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

RoHS COMPLIANT

HALOGEN FREE

QUICK REFERENCE DATA		
PARAMETER	VALUE	UNIT
Resistance value at 25 °C (R_{25})	10K to 100K	Ω
Tolerance on R_{25}-value	± 5	%
$B_{25/85}$-value	3977	K
Tolerance on $B_{25/85}$-value	± 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 τ	6	s
Climatic category (LCT/UCT/days)	40/155/56	
Weight	≈ 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/

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

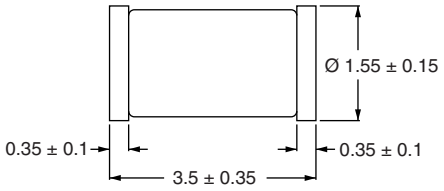
By soldering.

ELECTRICAL DATA AND ORDERING INFORMATION

R_{25} (kΩ)	$B_{25/85}$-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

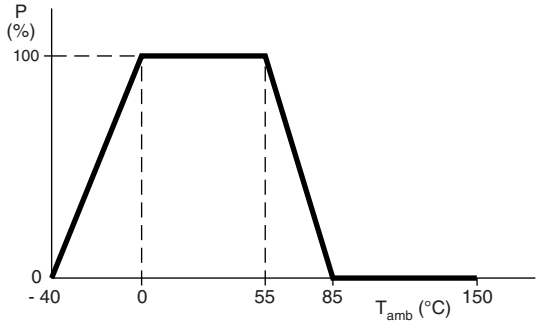
DIMENSIONS in millimeters

Component outline for NTCSMELFE3 (SOD80)



DERATING

Power derating curve

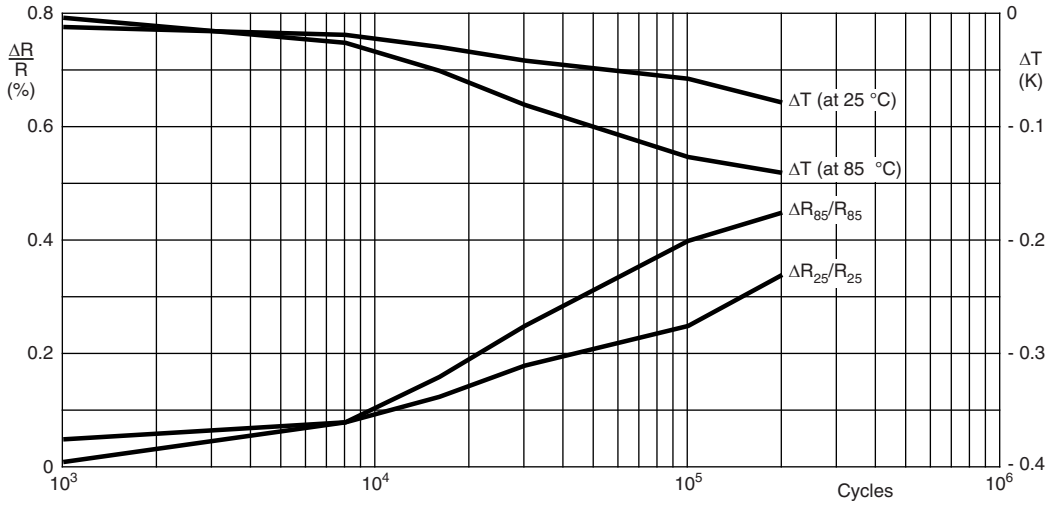


Note

- 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.



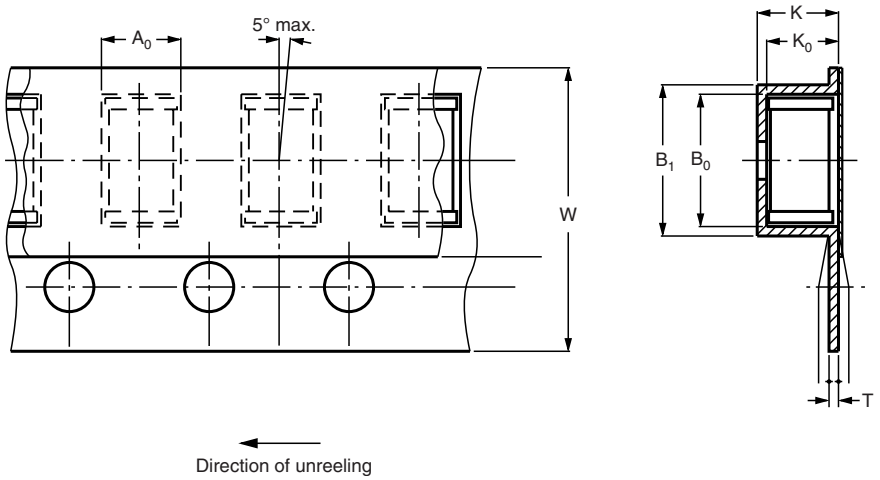
For complete Curve Computation, visit: www.vishay.com/resistors-non-linear/curve-computation-list/

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	Δ*R*/*R* (± %)	α (%/K)	ΔT (± 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**
Blister tape				
K	Overall thickness	< 2.5	-	mm
Pocket				
A_0	Length	2.1	+ 0.3	mm
B_0	Width	> 3.8	-	mm
K_0	Depth	2.1	+ 0.3	mm
B_1	Outside width	< 4.5	-	mm
Tape				
T	Tape thickness	< 0.4	-	mm
W	Tape width	8.0	± 0.2	mm

Disclaimer

ALL PRODUCT, PRODUCT SPECIFICATIONS AND DATA ARE SUBJECT TO CHANGE WITHOUT NOTICE TO IMPROVE RELIABILITY, FUNCTION OR DESIGN OR OTHERWISE.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained in any datasheet or in any other disclosure relating to any product.

Vishay makes no warranty, representation or guarantee regarding the suitability of the products for any particular purpose or the continuing production of any product. To the maximum extent permitted by applicable law, Vishay disclaims (i) any and all liability arising out of the application or use of any product, (ii) any and all liability, including without limitation special, consequential or incidental damages, and (iii) any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.

Statements regarding the suitability of products for certain types of applications are based on Vishay’s knowledge of typical requirements that are often placed on Vishay products in generic applications. Such statements are not binding statements about the suitability of products for a particular application. It is the customer’s responsibility to validate that a particular product with the properties described in the product specification is suitable for use in a particular application. Parameters provided in datasheets and/or specifications may vary in different applications and performance may vary over time. All operating parameters, including typical parameters, must be validated for each customer application by the customer’s technical experts. Product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein.

Except as expressly indicated in writing, Vishay products are not designed for use in medical, life-saving, or life-sustaining applications or for any other application in which the failure of the Vishay product could result in personal injury or death. Customers using or selling Vishay products not expressly indicated for use in such applications do so at their own risk. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay. Product names and markings noted herein may be trademarks of their respective owners.

Material Category Policy

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.

Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as Halogen-Free follow Halogen-Free requirements as per JEDEC JS709A standards. Please note that some Vishay documentation may still make reference to the IEC 61249-2-21 definition. We confirm that all the products identified as being compliant to IEC 61249-2-21 conform to JEDEC JS709A standards.