



NTC Thermistor RT curves

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BetaTHERM Sensors

		Material (Curve) #1				Material (Curve) #2				Material (Curve) #3				Material (Curve) #4			
Temperature deg F.	deg C.	Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.	
				BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE
-112	-80	169.20	-6.72	13.5	6.55	233.5	-7.16	13.0	6.98	729.68	-8.90	14.0	8.68				
-103	-75	121.59				163.5				471.37							
-94	-70	88.34	-6.28	11.0	5.65	115.9	-6.69	10.0	6.02	309.56	-8.29	10.5	7.46				
-85	-65	64.87				83.17				206.49							
-76	-60	48.12	-5.88	8.8	3.53	60.39	-6.26	8.0	3.76	139.79	-7.69	8.5	4.61				
-67	-55	36.04				44.33				95.978				60.86			
-58	-50	27.24	-5.51	7.3	3.03	32.89	-5.85	6.0	3.22	66.782	-7.14	6.5	3.93	44.17	-6.30	5.3	3.47
-49	-45	20.778				24.64				47.061				32.39			
-40	-40	15.983	-5.16	6.3	2.53	18.641	-5.47	4.8	2.68	33.5668	-6.61	5.3	3.24	23.983	-5.92	4.6	2.90
-31	-35	12.395				14.231				24.2193				17.928			
-22	-30	9.689	-4.85	5.3	1.94	10.960	-5.12	4.0	2.05	17.6682	-6.21	4.5	2.48	13.523	-5.56	3.9	2.22
-13	-25	7.630				8.511				13.0242				10.289			
-4	-20	6.053	-4.56	4.3	1.46	6.662	-4.82	3.3	1.54	9.6973	-5.81	3.7	1.86	7.893	-5.23	3.3	1.67
5	-15	4.835				5.255				7.2894				6.1030			
14	-10	3.888	-4.29	3.5	1.07	4.175	-4.54	2.6	1.14	5.5297	-5.51	3.0	1.38	4.7549	-4.94	2.7	1.24
23	-5	3.147				3.341				4.2314				3.7316			
32	0	2.563	-4.04	2.7	0.81	2.691	-4.25	2.1	0.85	3.2651	-5.20	2.4	1.04	2.9490	-4.65	2.2	0.93
41	5	2.100				2.182				2.5395				2.3462			
50	10	1.730	-3.82	2.0	0.76	1.780	-4.02	1.6	0.80	1.9903	-4.80	1.8	0.96	1.8787	-4.40	1.7	0.88
59	15	1.434				1.460				1.5714				1.5136			
68	20	1.194	-3.60	1.3	0.72	1.205	-3.78	1.2	0.76	1.2494	-4.52	1.3	0.90	1.2268	-4.16	1.2	0.83
77	25	1.0000	-3.50	1.0	0.70	1.0000	-3.68	1.0	0.74	1.0000	-4.39	1.0	0.88	1.0000	-4.04	1.0	0.81
86	30	0.8414	-3.41	1.3	0.68	0.8342	-3.57	1.2	0.71	0.80560	-4.26	1.3	0.85	0.81966	-3.92	1.2	0.78
95	35	0.7114				0.6993				0.65301				0.67539			
104	40	0.6034	-3.22	1.9	0.64	0.5892	-3.39	1.6	0.68	0.53249	-4.03	1.7	0.81	0.55937	-3.73	1.6	0.75
113	45	0.5155				0.4987				0.43669				0.46557			
122	50	0.4417	-3.05	2.4	0.61	0.4240	-3.21	2.0	0.64	0.36010	-3.80	2.2	0.76	0.38933	-3.53	2.0	0.71
131	55	0.3800				0.3620				0.29851				0.32707			
140	60	0.3283	-2.89	2.9	0.58	0.3104	-3.04	2.3	0.61	0.24871	-3.61	2.6	0.72	0.27599	-3.36	2.3	0.67
149	65	0.2846				0.2673				0.20823				0.23387			
158	70	0.2477	-2.74	3.4	0.55	0.2310	-2.88	2.7	0.58	0.17516	-3.42	3.0	0.68	0.19900	-3.19	2.7	0.64
167	75	0.2164				0.2004				0.14801				0.17000			
176	80	0.1897	-2.60	3.8	0.65	0.1745	-2.73	3.0	0.68	0.12562	-3.25	3.3	0.81	0.14579	-3.05	3.0	0.76
185	85	0.1668				0.1524				0.10706				0.125483			
194	90	0.1472	-2.47	4.2	0.77	0.1336	-2.58	3.3	0.80	0.091610	-3.07	3.7	0.95	0.108395	-2.91	3.3	0.90
203	95	0.1302				0.1175				0.078698				0.093960			
212	100	0.1156	-2.35	4.7	0.82	0.1037	-2.49	3.7	0.87	0.067863	-2.92	4.0	1.02	0.081719	-2.78	3.5	0.97
221	105					0.0917				0.058730				0.071303			
230	110					0.0814	-2.40	4.0	0.96	0.051006	-2.77	4.3	1.11	0.062409	-2.65	3.8	1.06
239	115					0.0725				0.044448				0.054792			
248	120					0.0647	-2.25	4.4	1.24	0.038859	-2.64	4.6	1.45	0.048246	-2.52	4.0	1.39
257	125					0.0579				0.034082				0.042603			
266	130					0.0519	-2.23	4.7	1.34	0.029982	-2.51	4.9	1.51	0.037723	-2.42	4.3	1.45
275	135					0.0467				0.026454				0.033492			
284	140					0.0421	-2.03	5.0	1.62	0.023408	-2.41	5.1	1.93	0.029812	-2.32	4.5	1.86
293	145					0.0380				0.020770				0.026604			
302	150					0.0344	-2.01	5.3	1.91	0.018478	-2.31	5.4	2.19	0.023798	-2.23	4.7	2.12
311	155									0.016457				0.021338			
320	160					0.014713				0.014713	-2.21	5.8		0.019177	-2.11	5.1	
329	165					0.013187				0.013187				0.017273			
338	170					0.011847	-2.17	6.1		0.011847	-2.17	6.1		0.015592	-2.03	5.5	
347	175					0.010667				0.010667				0.014103			
356	180					0.009626	-2.03	6.4		0.009626	-2.03	6.4		0.012783	-1.95	5.8	
365	185					0.008705				0.008705				0.011609			
374	190					0.007888	-1.95	6.7		0.007888	-1.95	6.7		0.010564	-1.87	6.0	
383	195					0.007163				0.007163				0.009630			
392	200					0.006517	-1.87	6.9		0.006517	-1.87	6.9		0.008795	-1.80	6.2	
401	205					0.005940				0.005940				0.008046			
410	210					0.005425	-1.80	7.1		0.005425	-1.80	7.1		0.007374	-1.73	6.6	
419	215					0.004963				0.004963				0.006769			
428	220					0.004548	-1.73	7.3		0.004548	-1.73	7.3		0.006224	-1.66	7.0	
437	225					0.004175				0.004175				0.005732			
446	230					0.003839	-1.66	7.5		0.003839	-1.66	7.5		0.005287	-1.60	7.3	
455	235					0.003536				0.003536				0.004884			
464	240					0.003261	-1.60	7.7		0.003261	-1.60	7.7		0.004518	-1.54	7.6	
473	245					0.003013				0.003013				0.004185			
482	250					0.002787	-1.54	7.9		0.002787	-1.54	7.9		0.003882	-1.49	7.8	
491	255					0.002582				0.002582				0.003606			
500	260					0.002396	-1.49	8.1		0.002396	-1.49	8.1		0.003354	-1.44	8.0	
509	265					0.002226				0.002226				0.003124			
518	270					0.002070	-1.43	8.3		0.002070	-1.43	8.3		0.002913	-1.39	8.3	
527	275					0.001929				0.001929				0.002720			
536	280					0.001799	-1.38	8.4		0.001799	-1.38	8.4		0.002542	-1.34	8.5	
545	285					0.001679				0.001679				0.002379			
554	290					0.001570	-1.34	8.6		0.001570	-1.34	8.6		0.002229	-1.29	8.7	
563	295					0.001469				0.001469				0.002090			
572	300					0.001377	-1.29	8.7		0.001377	-1.29	8.7		0.001962	-1.25	8.8	

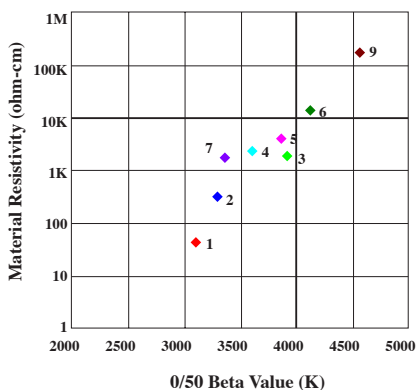
BetaTHERM Sensors

		Material (Curve) #5				Material (Curve) #6				Material (Curve) #7				Material (Curve) #9			
Temperature deg F. deg C.	Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		Resistance Multiplier	Alpha (-%/ °C)	Max. Deviation (%) from Curve Nom.		
			BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE			BetaCHIP	BetaCURVE	
-112	-80																
-103	-75																
-94	-70																
-85	-65																
-76	-60																
-67	-55	79.36			121.63				54.14								
-58	-50	56.43	-6.67	5.70	3.67	83.38	-7.40	7.0	4.07	39.49	-6.67	6.7	3.67				
-49	-45	40.57				57.89				29.11							
-40	-40	29.47	-6.26	4.61	3.07	40.672	-6.83	6.1	3.35	21.68	-5.55	5.3	2.72				
-31	-35	21.63				28.909				16.31							
-22	-30	16.02	-5.91	3.92	2.36	20.774	-6.45	5.1	2.58	12.38	-5.43	4.5	2.17				
-13	-25	11.98				15.085				9.485							
-4	-20	9.032	-5.57	3.29	1.78	11.065	-6.08	4.2	1.95	7.329	-5.08	3.7	1.63				
5	-15	6.869				8.1938				5.709							
14	-10	5.266	-5.25	2.71	1.31	6.1237	-5.74	3.4	1.44	4.482	-4.76	3.0	1.19				
23	-5	4.068				4.6169				3.546							
32	0	3.166	-4.94	2.17	0.99	3.5102	-5.40	2.6	1.08	2.825	-4.48	2.4	0.90	3.966	-5.86	3.5	1.17
41	5	2.481				2.6904				2.266				2.969			
50	10	1.958	-4.67	1.68	0.93	2.0781	-5.10	2.0	1.02	1.830	-4.21	1.8	0.84	2.239	-5.58	2.3	1.12
59	15	1.556				1.6170				1.487				1.700			
68	20	1.243	-4.41	1.22	0.88	1.2673	-4.81	1.3	0.96	1.216	-3.99	1.3	0.80	1.300	-5.31	1.3	1.06
77	25	1.0000	-4.30	1.00	0.86	1.0000	-4.68	1.0	0.94	1.0000	-3.87	1.0	0.77	1.0000	-5.18	1.0	1.04
86	30	0.8089	-4.18	1.21	0.84	0.79428	-4.55	1.3	0.91	0.8270	-3.76	1.3	0.75	0.7734	-5.05	1.7	1.01
95	35	0.6580				0.63489				0.6876				0.6033			
104	40	0.5382	-3.96	1.61	0.79	0.51058	-4.30	1.9	0.86	0.5747	-3.56	1.7	0.71	0.4729	-4.81	2.8	0.96
113	45	0.4425				0.41301				0.4827				0.3728			
122	50	0.3656	-3.77	1.98	0.75	0.33598	-4.08	2.4	0.82	0.4074	-3.36	2.2	0.67	0.2956	-4.59	3.5	0.92
131	55	0.3036				0.27480				0.3454				0.2357			
140	60	0.2532	-3.58	2.33	0.72	0.22593	-3.87	2.9	0.77	0.2941	-3.17	2.6	0.63	0.1889	-4.37	4.3	0.88
149	65	0.2122				0.18669				0.2515				0.1522			
158	70	0.1786	-3.42	2.66	0.68	0.15502	-3.68	3.3	0.74	0.2160	-2.99	3.0	0.60	0.1233	-4.17	5.2	0.84
167	75	0.1509				0.12932				0.1862				0.1004			
176	80	0.1281	-3.25	2.97	0.81	0.10837	-3.49	3.7	0.87	0.1612	-2.84	3.3	0.71	0.0821	-3.97	5.9	0.99
185	85	0.1091				0.091215				0.1400				0.0674			
194	90	0.09333	-3.10	3.26	0.96	0.077097	-3.33	4.1	1.03	0.1220	-2.69	3.7	0.83	0.0557	-3.79	6.6	1.18
203	95	0.08011				0.065428				0.1067				0.0462			
212	100	0.06900	-2.95	3.53	1.03	0.055744	-3.17	4.5	1.11	0.0937	-2.54	4.0	0.89	0.0384	-3.62	7.3	1.26
221	105	0.05964				0.047674				0.0825				0.0321			
230	110	0.05173	-2.81	3.79	1.12	0.040921	-3.04	4.9	1.22	0.0728	-2.36	4.3	0.94	0.0270	-3.46	8.0	1.38
239	115	0.04500				0.035251				0.0645				0.0228			
248	120	0.03928	-2.68	4.03	1.47	0.030469	-2.91	5.2	1.60	0.0573	-2.31	4.6	1.20	0.0193	-3.30	8.6	1.82
257	125	0.03438				0.026424				0.0510				0.0164			
266	130	0.03019	-2.59	4.26	1.55	0.022990	-2.87	5.5	1.72	0.0456	-2.12	4.9	1.29	0.0139	-3.16	9.3	1.90
275	135	0.02658				0.020064				0.0408				0.0119			
284	140	0.02346	-2.49	4.48	1.99	0.017563	-2.74	5.8	2.19	0.0366	-2.00	5.1	1.60	0.0102	-3.02	9.7	2.41
293	145	0.02077				0.015419				0.0330				0.0088			
302	150	0.01843	-2.39	4.69	2.27	0.013575	-2.60	6.1	2.47	0.0298	-1.88	5.4	79	0.0076	-2.89	10.3	2.75
311	155	0.01646				0.011966				0.0269				0.00660			
320	160	0.01468	-2.26	5.1		0.010590	-2.42	6.5		0.0244	-1.95	5.8		0.00573	-2.78	10.9	
329	165	0.01313				0.009396				0.0221				0.00499			
338	170	0.01177	-2.15	5.3		0.008358	-2.32	6.9		0.0201	-1.87	6.1		0.00436	-2.67	11.3	
347	175	0.01058				0.007453				0.0184				0.00382			
356	180	0.009522	-2.08	5.6		0.006661	-2.22	7.3		0.0168	-1.79	6.4		0.00336	-2.57	11.7	
365	185	0.008592				0.005967				0.0154				0.00295			
374	190	0.007768	-2.00	5.9		0.005357	-2.14	7.7		0.0141	-1.72	6.7		0.00261	-2.47	12.2	
383	195	0.007037				0.004820				0.0129				0.00231			
392	200	0.006388	-1.92	6.1		0.004345	-2.05	8.1		0.0119	-1.65	7.0		0.00205	-2.38	12.8	
401	205	0.005809				0.003925				0.0110				0.00182			
410	210	0.005293	-1.84	6.3		0.003553	-1.97	8.4		0.0101	-1.58	7.3		0.00162	-2.29	13.2	
419	215	0.004831				0.003223				0.00936				0.00145			
428	220	0.004417	-1.77	6.5		0.002928	-1.90	8.7		0.00867	-1.52	7.6		0.00129	-2.20	13.7	
437	225	0.004045				0.002665				0.00804				0.00116			
446	230	0.003711	-1.71	6.7		0.002430	-1.83	9.0		0.00747	-1.46	7.8		0.001045	-2.12	14.1	
455	235	0.003410				0.002220				0.00695				0.000941			
464	240	0.003138	-1.65	6.9		0.002031	-1.76	9.3		0.00647	-1.41	8.0		0.000848	-2.05	14.5	
473	245	0.002892				0.001862				0.00604				0.000767			
482	250	0.002669	-1.59	7.1		0.001709	-1.70	9.6		0.00564	-1.35	8.3		0.000694	-1.98	14.9	
491	255	0.002467				0.001571				0.00527				0.000629			
500	260	0.002284	-1.53	7.3		0.001446	-1.64	9.9		0.00494	-1.31	8.5		0.000570	-1.91	15.3	
509	265	0.002117				0.001333				0.00463				0.000520			
518	270	0.001965	-1.48	7.4		0.001231	-1.58	10.2		0.00434	-1.26	8.7		0.000474	-1.84	15.6	
527	275	0.001826				0.001138				0.00408				0.000432			
536	280	0.001699	-1.43	7.5		0.001054	-1.53	10.4		0.00384	-1.21	8.9		0.000395	-1.78	15.9	
545	285	0.001583				0.000977				0.00361				0.000362			
554	290	0.001477	-1.38	7.7		0.000907	-1.48	10.6		0.00341	-1.17	9.1		0.000332	-1.72	16.3	
563	295	0.001379				0.000843				0.00321				0.000304			
572	300	0.001290	-1.33	7.8		0.000785	-1.43	10.9		0.00304	-1.13	9.3		0.000280	-1.67	16.6	

Resistance ratio, Slope and Beta specifications

Material (Curve) Number	1	2	3	4	5	6	7	9
Typical Resistance Range (ohms @ 25 °C)	50 to 500	100 to 1K	2K to 20K	5K to 30K	10K to 50K	50K to 100K	100 to 10K	100K to 1Meg
0/50 Nominal Beta Value	3108	3263	3892	3575	3811	4143	3422	4582
Max % Deviation								
<i>BetaCHIP</i>	1.7	0.92	1.4	1.0	0.94	1.3	1.0	1.9
<i>BetaCURVE</i>	0.4	0.38	0.32	0.30	0.33	0.30	0.36	0.63
Nominal 0/50 R Ratio	5.8	6.35	9.06	7.58	8.65	10.45	6.95	13.40
Max % Deviation								
<i>BetaCHIP</i>	3.2	2.1	2.5	2.2	2.2	3.1	2.5	3.4
<i>BetaCURVE</i>	0.9	0.7	0.7	0.9	0.9	0.9	0.7	1.1
Nominal 0/70 R Ratio	10.35	11.65	18.65	14.82	17.73	22.65	13.08	32.17
Max % Deviation								
<i>BetaCHIP</i>	4.2	2.8	3.4	2.9	2.9	4.1	3.4	4.7
<i>BetaCURVE</i>	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.2
Nominal 25/125 R Ratio	10.35	17.33	29.27	23.51	29.15	38.07	19.05	61.96
Max % Deviation								
<i>BetaCHIP</i>	NA	3.7	3.9	3.3	3.3	4.6	3.9	5.2
<i>BetaCURVE</i>	NA	1.5	1.4	1.3	1.3	1.3	1.4	1.4

Material Resistivity - Beta Characteristics for BetaTHERM Thermistors Materials (Curves)



Beta Value vs Temperature for BetaTHERM Thermistors Materials (Curves)

