

## SMD MELF SOD80, Glass Encapsulated NTC Thermistors



### FEATURES

- Small diameter down to 1.7 mm
- Quick response time down to 0.9 s
- Resistant to corrosive atmospheres and harsh environments
- Wide temperature range from - 40 °C to + 150 °C
- Available on tape
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C ( $R_{25}$ )	10K to 100K	$\Omega$
Tolerance on $R_{25}$ -value	$\pm 5$	%
$B_{25/85}$ -value	3977	K
Tolerance on $B_{25/85}$ -value	$\pm 1.3$	%
Operating temperature range	- 40 to + 150	°C
Maximum power dissipation at 55 °C	100	mW
Dissipation factor	2.5	mW/K
Response time	0.9	s
Thermal time constant $\tau$	6	s
Climatic category (LCT/UCT/days)	40/155/56	
Weight	$\approx 0.03$	g

### APPLICATIONS

Temperature measurement, sensing and control:

- Domestic appliances
- Automotive systems
- Industrial process control

### DESIGN-IN SUPPORT

For complete Curve Computation, visit:

[www.vishay.com/resistors-non-linear/curve-computation-list/](http://www.vishay.com/resistors-non-linear/curve-computation-list/)

### DESCRIPTION

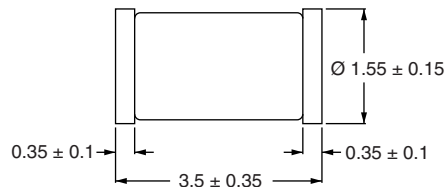
These thermistors have a negative temperature coefficient and are mounted in a glass envelope with two tinned electrodes. Only available in tape and reel packaging.

### MOUNTING

By soldering.

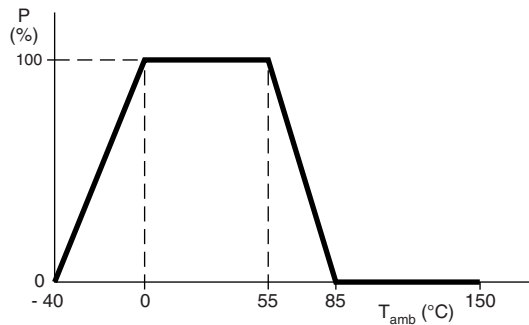
ELECTRICAL DATA AND ORDERING INFORMATION			
$R_{25}$ (k $\Omega$ )	$B_{25/85}$ -VALUE	SAP MATERIAL AND ORDERING NUMBER NTCSMELFE3...	OLD 12NC CODE 2381 633 53..
10	3977K	103JT	103
20	3977K	203JT	203
30	3977K	303JT	303
100	3977K	104JT	104

**DIMENSIONS** in millimeters  
Component outline for NTCSMELFE3 (SOD80)



## DERATING

Power derating curve

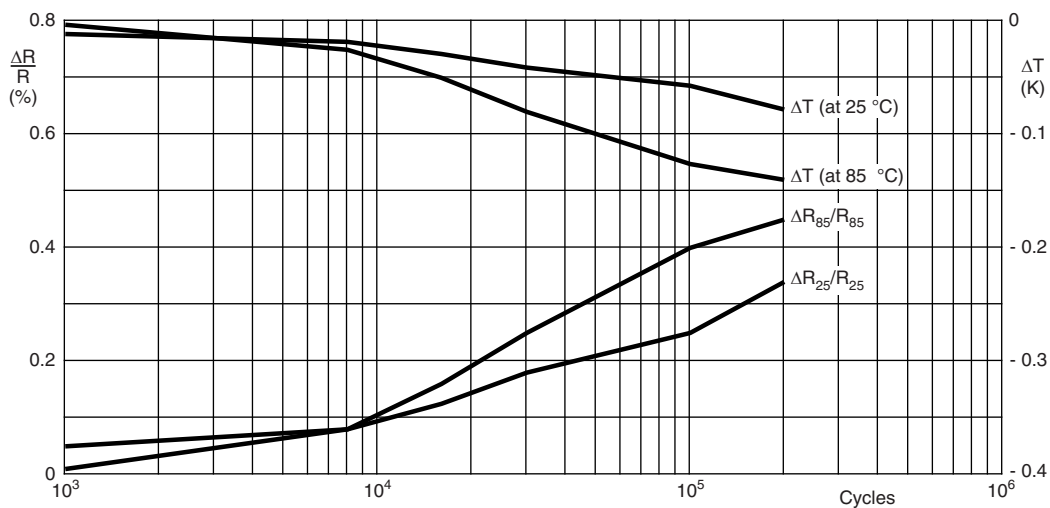


### Note

- Zero power is considered as measuring power max. 1 % of max. power

## STABILITY CHARACTERISTICS

Stability of glass encapsulated NTCs in thermal shock test (200 000 cycles - 40 °C/+ 200 °C).  
Tested on non-soldered parts.



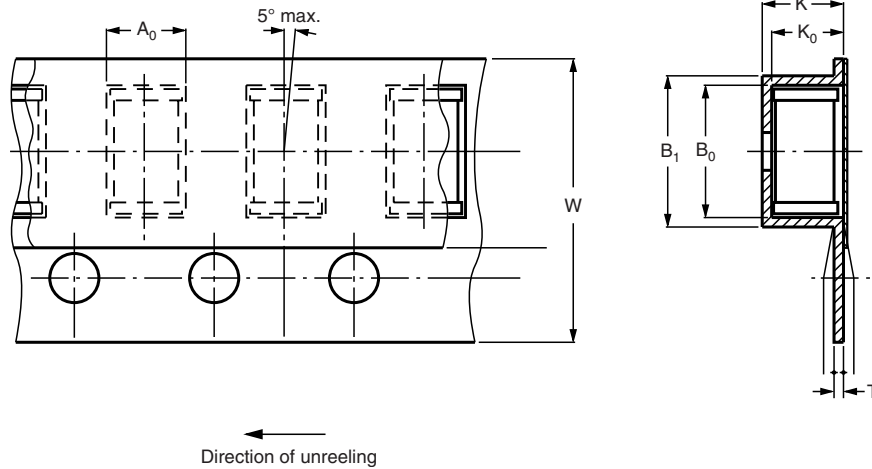


For complete Curve Computation, visit: [www.vishay.com/resistors-non-linear/curve-computation-list/](http://www.vishay.com/resistors-non-linear/curve-computation-list/)

RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR NTCSMELFE3								
TEMPERATURE (°C)	$R_T/R_{25}$	R for 10 kΩ	R for 20 kΩ	R for 30 kΩ	R for 100 kΩ	$\Delta R/R$ (± %)	$\alpha$ (%/K)	$\Delta T$ (± K)
- 40	33.21	332 094	664 187	996 281	3 320 936	10.08	- 6.62	1.52
- 35	23.99	239 900	479 799	719 699	2 398 996	9.59	- 6.39	1.50
- 30	17.52	175 200	350 399	525 599	1 751 996	9.12	- 6.18	1.48
- 25	12.93	129 287	258 574	387 861	1 292 869	8.67	- 5.98	1.45
- 20	9.636	96 358	192 716	289 074	963 582	8.24	- 5.78	1.42
- 15	7.250	72 500	145 001	217 501	725 004	7.82	- 5.60	1.40
- 10	5.505	55 046	110 092	165 138	550 459	7.42	- 5.42	1.37
- 5	4.216	42 157	84 314	126 471	421 570	7.04	- 5.25	1.34
0	3.255	32 554	65 108	97 663	325 542	6.67	- 5.09	1.31
5	2.534	25 339	50 677	76 016	253 386	6.31	- 4.93	1.28
10	1.987	19 872	39 744	59 617	198 722	5.96	- 4.79	1.25
15	1.570	15 698	31 397	47 095	156 985	5.63	- 4.64	1.21
20	1.249	12 488	24 975	37 463	124 877	5.31	- 4.51	1.18
25	1.000	10 000	20 000	30 000	100 000	5.00	- 4.38	1.14
30	0.8059	8059	16118	24 177	80 591	5.30	- 4.25	1.25
35	0.6535	6535	13069	19 604	65 347	5.59	- 4.13	1.35
40	0.5330	5330	10660	15 990	53 299	5.87	- 4.02	1.46
45	0.4372	4372	8743	13 115	43 717	6.14	- 3.91	1.57
50	0.3605	3605	7211	10 816	36 053	6.41	- 3.80	1.69
55	0.2989	2989	5977	8966	29887	6.66	- 3.70	1.80
60	0.2490	2490	4980	7470	24900	6.91	- 3.60	1.92
65	0.2084	2084	4169	6253	20844	7.15	- 3.51	2.04
70	0.1753	1753	3506	5259	17530	7.39	- 3.42	2.16
75	0.1481	1481	2962	4443	14809	7.61	- 3.33	2.29
80	0.1256	1256	2513	3769	12564	7.84	- 3.25	2.41
85	0.1070	1070	2141	3211	10703	8.05	- 3.17	2.54
90	0.09154	915.4	1831	2746	9154	8.26	- 3.09	2.67
95	0.07860	786.0	1572	2358	7860	8.46	- 3.01	2.81
100	0.06773	677.3	1355	2032	6773	8.66	- 2.94	2.95
105	0.05857	585.7	1171	1757	5857	8.85	- 2.87	3.08
110	0.05083	508.3	1017	1525	5083	9.04	- 2.80	3.23
115	0.04426	442.6	885.2	1328	4426	9.22	- 2.74	3.37
120	0.03866	386.6	773.2	1160	3866	9.40	- 2.67	3.52
125	0.03387	338.7	677.5	1016	3387	9.57	- 2.61	3.66
130	0.02977	297.7	595.4	893.1	2977	9.74	- 2.55	3.81
135	0.02624	262.4	524.8	787.2	2624	9.91	- 2.50	3.97
140	0.02319	231.9	463.8	695.7	2319	10.07	- 2.44	4.12
145	0.02055	205.5	411.1	616.6	2055	10.23	- 2.39	4.28
150	0.01826	182.6	365.3	547.9	1826	10.38	- 2.34	4.44

**PACKAGING**
**BLISTER TAPE AND REEL**

Packed in an 8 mm wide blister tape, according to IEC 60286-3



BLISTER TAPE AND REEL DIMENSIONS				
SYMBOL	PARAMETER	NOMINAL DIMENSIONS	TOLERANCE	UNIT
<b>Blister tape</b>				
K	Overall thickness	< 2.5	-	mm
<b>Pocket</b>				
A <sub>0</sub>	Length	2.1	+ 0.3	mm
B <sub>0</sub>	Width	> 3.8	-	mm
K <sub>0</sub>	Depth	2.1	+ 0.3	mm
B <sub>1</sub>	Outside width	< 4.5	-	mm
<b>Tape</b>				
T	Tape thickness	< 0.4	-	mm
W	Tape width	8.0	± 0.2	mm



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