



MATERIAL TYPE: S10.9

AVAILABLE PRODUCTS: UD

Data for material type : S10.9

Temp Range (°C)	Ratio	Beta
0 to 50	10.48	4147
0 to 70	22.32	4158
25 to 50	2.96	4176
25 to 85	10.53	4190
25 to 100	16.94	4198
25 to 125	34.56	4205
37.8 to 104.4	10.91	4208

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	-1.7804976 x 10 ⁰¹	6.6661922 x 10 ⁰³	-4.9774218 x 10 ⁰⁵	2.7242682 x 10 ⁰⁷
0 to 50	-1.5710129 x 10 ⁰¹	5.4294501 x 10 ⁰³	-2.8534465 x 10 ⁰⁵	1.8807754 x 10 ⁰⁷
50 to 100	-1.5166411 x 10 ⁰¹	5.0887869 x 10 ⁰³	-2.2828274 x 10 ⁰⁵	1.7594356 x 10 ⁰⁷
100 to 150	-1.4734544 x 10 ⁰¹	4.7531896 x 10 ⁰³	-1.5196510 x 10 ⁰⁵	1.3406452 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
92.22 to 3.545	3.3584052 x 10 ⁻⁰³	2.3527874 x 10 ⁻⁰⁴	3.0966178 x 10 ⁻⁰⁶	-5.3341075 x 10 ⁻⁰⁸
3.545 to 0.3384	3.3540167 x 10 ⁻⁰³	2.4095941 x 10 ⁻⁰⁴	1.3421911 x 10 ⁻⁰⁶	-4.8750616 x 10 ⁻⁰⁸
0.3384 to 0.05902	3.3546894 x 10 ⁻⁰³	2.4092488 x 10 ⁻⁰⁴	7.3925177 x 10 ⁻⁰⁷	-4.7166850 x 10 ⁻⁰⁸
0.05902 to 0.0154	3.3531235 x 10 ⁻⁰³	2.3895783 x 10 ⁻⁰⁴	2.6671753 x 10 ⁻⁰⁷	-3.7612903 x 10 ⁻⁰⁸

†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	92.220000	7.73	7.6903819
-45	63.130000	7.44	7.0591538
-40	43.810000	7.18	6.453399
-35	30.800000	6.93	5.8714809
-30	21.910000	6.69	5.3119028
-25	15.770000	6.47	4.7732935
-20	11.480000	6.26	4.2543941
-15	8.436000	6.06	3.7540467
-10	6.262000	5.87	3.2711845
-5	4.691000	5.69	2.8048227
0	3.545000	5.49	2.3540511
5	2.706000	5.31	1.8582775
10	2.084000	5.14	1.3755713
15	1.619000	4.97	0.9053275
20	1.268000	4.82	0.4469803
25	1.000000	4.67	0
30	0.794600	4.53	0.4361104
35	0.635800	4.39	0.8618174
40	0.512100	4.27	1.2775596
45	0.415000	4.14	1.6837494
50	0.338400	4.01	2.0807755
55	0.277800	3.89	2.4775765
60	0.229300	3.78	2.8648023
65	0.190300	3.67	3.2428503
70	0.158800	3.57	3.6120946
75	0.133200	3.48	3.9728886
80	0.112200	3.38	4.3255661
85	0.094930	3.29	4.6704424
90	0.080690	3.21	5.0078161
95	0.068870	3.13	5.3379698
100	0.059020	3.04	5.6611715
105	0.050810	2.96	6.0095659
110	0.043900	2.88	6.3457031
115	0.038070	2.81	6.6701392
120	0.033140	2.74	6.983398
125	0.028940	2.68	7.2859733
130	0.025350	2.61	7.5783309
135	0.022280	2.55	7.8609107
140	0.019640	2.49	8.1341283
145	0.017370	2.43	8.3983769
150	0.015400	2.38	8.6540284