



# MATERIAL TYPE: S7.8

## AVAILABLE PRODUCTS: UD

Data for material type : S7.8

Temp Range (°C)	Ratio	Beta
0 to 50	7.39	3532
0 to 70	14.17	3550
25 to 50	2.52	3559
25 to 85	7.52	3590
25 to 100	11.33	3600
25 to 125	21.24	3627
37.8 to 104.4	7.82	3622

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

$$Rt/R25 = A + B/T + C/T^2 + D/T^3$$

where T = temperature in K

Temp Range (°C)	A	B	C	D
-50 to 0	-1.4699482E+01	5.4485687E+03	-3.8911993E+05	2.1297514E+07
0 to 50	-1.3480230E+01	4.6953809E+03	-2.5884751E+05	1.7061264E+07
50 to 100	-1.3385370E+01	4.6620047E+03	-2.6943390E+05	2.0765985E+07
100 to 150	-1.1314278E+01	2.6849670E+03	3.0850677E+05	-2.7216651E+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
45.58 to 2.937	-8.9342941E-08	4.1114789E-06	2.8079207E-04	3.3538118E-03
2.937 to 0.3972	-8.2368311E-08	1.9702173E-06	2.8290063E-04	3.3540168E-03
0.3972 to 0.08830	-9.4310350E-08	1.4044273E-06	2.8130889E-04	3.3530200E-03
0.08830 to 0.0271	1.7187539E-07	-4.3649704E-07	2.6136354E-04	3.3192613E-03

†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	45.58	6.52	8.97
-45	33.11	6.27	8.19
-40	24.34	6.05	7.45
-35	18.09	5.83	6.73
-30	13.58	5.63	6.05
-25	10.30	5.44	5.39
-20	7.881	5.26	4.75
-15	6.084	5.09	4.15
-10	4.736	4.93	3.56
-5	3.716	4.78	3.00
0	2.937	4.67	2.45
5	2.334	4.52	1.93
10	1.869	4.37	1.42
15	1.507	4.23	0.93
20	1.224	4.10	0.46
25	1.000	3.98	0.00
30	0.8222	3.86	0.44
35	0.6799	3.74	0.87
40	0.5654	3.64	1.29
45	0.4727	3.53	1.70
50	0.3972	3.44	2.10
55	0.3353	3.34	2.49
60	0.2843	3.25	2.87
65	0.2422	3.16	3.24
70	0.2073	3.08	3.60
75	0.1781	2.99	3.96
80	0.1537	2.92	4.30
85	0.1331	2.84	4.64
90	0.1157	2.77	4.97
95	0.1009	2.70	5.30
100	0.08830	2.70	5.61
105	0.07731	2.62	5.93
110	0.06795	2.55	6.24
115	0.05993	2.48	6.54
120	0.05303	2.41	6.83
125	0.04709	2.35	7.12
130	0.04194	2.28	7.40
135	0.03747	2.23	7.67
140	0.03357	2.17	7.94
145	0.03017	2.11	8.20
150	0.02718	2.06	8.45