



# MATERIAL TYPE: HL24.5

## AVAILABLE PRODUCTS: UD

Data for material type : HL24.5

Temp Range (°C)	Ratio	Beta
0 to 50	21.86	5445
0 to 70	60.13	5485
25 to 50	4.19	5526
25 to 85	23.06	5585
25 to 100	43.86	5609
25 to 125	116.05	5643
37.8 to 104.4	24.67	5646

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	-2.7197874 x 10 <sup>01</sup>	1.1258413 x 10 <sup>04</sup>	-1.1540548 x 10 <sup>06</sup>	6.3164322 x 10 <sup>07</sup>
0 to 50	-3.0097515 x 10 <sup>01</sup>	8.9705138 x 10 <sup>03</sup>	-7.8436653 x 10 <sup>05</sup>	5.1699490 x 10 <sup>07</sup>
50 to 100	-3.2345965 x 10 <sup>01</sup>	8.1255489 x 10 <sup>03</sup>	-6.4128818 x 10 <sup>05</sup>	4.9425779 x 10 <sup>07</sup>
100 to 150	-3.3825133 x 10 <sup>01</sup>	7.7862186 x 10 <sup>03</sup>	-5.8802356 x 10 <sup>05</sup>	5.1875788 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
318.30 to 5.211	3.3608334 x 10 <sup>-03</sup>	1.7671536 x 10 <sup>-04</sup>	3.1089171 x 10 <sup>-06</sup>	-6.3101747 x 10 <sup>-09</sup>
5.211 to 0.2384	3.3540176 x 10 <sup>-03</sup>	1.8336112 x 10 <sup>-04</sup>	1.6234781 x 10 <sup>-06</sup>	-3.0097515 x 10 <sup>-08</sup>
0.2384 to 0.02280	3.3537489 x 10 <sup>-03</sup>	1.8217325 x 10 <sup>-04</sup>	9.2248783 x 10 <sup>-07</sup>	-3.2345965 x 10 <sup>-08</sup>
0.02280 to 0.0036	3.3482897 x 10 <sup>-03</sup>	1.7922709 x 10 <sup>-04</sup>	5.1956706 x 10 <sup>-07</sup>	-3.3825133 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	318.300000	9.48	9.3660456
-45	199.600000	9.19	8.5385525
-40	127.000000	8.92	7.7644416
-35	81.850000	8.66	7.0398248
-30	53.430000	8.41	6.3611674
-25	35.300000	8.18	5.7252488
-20	23.590000	7.96	5.1291295
-15	15.930000	7.75	4.5701211
-10	10.870000	7.55	4.0457606
-5	7.491000	7.35	3.5537879
0	5.211000	7.11	3.0921252
5	3.672000	6.90	2.5129332
10	2.614000	6.69	1.9122053
15	1.880000	6.50	1.2919412
20	1.365000	6.31	0.653977
25	1.000000	6.14	0
30	0.739000	5.97	0.668438
35	0.550600	5.81	1.3499091
40	0.413400	5.65	2.0430986
45	0.312800	5.51	2.7467953
50	0.238400	5.34	3.4598827
55	0.183200	5.20	3.9397324
60	0.141800	5.06	4.4475064
65	0.110500	4.92	4.9812027
70	0.086660	4.80	5.538953
75	0.068390	4.67	6.1190125
80	0.054300	4.56	6.7197515
85	0.043360	4.45	7.3396467
90	0.034810	4.34	7.9772739
95	0.028100	4.23	8.6313009
100	0.022800	4.13	9.300481
105	0.018590	4.03	9.5628431
110	0.015230	3.94	9.8784799
115	0.012540	3.84	10.244425
120	0.010370	3.75	10.657868
125	0.008617	3.67	11.116143
130	0.007188	3.59	11.616723
135	0.006021	3.51	12.157211
140	0.005063	3.43	12.735337
145	0.004273	3.35	13.348944
150	0.003620	3.28	13.995987

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