

SMD MELF SOD80, Glass Encapsulated NTC Thermistor



FEATURES

- Small diameter down to 1.7 mm
- Quick response time down to 0.9 s
- Wide temperature range from - 40 °C to + 150 °C
- Resistant to corrosive atmospheres and harsh environments
- Old part number was 2322 633 5...
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Available on tape


RoHS
COMPLIANT

| QUICK REFERENCE DATA | |
|--|--|
| PARAMETER | VALUE |
| | 2381 633 5.... |
| Temperature range | - 40 °C to + 150 °C |
| Resistance value at 25 °C (R_{25}) | 10 k Ω to 220 k Ω |
| Tolerance on R_{25} - value | $\pm 5 \%$ |
| $B_{25/85}$ - value | 3977K |
| Tolerance on $B_{25/85}$ - value | $\pm 1.3 \%$ |
| Deviation in resistance value due to B-tolerance | See Resistance Values at Intermediate Temperatures table |
| Ratio R_T/R_{25} | |
| Rated dissipation | 100 mW |
| Dissipation factor | 2.5 mW/K |
| Response time | 0.9 s |
| Thermal time constant τ | 6 s |
| Temperature coefficient | See Resistance Values at Intermediate Temperatures table |
| Climatic category | 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/thermistors/curve-computation-list/

DESCRIPTION

These thermistors have a negative temperature coefficient and are mounted in a glass envelope with two tinned electrodes.

MOUNTING

By soldering.

| ELECTRICAL DATA AND ORDERING INFORMATION | | | |
|--|---------------------|-------------------------------------|-----------------------------------|
| R_{25} (k Ω) | $B_{25/85}$ - VALUE | 12NC ORDERING CODE 2381 633 53.. | SAP MATERIAL NO. NTCSMELFE3... |
| 10 | 3977K $\pm 1.3 \%$ | 103 | 103JT |
| 20 | 3977K $\pm 1.3 \%$ | 203 | 203JT |
| 30 | 3977K $\pm 1.3 \%$ | 303 | 303JT |
| 100 | 3977K $\pm 1.3 \%$ | 104 | 104JT |

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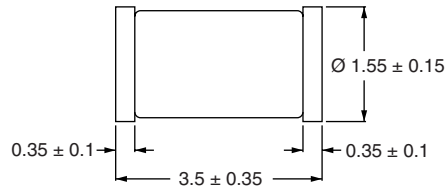


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SMD MELF SOD80, Glass Encapsulated
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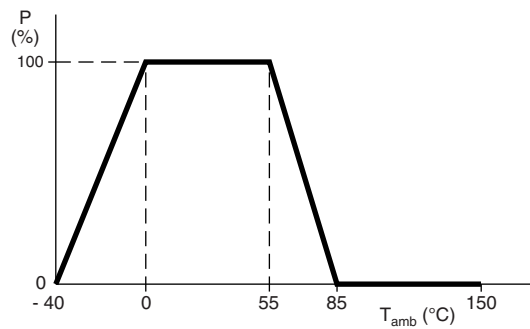
DIMENSIONS in millimeters

Component outline for 2381 633 5.... (SOD80)



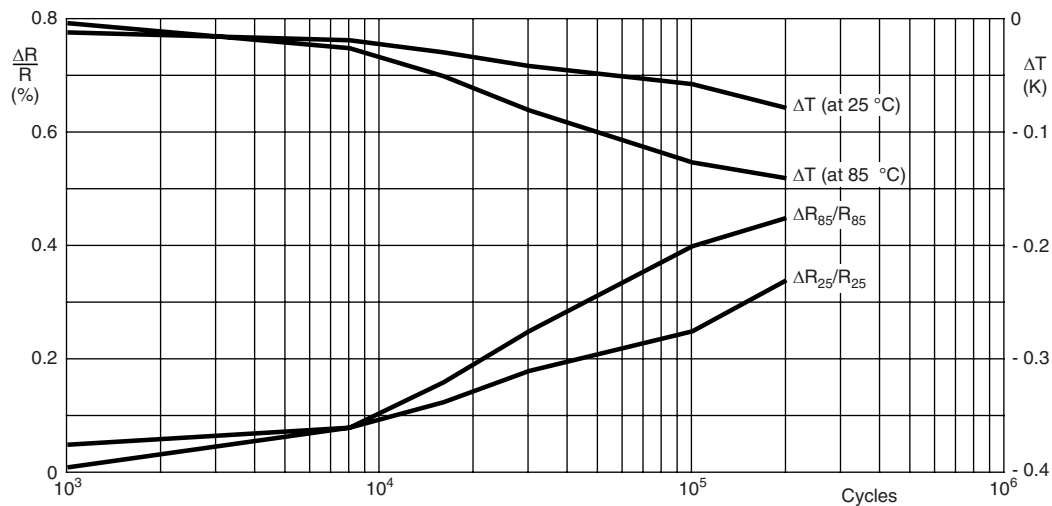
DERATING

Derating curve for 2381 633 5.... series



STABILITY CHARACTERISTICS

Stability of glass encapsulated NTCs in thermal shock test (200 kcycles - 40 °C/+ 200 °C)





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| RESISTANCE VALUES AT INTERMEDIATE TEMPERATURES FOR 2381 633 5..../NTCSMELFE3.... | | | | | | | | |
|---|--------------|-------------|-------------|-------------|--------------|-----------------------|-------------------|---------------------|
| TEMPERATURE (°C) | R_T/R_{25} | R for 10 kΩ | R for 20 kΩ | R for 30 kΩ | R for 100 kΩ | $\Delta R/R$ (± %) | 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 |

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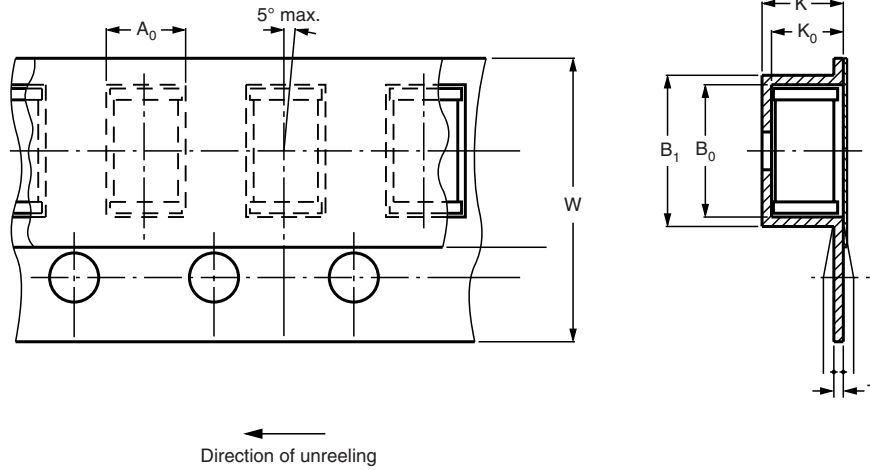
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PACKAGING

BLISTER TAPE AND REEL (2381 633 5....)

Packed in an 8 mm wide blister tape, according to IEC60286-3



| 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 |



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