

NTC THERMISTORS:

STANDARD DISCS - D73 MATERIAL

DATA:

Resistance range @ 25°C50 Ω to 1000 Ω†
 Temperature coefficient of
 resistance (α) @ 25°C.....-3.83%/°C
 Operating temperature range-50°C to +150°C

Temp. Range (°C)	Resistance Ratio (Nom.)	Beta (°K)
0/50	6.9	3598
37.8/104.4	7.3	3504
25/125	19.2	3509

†This resistance range is based on the diameter/thickness combinations shown in the table below. Other R₀ @ 25°C values are available in this material system.

CONSTRUCTIONS:

To calculate $\frac{R_T}{R_{25}}$ at temperatures other than those listed in the table, use the following equation:

$$\frac{R_T}{R_{25}} = e^{(\ln A - C \ln T + \frac{D}{T})}$$

T = temperature in °K and equation constants are as follows:

Temperature Range (°C)	Ln A	C	D
-50 to 0	20.11127	4.73105	2038.89
0 to 50	5.12028	2.46778	2665.50
50 to 100	1.45940	1.92914	2842.77
100 to 150	-14.04331	-0.28735	3729.63

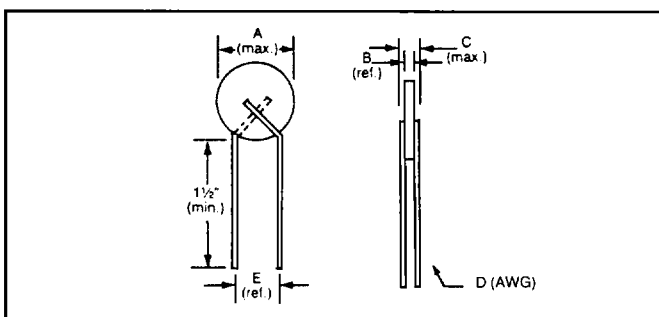
To calculate the actual thermistor temperature as a function of the thermistor resistance, use the following equation:

$$T = \frac{1}{a + b \left(\ln \frac{R_T}{R_{25}}\right) + c \left(\ln \frac{R_T}{R_{25}}\right)^2 + d \left(\ln \frac{R_T}{R_{25}}\right)^3}$$

T = temperature in °K and equation constants are as follows:

$\frac{R_T}{R_{25}}$ Range	a	b	c	d
2.813 to 38.99	3.355652E-03	2.900761E-04	5.051241E-06	-9.775751E-08
.4105 to 2.813	3.354016E-03	2.940013E-04	2.785022E-06	-1.091789E-07
.0956 to .4105	3.354468E-03	2.952076E-04	3.892524E-06	2.530826E-07
.0304 to .0956	3.323177E-03	2.733036E-04	-2.447111E-07	6.389991E-08

DIMENSIONS:



Temperature (°F)	Temperature (°C)	$\frac{R_T}{R_{25}}$	Temperature Coef. Of Resistance (α) (%/°C)
-58	-50	38.99	-6.21
-49	-45	28.74	-5.99
-40	-40	21.41	-5.78
-31	-35	16.12	-5.58
-22	-30	12.25	-5.39
-13	-25	9.400	-5.22
-4	-20	7.270	-5.05
5	-15	5.671	-4.89
14	-10	4.457	-4.74
23	-5	3.529	-4.60
32	0	2.813	-4.47
41	5	2.257	-4.33
50	10	1.824	-4.20
59	15	1.484	-4.07
68	20	1.214	-3.94
77	25	1.000	-3.83
86	30	0.8282	-3.71
95	35	0.6897	-3.61
104	40	0.5773	-3.51
113	45	0.4857	-3.41
122	50	0.4105	-3.32
131	55	0.3485	-3.23
140	60	0.2972	-3.14
149	65	0.2546	-3.06
158	70	0.2189	-2.98
167	75	0.1890	-2.90
176	80	0.1638	-2.83
185	85	0.1425	-2.76
194	90	0.1244	-2.69
203	95	0.1089	-2.63
212	100	0.09569	-2.56
221	105	0.08417	-2.50
230	110	0.07428	-2.45
239	115	0.06577	-2.39
248	120	0.05842	-2.34
257	125	0.05205	-2.28
266	130	0.04651	-2.23
275	135	0.04167	-2.19
284	140	0.03744	-2.14
293	145	0.03372	-2.10
302	150	0.03045	-2.05

Type Number	R° @ 25°C Ω	Tolerance* ± %	A		B		C		D (AWG)	E		δ (mW/°C)	τ (Sec.)
			(in.)	(mm)	(in.)	(mm)	(in.)	(mm)		(in.)	(mm)		
RL1007-624-73-D1	1000	10	0.110	2.79	0.070	1.78	0.150	3.81	26	0.100	2.54	2.8	10
RL1005-468-73-D1	750				0.050	1.27	0.130	3.30				2.5	10
RL1003-312-73-D1	500				0.030	0.76	0.110	2.79				2.5	9
RL2008-187-73-D1	300	10	0.220	5.59	0.080	2.03	0.170	4.32	24	0.156	3.96	6.5	30
RL2007-156-73-D1	250				0.070	1.78	0.160	4.06				6.5	30
RL2006-125-73-D1	200				0.060	1.52	0.150	3.81				6.5	20
RL2004-93.6-73-D1	150				0.040	1.02	0.130	3.30				6.5	20
RL2003-62.4-73-D1	100				0.030	0.76	0.120	3.05				6.5	20
RL3004-46.8-73-D1	75	10	0.320	8.13	0.040	1.02	0.130	3.30	24	0.250	6.35	7.0	35
RL3504-31.2-73-D1	50				0.040	1.02	0.130	3.30				7.5	45

*Consult Keystone Thermometrics Engineering Department for information on other tolerances or tolerances at temperatures other than 25°C.

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