



**THE DATASHEET OF
NTCS0402E3103FLT**



SMD 0402, Glass Protected NTC Thermistors



FEATURES

- TCR ranging from -6.5 %/K at -40 °C to -2 %/K at 150 °C
- Tolerance on R_{25} down to 1 %
- Suitable for wave or reflow soldering
- NiSn terminations
- Fully glass coated and protected
- cUL recognized for safety applications (file E148885)
- AEC-Q200 qualified
- 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 | 4.7K to 100K | Ω |
| Tolerance on R_{25} -value | ± 1; ± 2; ± 3; ± 5 | % |
| $B_{25/85}$ -value | 3490 to 4075 | K |
| Tolerance on $B_{25/85}$ -value | ± 3 | % |
| Maximum dissipation at 25 °C | 70 | mW |
| Thermal time constant τ | ≈ 5 | s |
| Dissipation factor D | ≈ 2.0 | mW/K |
| Operating temperature range at zero power | -40 to +150 | °C |
| Weight | ≈ 1.2 | mg |

APPLICATIONS

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

DESCRIPTION

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

PACKAGING

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

DESIGN-IN SUPPORT

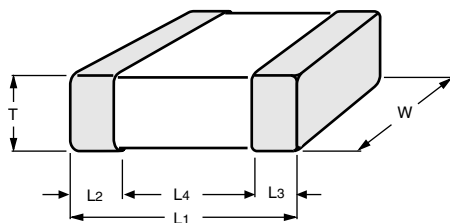
For complete curve computation, please visit:
www.vishay.com/thermistors/curve-computation-list/

| ELECTRICAL DATA AND ORDERING INFORMATION | | | | |
|--|-------------------------|--------------------|----------------------------|---|
| R_{25} (Ω) | R_{25} -TOL. (± %) | $B_{25/85}$ (K) | $B_{25/85}$ -TOL. (± %) | SAP MATERIAL AND ORDERING NUMBER ... ⁽¹⁾ |
| 4700 | 3, 5 | 3595 | 3 | NTCS0402E3472*MT |
| 10 000 | 1, 2, 3, 5 | 3490 | 3 | NTCS0402E3103*L1T ⁽²⁾ |
| 10 000 | 3, 5 | 3950 | 3 | NTCS0402E3103*HT |
| 15 000 | 3, 5 | 3965 | 3 | NTCS0402E3153*HT |
| 22 000 | 3, 5 | 3590 | 3 | NTCS0402E3223*MT |
| 33 000 | 3, 5 | 3670 | 3 | NTCS0402E3333*MT |
| 47 000 | 1, 2, 3, 5 | 4075 | 3 | NTCS0402E3473*XT |
| 68 000 | 3, 5 | 3910 | 3 | NTCS0402E3683*HT |
| 100 000 | 1, 2, 3, 5 | 3950 | 3 | NTCS0402E3104*HT |

Notes

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

⁽²⁾ The digit 1 at the end of this part number NTCS0402E3103*L1T differentiates it from the legacy P/N

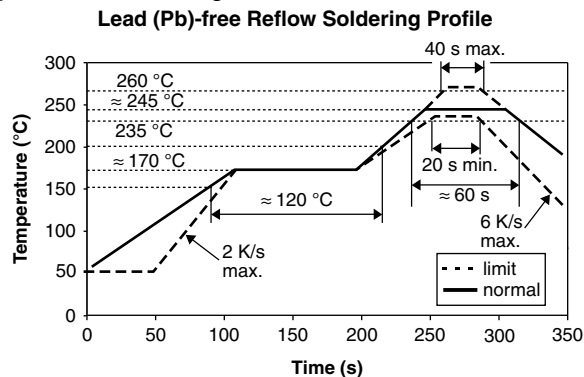
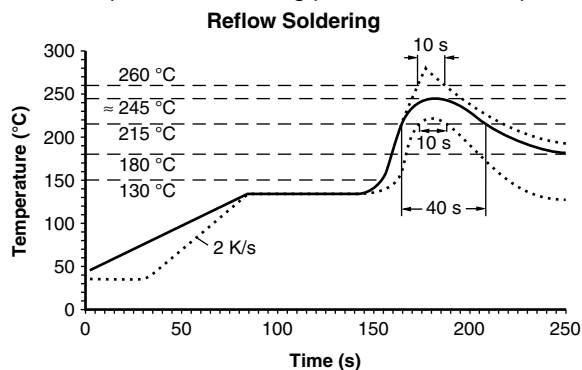
DIMENSIONS in millimeters


| L ₁ | W | T | L ₂ AND L ₃ MIN. | L ₄ MIN. |
|----------------|------------|------------|--|---------------------|
| 1.0 ± 0.15 | 0.5 ± 0.15 | 0.5 ± 0.15 | 0.1 | 0.3 |

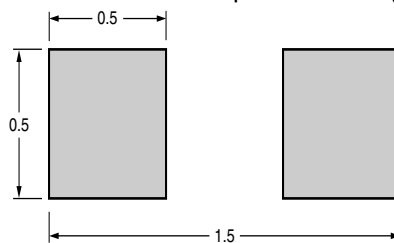
SOLDERING CONDITIONS

This SMD thermistor is only suitable for wave or reflow soldering, in accordance with JEDEC® J-STD-020. The maximum temperature of 260 °C during 40 s should not be exceeded.

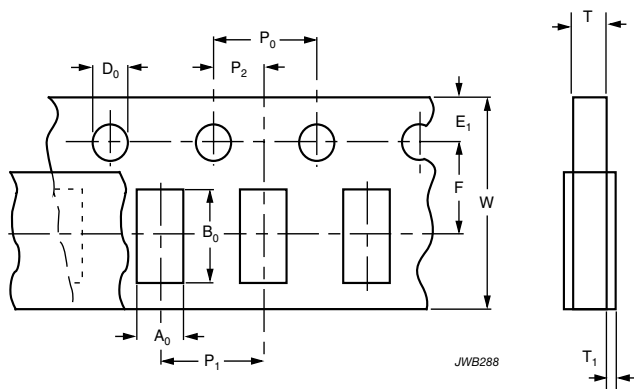
Typical examples of a soldering processes that will provide reliable joints without damage, are shown below.



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.


DIMENSIONS OF PAPER TAPE in millimeters

| PARAMETER | DIMENSION |
|--|-------------|
| A ₀ ⁽¹⁾ | 0.65 ± 0.1 |
| B ₀ ⁽¹⁾ | 1.15 ± 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



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.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View NTCS0402E3103FLT on WIN SOURCE](#)

 [Vishay Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management