



MATERIAL TYPE: S10.0

AVAILABLE PRODUCTS: UD

Data for material type : S10.0

Temp Range (°C)	Ratio	Beta
0 to 50	9.68	4007
0 to 70	20.15	4021
25 to 50	2.84	4022
25 to 85	9.71	4045
25 to 100	15.31	4048
25 to 125	30.53	4058
37.8 to 104.4	10.02	4059

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	-1.6866908 x 10 ⁰¹	6.2294562 x 10 ⁰³	2.4417555 x 10 ⁰⁵	2.4067033 x 10 ⁰⁷
0 to 50	-1.4320597 x 10 ⁰¹	4.6338319 x 10 ⁰³	2.4944559 x 10 ⁰⁵	9.1871170 x 10 ⁰⁶
50 to 100	-1.3528266 x 10 ⁰¹	3.9881319 x 10 ⁰³	2.4577208 x 10 ⁰⁴	-1.5144560 x 10 ⁰⁶
100 to 150	-1.2613978 x 10 ⁰¹	3.0686669 x 10 ⁰³	2.3859694 x 10 ⁰⁵	-2.6733134 x 10 ⁰⁷

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
80.20 to 3.409	3.3570409 x 10 ⁻⁰³	2.4417555 x 10 ⁻⁰⁴	3.0473488 x 10 ⁻⁰⁶	-5.8373827 x 10 ⁻⁰⁸
3.409 to 0.3522	3.3540165 x 10 ⁻⁰³	2.4944559 x 10 ⁻⁰⁴	7.2796857 x 10 ⁻⁰⁷	-3.1440043 x 10 ⁻⁰⁸
0.3522 to 0.06531	3.3510893 x 10 ⁻⁰³	2.4577208 x 10 ⁻⁰⁴	-6.5570225 x 10 ⁻⁰⁷	5.6137262 x 10 ⁻⁰⁹
0.06531 to 0.0179	3.3356311 x 10 ⁻⁰³	2.3859694 x 10 ⁻⁰⁴	-3.2335321 x 10 ⁻⁰⁷	1.1394256 x 10 ⁻⁰⁷

†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	80.200000	7.51	9.429826
-45	55.490000	7.23	8.6519716
-40	38.920000	6.97	7.8912872
-35	27.650000	6.72	7.1471232
-30	19.880000	6.49	6.4188633
-25	14.450000	6.27	5.7059224
-20	10.620000	6.06	5.0077444
-15	7.884000	5.86	4.323801
-10	5.909000	5.68	3.6535896
-5	4.469000	5.50	2.9966322
0	3.409000	5.34	2.3524733
5	2.623000	5.16	1.8709272
10	2.036000	4.98	1.394947
15	1.594000	4.82	0.924496
20	1.258000	4.66	0.4595303
25	1.000000	4.51	3.701E-14
30	0.801000	4.37	0.4541499
35	0.646000	4.23	0.9029788
40	0.524500	4.11	1.3465495
45	0.428500	3.98	1.7849276
50	0.352200	3.89	2.2181811
55	0.290800	3.78	2.6111991
60	0.241400	3.66	2.9956725
65	0.201600	3.56	3.3719324
70	0.169200	3.45	3.7402918
75	0.142700	3.35	4.101047
80	0.121000	3.26	4.4544788
85	0.103000	3.17	4.8008531
90	0.088140	3.08	5.1404224
95	0.075720	3.00	5.4734264
100	0.065310	2.96	5.800093
105	0.056460	2.88	6.1668357
110	0.048990	2.80	6.4892849
115	0.042680	2.72	6.7698172
120	0.037330	2.65	7.0106422
125	0.032760	2.58	7.2138164
130	0.028850	2.51	7.381256
135	0.025490	2.44	7.5147485
140	0.022590	2.38	7.6159637
145	0.020080	2.32	7.6864622
150	0.017910	2.26	7.7277049