



MATERIAL TYPE: D13.8

AVAILABLE PRODUCTS: RL

Data for material type : D13.8

Temp Range (°C)	Ratio	Beta
0 to 50	12.12	4404
0 to 70	27.77	4451
25 to 50	3.20	4486
25 to 85	12.97	4561
25 to 100	22.05	4589
25 to 125	49.43	4630
37.8 to 104.4	13.88	4632

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	-2.0361452 x 10 ⁰¹	8.1450651 x 10 ⁰³	-7.5831325 x 10 ⁰⁵	4.1504393 x 10 ⁰⁷
0 to 50	-1.9840228 x 10 ⁰¹	8.0140478 x 10 ⁰³	-8.0331068 x 10 ⁰⁵	5.2948144 x 10 ⁰⁷
50 to 100	-1.8833107 x 10 ⁰¹	7.3848239 x 10 ⁰³	-7.1083347 x 10 ⁰⁵	5.4785819 x 10 ⁰⁷
100 to 150	-1.8690248 x 10 ⁰¹	7.3566309 x 10 ⁰³	-7.5091838 x 10 ⁰⁵	6.6246466 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
104.13 to 3.783	3.3559985 x 10 ⁻⁰³	2.2378858 x 10 ⁻⁰⁴	4.1383963 x 10 ⁻⁰⁶	-3.6522231 x 10 ⁻⁰⁸
3.783 to 0.3122	3.3440182 x 10 ⁻⁰³	2.2663848 x 10 ⁻⁰⁴	3.1381406 x 10 ⁻⁰⁶	-5.3835553 x 10 ⁻⁰⁸
0.3122 to 0.04535	3.3526798 x 10 ⁻⁰³	2.2409820 x 10 ⁻⁰⁴	1.9303234 x 10 ⁻⁰⁶	-6.5206279 x 10 ⁻⁰⁸
0.04535 to 0.0098	3.3472092 x 10 ⁻⁰³	2.2064064 x 10 ⁻⁰⁴	1.3583678 x 10 ⁻⁰⁶	-7.3589609 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	104.100000	7.73	6.0311408
-45	71.210000	7.48	5.4123316
-40	49.310000	7.23	4.8536872
-35	34.550000	7.01	4.3504338
-30	24.470000	6.79	3.8982614
-25	17.520000	6.59	3.4932698
-20	12.660000	6.40	3.1319217
-15	9.242000	6.21	2.8110026
-10	6.805000	6.04	2.527585
-5	5.053000	5.87	2.2789985
0	3.783000	5.71	2.0628018
5	2.855000	5.55	1.6053483
10	2.172000	5.39	1.1717281
15	1.665000	5.24	0.7605008
20	1.286000	5.10	0.3703354
25	1.000000	4.96	0
30	0.782800	4.84	0.3516468
35	0.616600	4.71	0.6856643
40	0.488700	4.59	1.0030363
45	0.389500	4.48	1.3046781
50	0.312200	4.37	1.5914423
55	0.251700	4.25	2.0327264
60	0.204100	4.14	2.4683026
65	0.166300	4.04	2.898292
70	0.136200	3.94	3.3228128
75	0.112200	3.84	3.7419807
80	0.092780	3.75	4.1559083
85	0.077080	3.66	4.5647054
90	0.064330	3.58	4.9684792
95	0.053910	3.49	5.3673341
100	0.045350	3.42	5.7613719
105	0.038310	3.34	6.0848444
110	0.032480	3.26	6.3979451
115	0.027640	3.19	6.7011173
120	0.023610	3.12	6.9947802
125	0.020230	3.05	7.2793303
130	0.017400	2.99	7.5551427
135	0.015010	2.92	7.8225725
140	0.012990	2.86	8.0819566
145	0.011270	2.80	8.3336142
150	0.009811	2.75	8.5778483

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