SMD 0805, Glass Protected NTC Thermistors

FEATURES

- TCR ranging from - 6 %/K at - 40 °C to - 2 %/K at 150 °C
- Tolerance on R_{25} down to 1 %, and on $B_{25/85}$ down to 1 %
- Suitable for wave or reflow soldering
- NiSn terminations
- Fully glass coated and protected
- cUL recognized for safety applications (file E148885)
- AEC-Q200 qualified
- Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

RoHS COMPLIANT

HALOGEN FREE

APPLICATIONS

- Temperature sensing, protection and compensation in automotive, industrial, telecom and consumer applications. Examples are:
  - Battery chargers
  - Power suppliers
  - Office equipment
  - LCD compensation
  - In-car entertainment

DESCRIPTION

Size 0805 chip thermistors with a negative temperature coefficient. The device has no marking.

PACKAGING

Available in 8 mm punched paper tape on reel package of 4000 units.

DESIGN-IN SUPPORT

For complete Curve Computation, visit:
www.vishay.com/resistors-non-linear/curve-computation-list/

QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Resistance value at 25 °C	2.2K to 680K	Ω
Tolerance on R_{25}-value	± 1; ± 2; ± 3; ± 5	%
$B_{25/85}$-value	3430 to 4125	K
Tolerance on $B_{25/85}$-value	± 1; ± 3	%
Maximum dissipation at 25 °C	210	mW
Thermal time constant τ	≈ 10	s
Dissipation factor D	3.5	mW/K
Operating temperature range at zero power	- 40 to + 150	°C
Weight	≈ 0.008	g

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25}-VALUE (kΩ)	$B_{25/85}$-VALUE (K)	TOLERANCE ON $B_{25/85}$ (%)	SAP MATERIAL AND ORDERING NUMBER NTCS0805E3... (1)	12NC OLD MATERIAL NUMBER 2381 615 5... (2)
2.2	3600	± 1	222*MT	*222
4.7	3500	± 1	472*MT	*472
10	3430	± 3	103*LT	-
10	3570	± 3	103*MT	*103
10	3940	± 1	103*HT	-
15	3700	± 1	153*MT	*153
22	3800	± 1	223*HT	*223
33	3920	± 1	333*HT	*333
47	3960	± 1	473*HT	*473
68	4100	± 1	683*XT	*683
100	3590	± 1	104*MT	-
100	4100	± 1	104*XT	*104
330	3930	± 1	334*HT	*334
470	4025	± 1	474*XT	*474
680	4125	± 1	684*XT	*684

Notes

(1) Replace * in SAP by J for 5 %, H for 3 %, G for 2 %, F for 1 % tolerance on R_{25}

(2) Replace * in 12NC by 3 for 5 %, 6 for 3 %, 4 for 2 %, 5 for 1 % tolerance on R_{25}

For technical questions, contact: nlr@vishay.com

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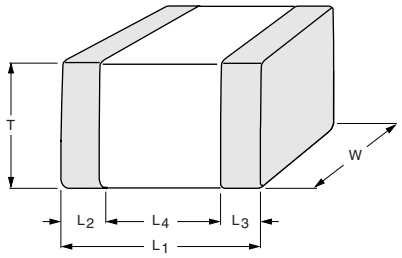
DIMENSIONS in millimeters



L_1	W	T	L_2 AND L_3 MIN.	L_4 MIN.
2.0 ± 0.2	1.25 ± 0.15	0.8 ± 0.15	0.2	0.55

For complete Curve Computation, visit: www.vishay.com/resistors-non-linear/curve-computation-list/

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 2.2 kΩ AND 4.7 kΩ

T_{OPER} (°C)	PART NUMBER NTCS0805E3222*MT		PART NUMBER NTCS0805E3472*MT		$\Delta R/R$ DUE TO $B_{tol.}$ (± %)
	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	
- 40	57 658	- 6.26	101 275	- 5.75	7.58
- 35	42 410	- 6.03	76 325	- 5.57	6.83
- 30	31 537	- 5.82	58 034	- 5.39	6.13
- 25	23 698	- 5.61	44 505	- 5.22	5.45
- 20	17 986	- 5.42	34 413	- 5.06	4.80
- 15	13 782	- 5.23	26 821	- 4.91	4.18
- 10	10 657	- 5.06	21 065	- 7.76	3.58
- 5	8312.0	- 4.89	16 667	- 4.61	3.01
0	6537.1	- 4.72	13 280	- 4.47	2.46
5	5182.1	- 4.57	10 654	- 4.34	1.93
10	4139.2	- 4.42	8603.2	- 4.21	1.42
15	3330.1	- 4.28	6991.1	- 4.09	0.93
20	2697.8	- 4.14	5715.6	- 3.97	0.46
25	2200.0	- 4.02	4700.0	- 3.86	0.00
30	1805.5	- 3.89	3886.6	- 3.75	0.22
35	1490.7	- 3.77	3231.2	- 3.64	0.43
40	1237.9	- 3.66	2700.3	- 3.54	0.64
45	1033.7	- 3.55	2267.9	- 3.44	0.84
50	867.85	- 3.45	1913.9	- 3.35	1.03
55	732.31	- 3.35	1622.6	- 3.26	1.22
60	620.96	- 3.25	1381.7	- 3.17	1.40
65	529.02	- 3.16	1181.7	- 3.09	1.58
70	452.73	- 3.07	1014.7	- 3.01	1.75
75	389.13	- 2.99	874.85	- 2.93	1.92
80	335.85	- 2.90	757.13	- 2.85	2.08
85	291.02	- 2.83	657.67	- 2.78	2.23
90	253.15	- 2.75	573.31	- 2.71	2.54
95	221.03	- 2.68	501.48	- 2.64	2.85
100	193.66	- 2.61	440.10	- 2.58	3.14
105	170.27	- 2.54	387.47	- 2.52	3.43
110	150.20	- 2.48	342.18	- 2.46	3.71
115	132.91	- 2.41	303.09	- 2.40	3.98
120	117.98	- 2.35	269.24	- 2.34	4.24
125	105.03	- 2.20	239.83	- 2.29	4.50
130	93.766	- 2.24	214.20	- 2.23	4.76
135	83.943	- 2.19	191.82	- 2.18	5.00
140	75.349	- 2.13	172.20	- 2.13	5.25
145	67.807	- 2.08	154.96	- 2.09	5.48
150	61.172	- 2.04	139.78	- 2.04	5.71

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RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 10 kΩ							
T_{OPER} (°C)	PART NUMBER NTCS0805E3103*LT		PART NUMBER NTCS0805E3103*MT		PART NUMBER NTCS0805E3103*HT		$\Delta R/R$ DUE TO $B_{tol.}$ (± %)
	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	
- 40	182 928	- 5.47	232 634	- 5.92	335 922	- 6.60	11.22
- 35	139 839	- 5.28	173 538	- 5.71	242 721	- 6.40	10.14
- 30	107 902	- 5.10	130 769	- 5.51	177 179	- 6.19	9.10
- 25	83 986	- 4.93	99 489	- 5.33	130 625	- 6.00	8.11
- 20	65 904	- 4.77	76 385	- 5.15	97 234	- 5.81	7.15
- 15	52 111	- 4.62	59 157	- 4.98	73 056	- 5.63	6.24
- 10	41 501	- 4.48	46 194	- 4.82	55 387	- 5.45	5.35
- 5	33 276	- 4.35	36 356	- 4.67	42 358	- 5.28	4.50
0	26 851	- 4.23	28 829	- 4.52	32 666	- 5.11	3.68
5	21 799	- 4.11	23 025	- 4.38	25 396	- 4.96	2.89
10	17 798	- 4.00	18 515	- 4.25	19 898	- 4.80	2.13
15	14 612	- 3.89	14 986	- 4.12	15 708	- 4.66	1.40
20	12 058	- 3.79	12 205	- 4.00	12 490	- 4.51	0.69
25	10 000	- 3.69	10 000	- 3.88	10 000	- 4.38	0.00
30	8332.5	- 3.60	8240.3	- 3.77	8060.1	- 4.25	0.66
35	6974.6	- 3.51	6827.5	- 3.66	6538.4	- 4.12	1.31
40	5863.2	- 3.43	5686.6	- 3.56	5336.7	- 4.00	1.93
45	4949.5	- 3.35	4760.3	- 3.46	4381.9	- 3.88	2.53
50	4194.8	- 3.27	4004.2	- 3.37	3618.5	- 3.77	3.11
55	3568.8	- 3.19	3383.8	- 3.28	3004.5	- 3.67	3.68
60	3047.5	- 3.12	2872.3	- 3.19	2507.9	- 3.56	4.23
65	2611.5	- 3.05	2448.5	- 3.11	2104.1	- 3.46	4.76
70	2245.5	- 2.99	2095.9	- 3.03	1774.0	- 3.37	5.28
75	1937.2	- 2.92	1801.2	- 2.95	1502.7	- 3.27	5.78
80	1676.6	- 2.86	1553.8	- 2.88	1278.7	- 3.18	6.27
85	1455.4	- 2.80	1345.3	- 2.81	1092.8	- 3.10	6.74
90	1267.2	- 2.74	1168.9	- 2.74	937.89	- 3.02	7.20
95	1106.5	- 2.68	1019.2	- 2.67	808.21	- 2.94	7.65
100	968.83	- 2.63	891.48	- 2.61	699.18	- 2.86	8.09
105	850.57	- 2.53	782.28	- 2.54	607.15	- 2.79	8.51
110	748.69	- 2.53	688.56	- 2.48	529.14	- 2.71	8.93
115	660.67	- 2.48	607.85	- 2.43	462.78	- 2.65	9.33
120	584.42	- 2.43	538.14	- 2.37	406.10	- 2.58	9.73
125	518.20	- 2.38	477.73	- 2.32	357.54	- 2.52	10.11
130	460.53	- 2.34	425.24	- 2.26	315.77	- 2.45	10.48
135	410.19	- 2.29	379.49	- 2.21	279.73	- 2.39	10.85
140	366.15	- 2.25	339.51	- 2.17	248.53	- 2.34	11.20
145	327.52	- 2.21	304.47	- 2.12	221.44	- 2.28	11.55
150	293.56	- 2.17	273.69	- 2.07	197.84	- 2.23	11.89

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RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 15 kΩ, 22 kΩ AND 47 kΩ

T_{OPER} (°C)	PART NUMBER NTCS0805E3153*MT		PART NUMBER NTCS0805E3223*HT		PART NUMBER NTCS0805E3333*MT		$\Delta R/R$ DUE TO $B_{tol.}$ (± %)
	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	
- 40	391 251	- 6.14	641 004	- 6.40	1 104 739	- 6.79	7.58
- 35	289 245	- 5.94	468 038	- 6.18	793 249	- 6.53	6.83
- 30	215 960	- 5.75	345 469	- 5.97	576 683	- 6.28	6.13
- 25	162 779	- 5.56	257 644	- 5.77	424 161	- 6.05	5.45
- 20	123 815	- 5.38	194 045	- 5.57	315 430	- 5.84	4.80
- 15	95 001	- 5.21	147 521	- 5.39	237 022	- 5.63	4.18
- 10	73 505	- 5.05	113 159	- 5.22	179 865	- 5.44	3.58
- 5	57 329	- 4.89	87 544	- 5.05	137 767	- 5.26	3.01
0	45 058	- 4.74	68 281	- 4.89	106 459	- 5.08	2.46
5	35 674	- 4.60	53 672	- 4.74	82 958	- 4.92	1.93
10	28 445	- 4.46	42 503	- 4.59	65 162	- 4.76	1.42
15	22 834	- 4.33	33 898	- 4.46	51 572	- 4.61	0.93
20	18 450	- 4.20	27 220	- 4.32	41 112	- 4.47	0.46
25	15 000	- 4.08	22 000	- 4.20	33 000	- 4.34	0.00
30	12 268	- 3.96	17 892	- 4.07	26 663	- 4.21	0.22
35	10 092	- 3.85	14 638	- 3.96	21 678	- 4.08	0.43
40	8347.4	- 3.74	12 045	- 3.84	17 730	- 3.97	0.64
45	6941.1	- 3.64	9965.0	- 3.74	14 585	- 3.86	0.84
50	5801.1	- 3.54	8288.3	- 3.63	12 063	- 3.75	1.03
55	4872.1	- 3.44	6928.4	- 3.54	10 030	- 3.65	1.22
60	4111.1	- 3.35	5819.8	- 3.44	8381.6	- 3.55	1.40
65	3484.7	- 3.26	4911.4	- 3.35	7037.8	- 3.45	1.58
70	2966.6	- 3.18	4163.4	- 3.26	5936.8	- 3.36	1.75
75	2536.2	- 3.09	3544.6	- 3.18	5030.3	- 3.27	1.92
80	2176.9	- 3.02	3030.2	- 3.10	4280.4	- 3.19	2.08
85	1875.8	- 2.94	2600.9	- 3.02	3657.2	- 3.11	2.23
90	1622.5	- 2.87	2241.0	- 2.94	3137.1	- 3.03	2.54
95	1408.4	- 2.79	1938.0	- 2.87	2701.2	- 2.96	2.85
100	1226.8	- 2.73	1682.0	- 2.80	2334.4	- 2.89	3.14
105	1072.3	- 2.66	1464.9	- 2.73	2024.4	- 2.82	3.43
110	940.20	- 2.60	1280.0	- 2.67	1761.6	- 2.75	3.71
115	827.00	- 2.54	1122.0	- 2.60	1538.0	- 2.69	3.98
120	729.62	- 2.48	986.60	- 2.54	1346.9	- 2.63	4.24
125	645.60	- 2.42	870.11	- 2.48	1183.23	- 2.57	4.50
130	572.86	- 2.36	769.60	- 2.43	1042.4	- 2.51	4.76
135	509.71	- 2.31	682.59	- 2.37	921.02	- 2.45	5.00
140	454.71	- 2.26	607.05	- 2.32	815.99	- 2.40	5.25
145	406.69	- 2.21	541.28	- 2.27	724.85	- 2.35	5.48
150	364.64	- 2.16	483.86	- 2.22	645.54	- 2.30	5.71

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RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 47 kΩ, 68 kΩ AND 100 kΩ									
T_{OPER} (°C)	PART NUMBER NTCS0805E3473*HT		PART NUMBER NTCS0805E3683*XT		PART NUMBER NTCS0805E3104*MT		PART NUMBER NTCS0805E3104*XT		$\Delta R/R$ DUE TO $B_{tol.}$ (± %)
	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	
- 40	1 536 095	- 6.60	2 596 437	- 6.92	2 245 445	- 5.82	3 833 689	- 6.96	7.58
- 35	1 110 020	- 6.37	1 848 208	- 6.68	1 686 623	- 5.63	2 724 206	- 6.71	6.83
- 30	811 212	- 6.15	1 331 164	- 6.45	1 278 403	- 5.45	1 959 612	- 6.47	6.13
- 25	599 204	- 5.94	969 559	- 6.23	977 431	- 5.28	1 426 014	- 6.25	5.45
- 20	447 111	- 5.74	713 753	- 6.02	753 552	- 5.12	1 049 150	- 6.03	4.80
- 15	336 851	- 5.56	530 805	- 5.82	585 597	- 4.97	779 950	- 5.83	4.18
- 10	256 116	- 5.38	398 593	- 5.64	458 561	- 4.82	585 575	- 5.64	3.58
- 5	196 435	- 5.21	302 091	- 5.45	361 719	- 4.67	443 786	- 5.45	3.01
0	151 917	- 5.05	230 981	- 5.28	287 337	- 4.54	339 343	- 5.28	2.46
5	118 422	- 4.89	178 104	- 5.12	229 790	- 4.40	261 695	- 5.11	1.93
10	93 012	- 4.74	138 441	- 4.96	184 958	- 4.28	203 455	- 4.96	1.42
15	73 583	- 4.60	108 442	- 4.81	149 796	- 4.16	159 402	- 4.81	0.93
20	58 615	- 4.47	85 571	- 4.67	122 043	- 4.04	125 811	- 4.66	0.46
25	47 000	- 4.34	68 000	- 4.53	100 000	- 3.93	100 000	- 4.52	0.00
30	37 925	- 4.22	54 403	- 4.40	82 389	- 3.82	80 021	- 4.39	0.22
35	30 788	- 4.10	43 806	- 4.27	68 238	- 3.72	64 447	- 4.27	0.43
40	25 139	- 3.99	35 493	- 4.15	56 805	- 3.62	52 224	- 4.15	0.64
45	20 641	- 3.88	28 928	- 4.03	47 518	- 3.52	42 570	- 4.03	0.84
50	17 038	- 3.78	23 712	- 3.92	39 936	- 3.43	34 897	- 3.92	1.03
55	14 136	- 3.68	19 543	- 3.81	33 716	- 3.34	28 763	- 3.81	1.22
60	11 786	- 3.58	16 192	- 3.71	28 589	- 3.26	23 830	- 3.71	1.40
65	9872.9	- 3.49	13 483	- 3.61	24 342	- 3.17	19 842	- 3.61	1.58
70	8308.1	- 3.40	11 282	- 3.52	20 811	- 3.10	16 601	- 3.52	1.75
75	7021.9	- 3.31	9484.2	- 3.43	17 861	- 3.02	13 954	- 3.43	1.92
80	5959.7	- 3.23	8008.8	- 3.34	15 386	- 2.95	11 781	- 3.34	2.08
85	5078.7	- 3.15	6792.1	- 3.25	13 303	- 2.87	9988.4	- 3.26	2.23
90	4344.9	- 3.08	5784.2	- 3.17	11 542	- 2.81	8503.6	- 3.18	2.54
95	3731.0	- 3.00	4945.7	- 3.09	10 048	- 2.74	7268.2	- 3.10	2.85
100	3215.5	- 2.93	4245.0	- 3.02	8775.2	- 2.68	6236.0	- 3.03	3.14
105	2781.0	- 2.86	3657.2	- 2.94	7688.1	- 2.61	5370.1	- 2.95	3.43
110	2413.2	- 2.80	3162.1	- 2.87	6756.2	- 2.55	4640.8	- 2.88	3.71
115	2101.0	- 2.73	2743.5	- 2.81	5954.7	- 2.50	4024.3	- 2.82	3.98
120	1834.9	- 2.67	2388.2	- 2.74	5263.2	- 2.44	3501.2	- 2.75	4.24
125	1607.3	- 2.61	2085.7	- 2.68	4664.8	- 2.39	3055.8	- 2.69	4.50
130	1412.2	- 2.55	1827.2	- 2.62	4145.4	- 2.33	2675.3	- 2.63	4.76
135	1244.2	- 2.50	1605.5	- 2.56	3693.3	- 2.28	2349.2	- 2.57	5.00
140	1099.3	- 2.44	1414.9	- 2.50	3298.7	- 2.24	2068.7	- 2.51	5.25
145	973.81	- 2.39	1250.4	- 2.44	2953.4	- 2.19	1826.8	- 2.46	5.48
150	864.87	- 2.34	1108.0	- 2.39	2650.5	- 2.14	1617.5	- 2.41	5.71

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RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES WITH R_{25} AT 330 kΩ, 470 kΩ AND 680 kΩ

T_{OPER} (°C)	PART NUMBER NTCS0805E3334*HT		PART NUMBER NTCS0805E3474*XT		PART NUMBER NTCS0805E3684*XT		$\Delta R/R$ DUE TO $B_{tol.}$ (± %)
	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	R_T (Ω)	TCR (%/K)	
- 40	10 488	- 6.53	16 325	- 6.70	23 477	- 6.58	7.58
- 35	7608.4	- 6.31	11 742	- 6.48	16 980	- 6.38	6.83
- 30	5579.1	- 6.10	8539.8	- 6.26	12 404	- 6.18	6.13
- 25	4133.1	- 5.90	6276.8	- 6.05	9147.1	- 6.00	5.45
- 20	3092.0	- 5.71	4660.3	- 5.86	6807.4	- 5.82	4.80
- 15	2334.8	- 5.53	3493.6	- 5.67	5110.7	- 5.65	4.18
- 10	1778.8	- 5.35	2643.2	- 5.49	3869.3	- 5.48	3.58
- 5	1366.9	- 5.19	2017.4	- 5.32	2953.2	- 5.33	3.01
0	1058.9	- 5.03	1552.8	- 5.15	2271.5	- 5.17	2.46
5	826.75	- 4.87	1204.7	- 5.00	1760.2	- 5.03	1.93
10	650.33	- 4.73	941.99	- 4.85	1373.89	- 4.89	1.42
15	515.22	- 4.59	741.96	- 4.70	1079.7	- 4.75	0.93
20	410.99	- 4.45	588.54	- 4.56	854.12	- 4.62	0.46
25	330.00	- 4.33	470.00	- 4.43	680.00	- 4.50	0.00
30	266.64	- 4.20	377.77	- 4.31	544.69	- 4.38	0.22
35	216.75	- 4.08	305.53	- 4.18	438.89	- 4.26	0.43
40	177.22	- 3.97	248.58	- 4.07	355.64	- 4.15	0.64
45	145.70	- 3.86	203.40	- 3.96	289.76	- 4.04	0.84
50	120.43	- 3.76	167.35	- 3.85	237.33	- 3.94	1.03
55	100.06	- 3.66	138.42	- 3.75	195.38	- 3.84	1.22
60	83.541	- 3.56	115.06	- 3.65	161.62	- 3.75	1.40
65	70.081	- 3.47	96.120	- 3.55	134.33	- 3.65	1.58
70	59.059	- 3.38	80.672	- 3.46	112.16	- 3.56	1.75
75	49.989	- 3.29	68.012	- 3.37	94.052	- 3.48	1.92
80	42.491	- 3.21	57.588	- 3.29	79.204	- 3.39	2.08
85	36.265	- 3.13	48.966	- 3.20	66.973	- 3.31	2.23
90	31.074	- 3.05	41.803	- 3.12	56.855	- 3.24	2.54
95	26.726	- 2.98	35.826	- 3.05	48.449	- 3.16	2.85
100	23.070	- 2.91	30.819	- 2.97	41.439	- 3.09	3.14
105	19.985	- 2.84	26.608	- 2.90	35.569	- 3.02	3.43
110	17.371	- 2.77	23.053	- 2.83	30.636	- 2.95	3.71
115	15.149	- 2.71	20.039	- 2.77	26.474	- 2.89	3.98
120	13.253	- 2.64	17.477	- 2.70	22.952	- 2.82	4.24
125	11.630	- 2.58	15.290	- 2.64	19.961	- 2.76	4.50
130	10.236	- 2.52	13.417	- 2.58	17.412	- 2.70	4.76
135	9.0345	- 2.47	11.808	- 2.53	15.233	- 2.65	5.00
140	7.9963	- 2.41	10.422	- 2.47	13.364	- 2.59	5.25
145	7.0964	- 2.36	9.2239	- 2.42	11.757	- 2.54	5.48
150	6.3142	- 2.31	8.1851	- 2.36	10.371	- 2.48	5.71

For technical questions, contact: nlr@vishay.com
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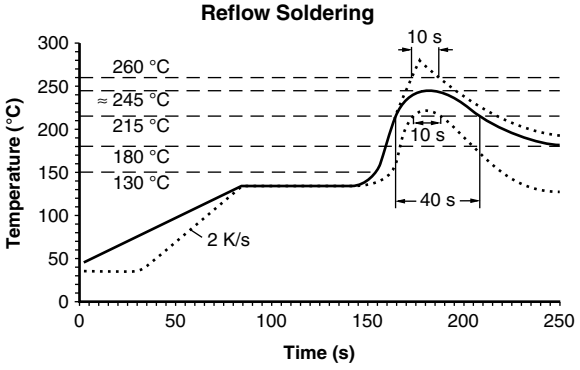
SOLDERING CONDITIONS

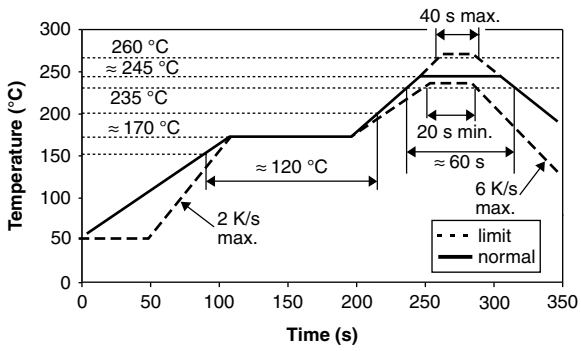
This SMD thermistor is only suitable for wave or reflow soldering, in accordance with JEDEC J-STD-020. The maximum temperature of 260 °C during 40 s should not be exceeded.

Typical examples of a soldering processes that will provide reliable joints without damage, are shown below.

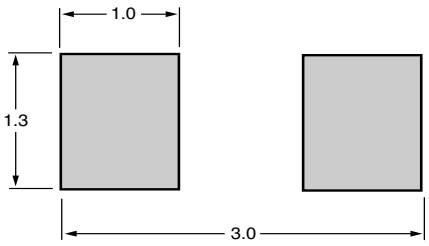
Reflow Soldering



Lead (Pb)-free Reflow Soldering Profile



Dimensions of the solder lands



TESTS AND REQUIREMENTS

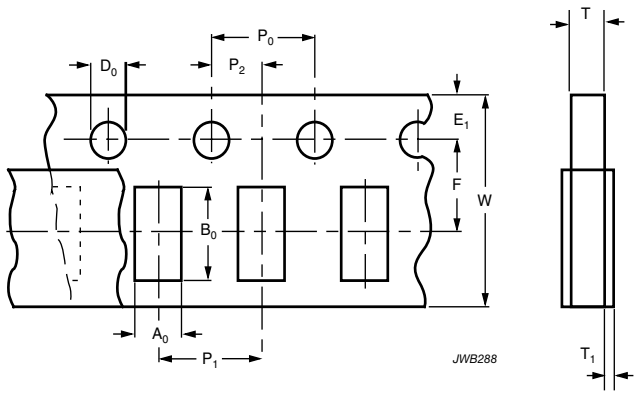
SOLDERABILITY AND RESISTANCE TO SOLDERING HEAT				
IEC 60068-2-58	TEST METHOD	TEST	PROCEDURE	REQUIREMENTS
6	T_C	Solderability	2 s at 235 °C	Min. 95 % of surface wetted
		Resistance to soldering heat	10 s at 260 °C	$\Delta R/R < 5$ %

PACKAGING

TAPE SPECIFICATIONS

All tape specifications are in accordance with IEC 60286-3. Basic dimensions are given below. Carrier tape material is paper.

PAPER TAPE



DIMENSIONS OF PAPER TAPE in millimeters		
PARAMETER	DIMENSION	TOLERANCE
A_0 (1)	1.7	± 0.2
B_0 (1)	2.35	± 0.1
W	8.0	± 0.2
E_1	1.75	± 0.1
F	3.5	± 0.05
D_0	1.55	± 0.05
P_0 (2)	4.0	± 0.1
P_1	4.0	± 0.1
P_2	2.0	± 0.05
T tape thickness	1.1	Max.
T_1 cover tape	< 0.1	-

Notes

(1) Measured 0.3 mm above base pocket

(2) P_0 pitch cumulative error over any 10 pitches ± 1.0 mm

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