

## SMD 0402, Commercial Grade NTC Thermistors



### 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 $\tau$	≈ 5	s
Dissipation factor D	≈ 1.7	mW/K
Operating temperature range at zero power <sup>(1)</sup>	-40 to +125	°C
Storage temperature range	-40 to +125	°C
Weight	≈ 1.2	mg

#### Note

<sup>(1)</sup> 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](http://www.vishay.com/ppg?29238&documents)

### DESIGN-IN SUPPORT

For complete curve computation, please visit:

[www.vishay.com/thermistors/ntc-rt-calculator/](http://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](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### 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.

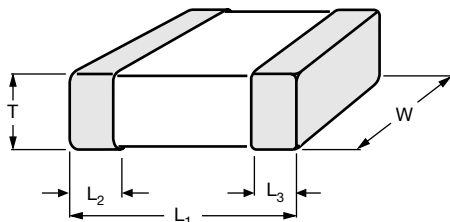
### CAUTIONS AND WARNINGS ON MOUNTING AND HANDLING

Please read the special instructions:

see [www.vishay.com/doc?29224](http://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

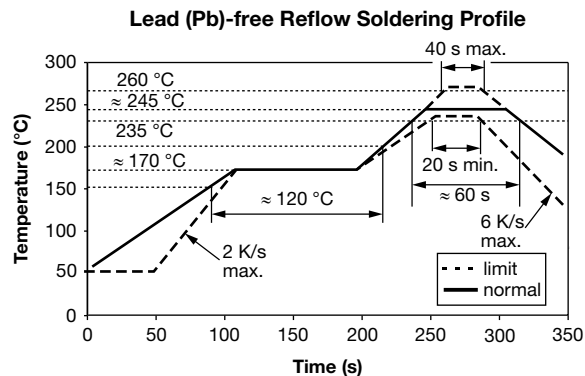
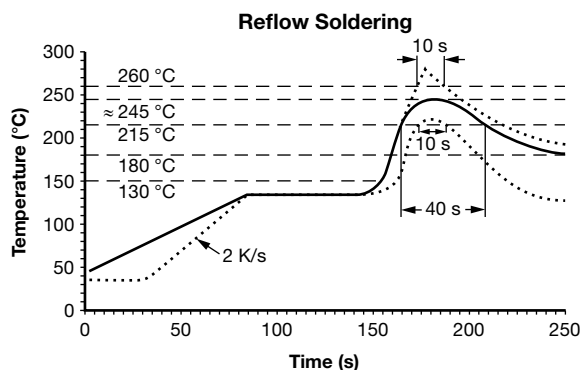


L <sub>1</sub>	W	T	L <sub>2</sub> AND L <sub>3</sub>
1.0 ± 0.15	0.5 ± 0.15	0.5 ± 0.15	0.25 ± 0.1

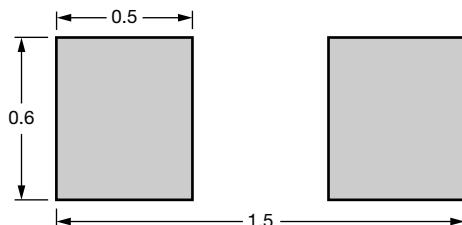
## SOLDERING CONDITIONS

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

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



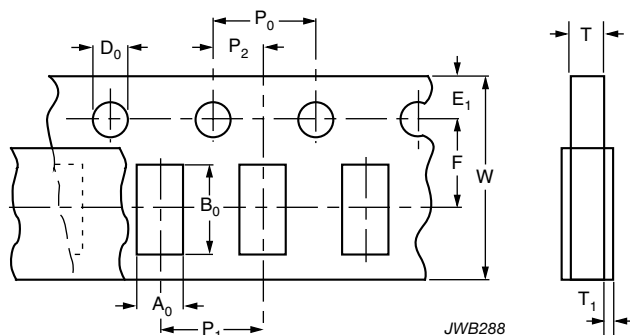
## Recommended solder land pattern dimensions (mm)



## 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 <sub>0</sub> <sup>(1)</sup>	0.62 ± 0.1
B <sub>0</sub> <sup>(1)</sup>	1.1 ± 0.1
W	8.0 ± 0.2
E <sub>1</sub>	1.75 ± 0.1
F	3.5 ± 0.05
D <sub>0</sub>	1.55 ± 0.05
P <sub>0</sub> <sup>(2)</sup>	4.0 ± 0.1
P <sub>1</sub>	4.0 ± 0.1
P <sub>2</sub>	2.0 ± 0.05
T tape thickness max.	0.8
T <sub>1</sub> cover tape thickness max.	0.1

### Notes

<sup>(1)</sup> Measured 0.3 mm above base pocket

<sup>(2)</sup> P<sub>0</sub> pitch cumulative error over any 10 pitches ± 0.2 mm



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