



# MATERIAL TYPE: D12.0

AVAILABLE PRODUCTS: RL, MS, NC, UD

Data for material type : D12.0

Temp Range (°C)	Ratio	Beta
0 to 50	11.42	4300
0 to 70	25.08	4314
25 to 50	3.08	4335
25 to 85	11.56	4356
25 to 100	18.99	4367
25 to 125	39.83	4374
37.8 to 104.4	12.02	4380

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	-1.8393219 x 10 <sup>01</sup>	6.9172170 x 10 <sup>03</sup>	-5.2439951 x 10 <sup>05</sup>	2.8701706 x 10 <sup>07</sup>
0 to 50	-1.6634994 x 10 <sup>01</sup>	5.8763651 x 10 <sup>03</sup>	-3.5086176 x 10 <sup>05</sup>	2.3126145 x 10 <sup>07</sup>
50 to 100	-1.6260733 x 10 <sup>01</sup>	5.6896214 x 10 <sup>03</sup>	-3.3885090 x 10 <sup>05</sup>	2.6116137 x 10 <sup>07</sup>
100 to 150	-1.6347069 x 10 <sup>01</sup>	5.9049156 x 10 <sup>03</sup>	-4.4157598 x 10 <sup>05</sup>	3.8956096 x 10 <sup>07</sup>

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
105.30 to 3.708	3.3562675 x 10 <sup>-03</sup>	2.2867106 x 10 <sup>-04</sup>	3.0023339 x 10 <sup>-06</sup>	-4.9166554 x 10 <sup>-08</sup>
3.708 to 0.3247	3.3540169 x 10 <sup>-03</sup>	2.3238314 x 10 <sup>-04</sup>	1.4799309 x 10 <sup>-06</sup>	-4.8940483 x 10 <sup>-08</sup>
0.3247 to 0.05265	3.3550070 x 10 <sup>-03</sup>	2.3273088 x 10 <sup>-04</sup>	1.0001279 x 10 <sup>-06</sup>	-5.4722780 x 10 <sup>-08</sup>
0.05265 to 0.0129	3.3638469 x 10 <sup>-03</sup>	2.3552593 x 10 <sup>-04</sup>	8.6665836 x 10 <sup>-07</sup>	-7.6116315 x 10 <sup>-08</sup>

†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	105.300000	7.93	6.2084394
-45	71.370000	7.64	5.8975088
-40	49.060000	7.37	5.5596574
-35	34.170000	7.11	5.1975943
-30	24.090000	6.87	4.813773
-25	17.190000	6.64	4.4104183
-20	12.400000	6.43	3.9895491
-15	9.039000	6.22	3.5529993
-10	6.654000	6.03	3.1024365
-5	4.945000	5.85	2.6393777
0	3.708000	5.68	2.1652045
5	2.805000	5.50	1.7272058
10	2.140000	5.32	1.291536
15	1.648000	5.15	0.8583556
20	1.279000	4.99	0.4278036
25	1.000000	4.84	0
30	0.787900	4.70	0.424952
35	0.625100	4.56	0.8469645
40	0.499300	4.43	1.2659631
45	0.401400	4.30	1.6818855
50	0.324700	4.16	2.0946802
55	0.264500	4.04	2.4127985
60	0.021670	3.93	2.7383626
65	0.178500	3.82	3.0707235
70	0.147900	3.72	3.4092785
75	0.123100	3.62	3.753468
80	0.102900	3.53	4.1027718
85	0.086480	3.44	4.4567064
90	0.072990	3.35	4.8148218
95	0.061860	3.27	5.1766996
100	0.052650	3.14	5.5419504
105	0.045080	3.07	5.8873508
110	0.038740	3.00	6.2251855
115	0.033410	2.92	6.5557337
120	0.028920	2.86	6.8792609
125	0.025110	2.79	7.1960189
130	0.021870	2.73	7.5062475
135	0.019110	2.67	7.8101747
140	0.016750	2.61	8.1080177
145	0.014730	2.55	8.3999831
150	0.012980	2.50	8.6862684

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