

SMD 0603, Glass Protected NTC Thermistors



LINKS TO ADDITIONAL RESOURCES



| QUICK REFERENCE DATA | | |
|--|--------------------|------|
| PARAMETER | VALUE | UNIT |
| Resistance value at 25 °C | 1K to 100K | Ω |
| Tolerance on R_{25} -value | ± 1; ± 2; ± 3; ± 5 | % |
| $B_{25/85}$ -value | 3170 to 4100 | K |
| Tolerance on $B_{25/85}$ -value | ± 1 | % |
| Maximum power dissipation at 25 °C P_{max25} | 125 | mW |
| Thermal time constant τ | ≈ 8 | s |
| Dissipation factor D | 3.0 | mW/K |
| Operating temperature range at zero power ⁽¹⁾ | -55 to +150 | °C |
| Storage temperature range | -55 to +150 | °C |
| Weight | ≈ 0.006 | g |

Note

⁽¹⁾ Zero power is considered as measuring power maximum 1 % of P_{max25}

DESIGN-IN SUPPORT

For complete curve computation, please visit:
www.vishay.com/thermistors/ntc-rt-calculator/

AGENCY APPROVALS

Agency approval documents, please see:
www.vishay.com/ppg?29056&documents

FEATURES

- TCR ranging from -7 %/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
- cULus recognized, file E148885 (UL category XGPU2 / XGPU8)
- AEC-Q200 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



APPLICATIONS

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

DESCRIPTION

Size 0603 (M1608) glass protected SMD chip thermistor with negative temperature coefficient (TCR) and matte tin (Sn) plated terminations. The device has no marking.

CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions: see www.vishay.com/doc?29224.

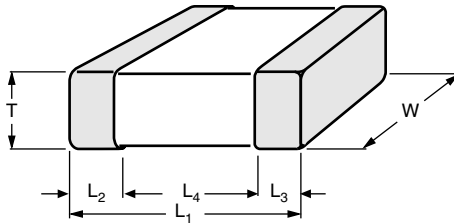
PACKAGING

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

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | | |
|--|-------------------------|--------------------|----------------------------|---------------|---|
| R_{25} (Ω) | R_{25} -TOL. (± %) | $B_{25/85}$ (K) | $B_{25/85}$ -TOL. (± %) | UL RECOG. | SAP MATERIAL AND ORDERING NUMBER ⁽¹⁾ |
| 1000 | 3, 5 | 3170 | 1 | | NTCS0603E3102*LT |
| 1500 | 3, 5 | 3280 | 1 | | NTCS0603E3152*LT |
| 2000 | 1, 2, 3, 5 | 3420 | 1 | ✓ | NTCS0603E3202*LT |
| 2200 | 1, 2, 3, 5 | 3520 | 1 | ✓ | NTCS0603E3222*MT |
| 2700 | 1, 2, 3, 5 | 3600 | 1 | ✓ | NTCS0603E3272*MT |
| 4700 | 1, 2, 3, 5 | 3830 | 1 | ✓ | NTCS0603E3472*HT |
| 5000 | 1, 2, 3, 5 | 3480 | 1 | | NTCS0603E3502*LT |
| 10 000 | 1, 2, 3, 5 | 3435 | 1 | ✓ | NTCS0603E3103*LT |
| 10 000 | 1, 2, 3, 5 | 3610 | 1 | ✓ | NTCS0603E3103*MT |
| 10 000 | 1, 2, 3, 5 | 3960 | 1 | ✓ | NTCS0603E3103*HT |
| 15 000 | 1, 2, 3, 5 | 3600 | 1 | | NTCS0603E3153*MT |
| 22 000 | 1, 2, 3, 5 | 3730 | 1 | ✓ | NTCS0603E3223*MT |
| 33 000 | 1, 2, 3, 5 | 3860 | 1 | ✓ | NTCS0603E3333*HT |
| 47 000 | 1, 2, 3, 5 | 3960 | 1 | ✓ | NTCS0603E3473*HT |
| 68 000 | 1, 2, 3, 5 | 3985 | 1 | ✓ | NTCS0603E3683*HT |
| 100 000 | 1, 2, 3, 5 | 4100 | 1 | ✓ | NTCS0603E3104*XT |

Note

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

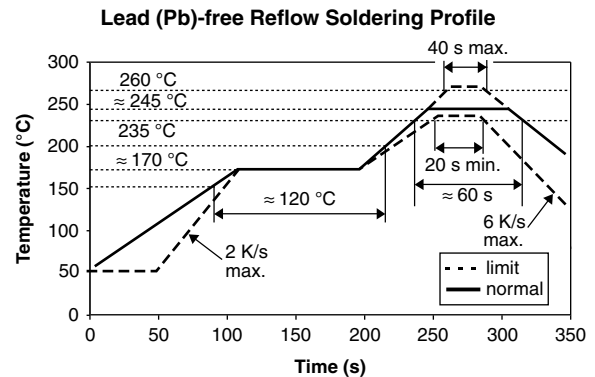
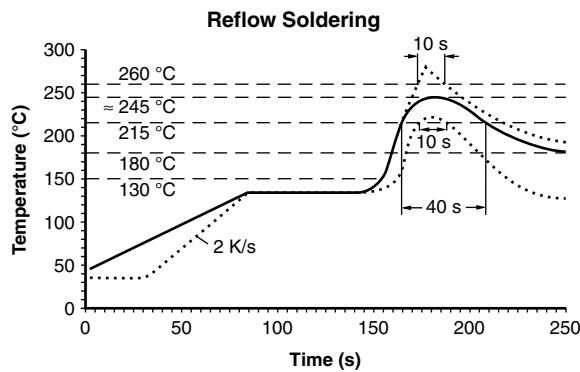
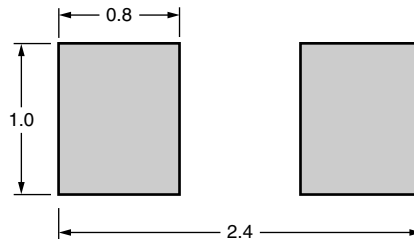
DIMENSIONS in millimeters


| L ₁ | W | T | L ₂ AND L ₃ MIN. | L ₄ MIN. |
|----------------|------------|------------|--|---------------------|
| 1.6 ± 0.15 | 0.8 ± 0.15 | 0.8 ± 0.15 | 0.2 | 0.4 |

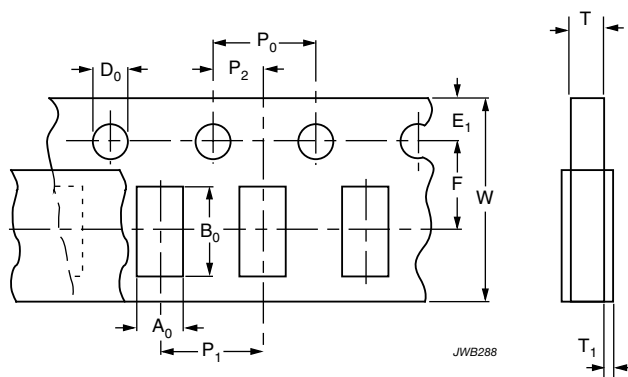
SOLDERING CONDITIONS

 Soldering, handling, and mounting conditions are detailed in the instructions document: see www.vishay.com/doc?29224.

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


Recommended solder land pattern dimensions (mm)

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 |
| A ₀ ⁽¹⁾ | 1.15 ± 0.1 |
| B ₀ ⁽¹⁾ | 1.9 ± 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 max. | 1.1 |
| T ₁ cover tape thickness max. | 0.1 |

Notes

- (1) Measured 0.3 mm above base pocket
- (2) P₀ pitch cumulative error over any 10 pitches ± 0.2 mm



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