

SMD 0402, Commercial Grade NTC Thermistors



RoHS
COMPLIANT
HALOGEN
FREE

LINKS TO ADDITIONAL RESOURCES



| QUICK REFERENCE DATA | | |
|--|--------------|------|
| PARAMETER | VALUE | UNIT |
| Resistance value at 25 °C | 10K to 100K | Ω |
| Tolerance on R_{25} -value | ± 1 | % |
| $B_{25/85}$ -value | 3435 to 4050 | K |
| Tolerance on $B_{25/85}$ -value | ± 1 to 3 | % |
| Maximum power dissipation at 25 °C P_{max25} | 70 | mW |
| Thermal time constant τ | ≈ 5 | s |
| Dissipation factor D | ≈ 1.7 | mW/K |
| Operating temperature range at zero power ⁽¹⁾ | -40 to +125 | °C |
| Storage temperature range | -40 to +125 | °C |
| Weight | ≈ 1.2 | mg |

Note

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

AGENCY APPROVALS

Agency approval documents, please see:

www.vishay.com/ppg?29238&documents

DESIGN-IN SUPPORT

For complete curve computation, please visit:

www.vishay.com/thermistors/ntc-rt-calculator/

FEATURES

- TCR ranging from -6.5 %/K at -40 °C to -2 %/K at 125 °C
- Tolerance on R_{25} of ± 1 %
- Suitable for wave or reflow soldering
- NiSn terminations
- cULus recognized, file E148885 (UL category XGPU2 / XGPU8)
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Temperature sensing, protection and compensation in industrial, telecom and consumer applications.

Examples are:

- Battery chargers
- Power supplies
- Office equipment
- LED compensation

This series is not recommended for automotive applications.

DESCRIPTION

Size 0402 (M1005) SMD chip thermistor with negative temperature coefficient (TCR) and matte tin (Sn) plated terminations. The device has no marking.

PACKAGING

Available in 8 mm punched paper tape on reel package of 10 000 units.

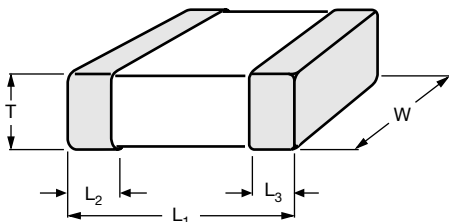
CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions:

see www.vishay.com/doc?29224.

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|--|-------------------------|--------------------|----------------------------|----------------------------------|
| R_{25} (Ω) | R_{25} -TOL. (± %) | $B_{25/85}$ (K) | $B_{25/85}$ -TOL. (± %) | SAP MATERIAL AND ORDERING NUMBER |
| 10 000 | 1 | 3435 | 1 | NTCSC0402E3103FLFT |
| 47 000 | 1 | 4050 | 3 | NTCSC0402E3473FXHT |
| 100 000 | 1 | 4050 | 3 | NTCSC0402E3104FXHT |

DIMENSIONS in millimeters

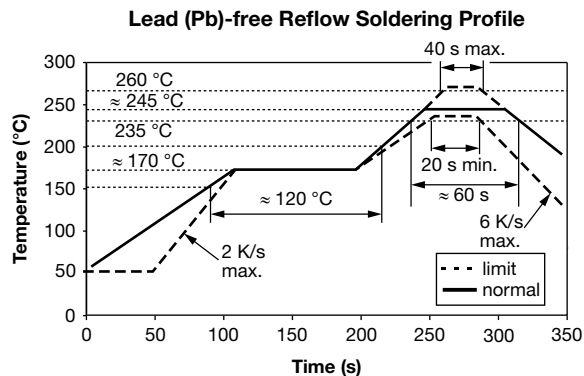
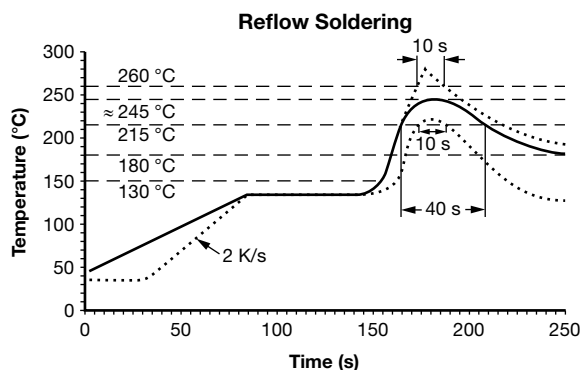


| L ₁ | W | T | L ₂ AND L ₃ |
|----------------|------------|------------|-----------------------------------|
| 1.0 ± 0.15 | 0.5 ± 0.15 | 0.5 ± 0.15 | 0.25 ± 0.1 |

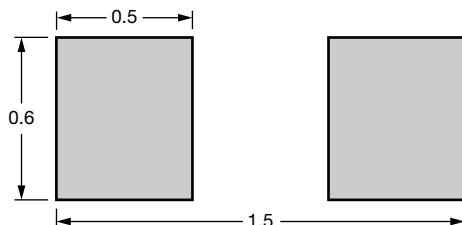
SOLDERING CONDITIONS

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

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



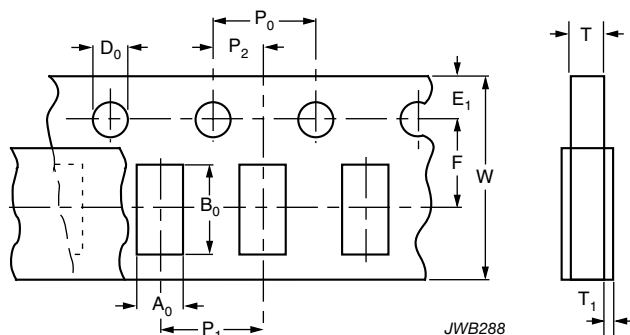
Recommended solder land pattern dimensions (mm)



PACKAGING

TAPE SPECIFICATIONS

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



DIMENSIONS OF PAPER TAPE in millimeters

| PARAMETER | DIMENSION |
|--|-------------|
| A ₀ ⁽¹⁾ | 0.62 ± 0.1 |
| B ₀ ⁽¹⁾ | 1.1 ± 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. | 0.8 |
| 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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