854900 x 10 ⁰⁵

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
86.96 to 3.483	3.3573658 x 10 ⁻⁰³	2.3976249 x 10 ⁻⁰⁴	2.9186292 x 10 ⁻⁰⁶	-5.5139566 x 10 ⁻⁰⁸
3.483 to 0.3443	3.3540167 x 10 ⁻⁰³	2.4461895 x 10 ⁻⁰⁴	1.1649647 x 10 ⁻⁰⁶	-4.4991361 x 10 ⁻⁰⁸
0.3443 to 0.06164	3.3547004 x 10 ⁻⁰³	2.4492243 x 10 ⁻⁰⁴	8.3969261 x 10 ⁻⁰⁷	-5.3078460 x 10 ⁻⁰⁸
0.06164 to 0.0164	3.3480791 x 10 ⁻⁰³	2.3982662 x 10 ⁻⁰⁴	7.6684516 x 10 ⁻⁰⁹	-1.4110860 x 10 ⁻⁰⁹

†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	86.960000	7.65	8.5031159
-45	59.750000	7.37	7.6720988
-40	41.620000	7.10	6.8987649
-35	29.380000	6.85	6.1786417
-30	20.990000	6.61	5.5076906
-25	15.170000	6.39	4.8822561
-20	11.080000	6.17	4.299022
-15	8.182000	5.97	3.7549735
-10	6.099000	5.78	3.2473642
-5	4.589000	5.60	2.7736876
0	3.483000	5.42	2.3316514
5	2.668000	5.24	1.8714515
10	2.063000	5.07	1.4075627
15	1.608000	4.90	0.9406385
20	1.263000	4.75	0.4712718
25	1.000000	4.60	0
30	0.797400	4.46	0.472689
35	0.640200	4.33	0.9463527
40	0.517400	4.20	1.4205895
45	0.420800	4.07	1.8950351
50	0.344300	3.94	2.3693589
55	0.283500	3.83	2.6669441
60	0.234700	3.72	2.9814288
65	0.195400	3.62	3.3115592
70	0.163500	3.52	3.6561646
75	0.137400	3.42	4.0141517
80	0.116100	3.33	4.3844991
85	0.098460	3.25	4.766252
90	0.083890	3.16	5.1585178
95	0.071760	3.08	5.5604619
100	0.061640	3.00	5.9713034
105	0.053170	2.92	6.1675063
110	0.046040	2.84	6.3833198
115	0.040020	2.77	6.6175817
120	0.034900	2.70	6.8691928
125	0.030550	2.63	7.1371133
130	0.026830	2.57	7.4203596
135	0.023630	2.50	7.7180012
140	0.020880	2.44	8.0291573
145	0.018510	2.39	8.3529945
150	0.016450	2.33	8.6887236