



# NTC THERMISTORS:

## STANDARD DISCS – D95 MATERIAL

### DATA:

Resistance range @ 25°C.....200 Ω to 4K Ω†  
 Temperature coefficient of resistance (α) @ 25°C.....-4.43%/°C  
 Operating temperature range .....-50°C to +150°C

Temp. Range (°C)	Resistance Ratio (Nom.)	Beta (°K)
0/50	9.2	3927
37.8/104.4	9.5	3968
25/125	28.3	3970

†This resistance range is based on the diameter/thickness combinations shown in the table below. Other R<sub>0</sub> @ 25°C values are available in this material system.

### CALCULATIONS:

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	27.04135	6.03735	2189.55
0 to 50	21.07795	5.11745	2408.81
50 to 100	1.87903	2.21123	3186.46
100 to 150	-17.73390	-0.63591	4213.44

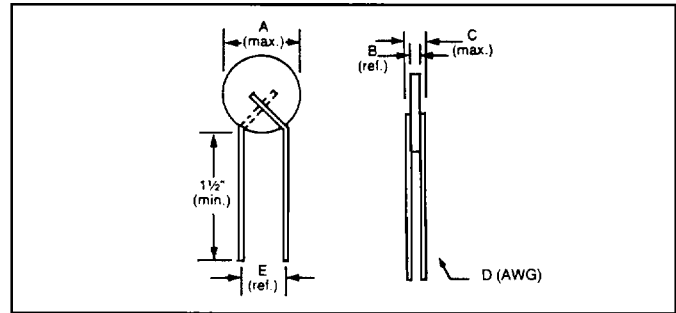
To calculate the actual thermistor temperature as a function of the thermistor resistance, use the following equation:

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

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

$\frac{R_T}{R_{25}}$ Range	a	b	c	d
3.279 to 66.97	3.357296E-03	2.508334E-04	4.189372E-06	-6.240867E-08
.3545 to 3.279	3.354016E-03	2.541522E-04	3.730922E-06	-7.881561E-08
.0688 to .3545	3.361395E-03	2.582266E-04	5.885012E-07	-2.823586E-07
.0196 to .0688	3.351295E-03	2.500181E-04	-1.725607E-07	4.356943E-08

### DIMENSIONS:



Temperature (°F)	Temperature (°C)	$\frac{R_T}{R_{25}}$	Temperature Coef. Of Resistance (α) (%/°C)
-58	-50	66.97	-7.10
-49	-45	47.25	-6.85
-40	-40	33.74	-6.62
-31	-35	24.37	-6.40
-22	-30	17.80	-6.19
-13	-25	13.13	-5.99
-4	-20	9.776	-5.80
5	-15	7.348	-5.62
14	-10	5.570	-5.46
23	-5	4.257	-5.30
32	0	3.279	-5.10
41	5	2.550	-4.95
50	10	1.998	-4.81
59	15	1.576	-4.68
68	20	1.252	-4.55
77	25	1.000	-4.43
86	30	0.8038	-4.31
95	35	0.6499	-4.20
104	40	0.5282	-4.09
113	45	0.4316	-3.99
122	50	0.3545	-3.74
131	55	0.2949	-3.63
140	60	0.2465	-3.53
149	65	0.2070	-3.44
158	70	0.1747	-3.35
167	75	0.1481	-3.26
176	80	0.1261	-3.18
185	85	0.1077	-3.10
194	90	0.09243	-3.02
203	95	0.07961	-2.95
212	100	0.06881	-2.88
221	105	0.05977	-2.81
230	110	0.05210	-2.74
239	115	0.04560	-2.68
248	120	0.04005	-2.62
257	125	0.03529	-2.56
266	130	0.03119	-2.50
275	135	0.02766	-2.45
284	140	0.02460	-2.40
293	145	0.02194	-2.34
302	150	0.01963	-2.30

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)		
RL1007-2313-95-D1	4K	10	0.110	2.79	0.070	1.78	0.150	3.81	26	0.100	2.54	2.8	10
RL1005-1735-95-D1	3K				0.050	1.27	0.130	3.30				2.5	10
RL1004-1446-95-D1	2.5K				0.040	1.02	0.120	3.05				2.5	9
RL1003-1157-95-D1	2K				0.030	0.76	0.110	2.79				2.5	9
RL2006-578-95-D1	1K	10	0.220	5.59	0.060	1.52	0.150	3.81	24	0.156	3.96	6.5	20
RL2005-434-95-D1	750				0.050	1.27	0.140	3.56				6.5	20
RL2003-289-95-D1	500				0.030	0.76	0.120	3.05				6.0	18
RL3006-231-95-D1	400	10	0.320	8.13	0.060	1.52	0.150	3.81	24	0.250	6.35	7.2	35
RL3004-144-95-D1	250				0.040	1.02	0.130	3.30				7.0	35
RL4005-116-95-D1	200	10	0.430	10.92	0.050	1.27	0.140	3.56	24	0.250	6.35	9.0	40

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

## KEYSTONE THERMOMETRICS