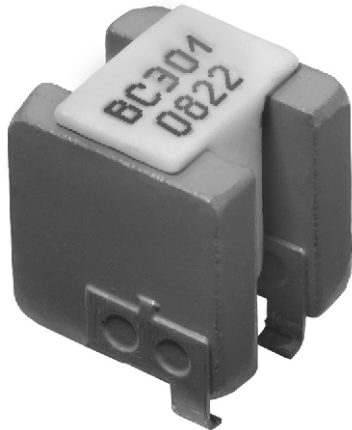


TWIN Vertical SMD 600 V PTC Thermistors For Telecom Overload Protection



QUICK REFERENCE DATA

PARAMETER	VALUE	UNIT
Maximum continuous voltage (RMS)	240	V
Maximum interrupting voltage (RMS)	600	V
Temperature range	- 40 to + 85	°C
Climatic category	40/125/56	
Weight	± 1.6	g

DESCRIPTION

The component consists of a high-performance PTC ceramic disc mounted in a lead-frame for direct soldering onto a printed-circuit board (PCB) or substrate.

The ceramic is soldered to the leadframe by a local reflow process, during which the solder layer is melted to the metallized ceramic surface using a low residue flux.

MARKING

- All TWIN Vertical SMD PTC's are marked with the last 3-digits of the type number (BCxxx) and a date code (YYWW)

ELECTRICAL DATA

R_{25} ± 20 % (Ω)	MATCHING (Ω)	$V_{max.}$ (V_{rms})	I_{nt} at			I_t (mA)	MAX. TRIP-TIME at 1 A (s)	$I_{max.}$ at $V_{max.}$ (A)	I_{res} (2 PIECES POWERED) at $V_{max.}$ (mA)
			25 °C (mA)	70 °C (mA)	85 °C (mA)				
60	1.0	240	80	45	35	200	1.5	5.5	12.0

Notes

- All data is measured at 25 °C unless otherwise specified
- Other values on request

FEATURES

- Very small footprint, allowing to increase the number of lines per PCB
- Matched pairs in one component, significantly reducing the assembly time
- Narrow tracking between the 2 PTC's over a wide temperature range (matching at 85 °C: $\leq 2 \times$ matching at 25 °C)
- High interrupt voltage handling capabilities up to 600 V
- Limited height and weight, used on high speed pick-and-place circuit assembly
- Flat pick-up ceramic area for easy placement
- Fully coated parts
- Four spaced terminations for heat flow regulation and improved mechanical stability
- Compliant with the enhanced level requirements of ITU - K20-21-45 edition 2003
- Compliant with GR1089
- Suitable for Pb-bearing and lead (Pb)-free reflow soldering
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS
COMPLIANT

APPLICATIONS

Over-temperature/over-load protection:

- Telecom
 - Telecommunications infrastructure
 - PABX
 - Set-top box

MOUNTING

With a flat pick-up area = 30 mm² the PTC thermistors are suitable for processing on high speed automatic insertion equipment.

Typical soldering

235 °C, duration: 5 s (Pb-bearing)

245 °C, duration: 5 s (Lead (Pb)-free)

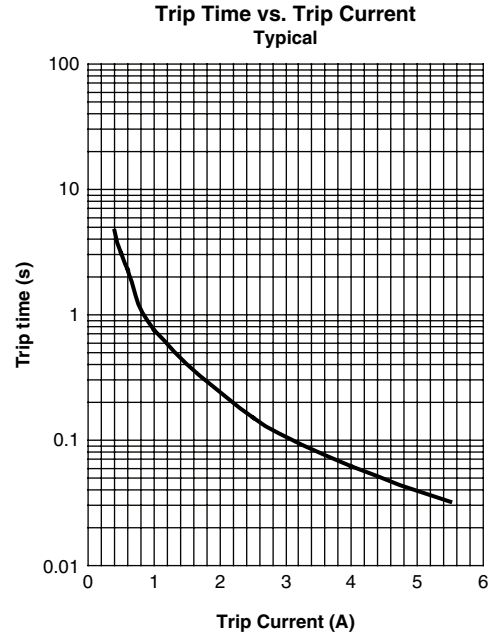
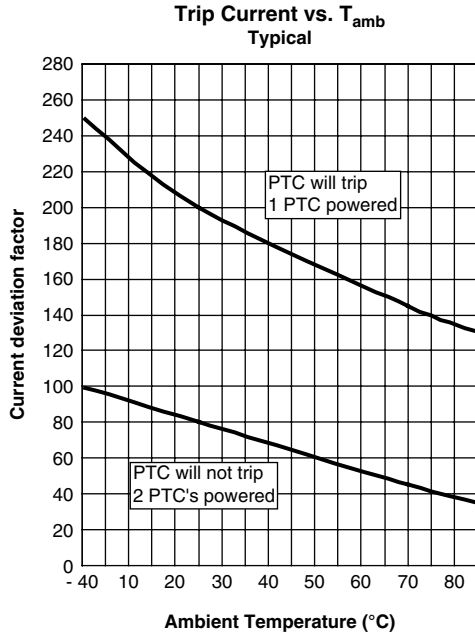
Resistance to soldering heat

260 °C, duration: 10 s max.

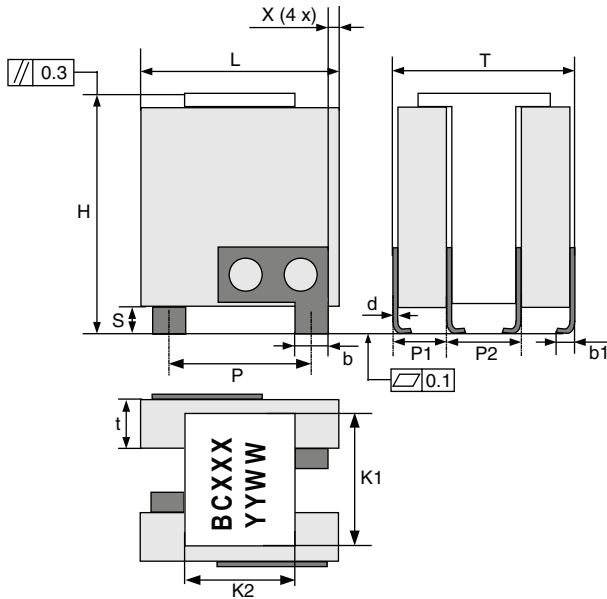
ORDERING INFORMATION

$R_{25} \pm 20\% (\Omega)$	12NC	SAP
60	2381 673 97301	PTCTT99R600GTE301

ELECTRICAL CHARACTERISTICS



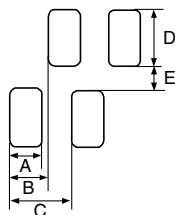
PTC OUTLINES



DIMENSIONS in millimeters

L	9.0 ± 0.1
T	8.4 ± 0.25
H	10.9 ± 0.25
b	1.5 ± 0.1
b_1	0.9 ± 0.15
S	1.25 ± 0.15
d	0.22 ± 0.025
t	2.3 ± 0.1
P	6.5 ± 0.5
P_1	2.55 ± 0.15
P_2	3.4 ± 0.15
X	0.5 ± 0.2
K_1	7.2 ± 0.5
K_2	5.0 ± 0.5

FOOTPRINT



RECOMMENDED FOOTPRINT in millimeters

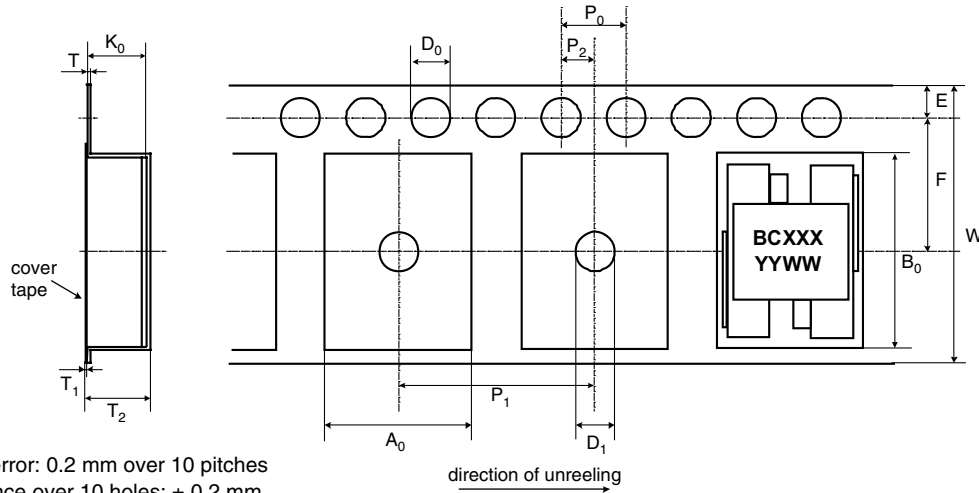
A	2.0
B	2.4
C	5.0
D	4.0
E	1.4

PACKAGING

Tape specifications

All tape and reel specifications are in accordance with IEC 60286-3. Carrier tape material is non-conductive polystyrene or polycarbonate.

Blister tape

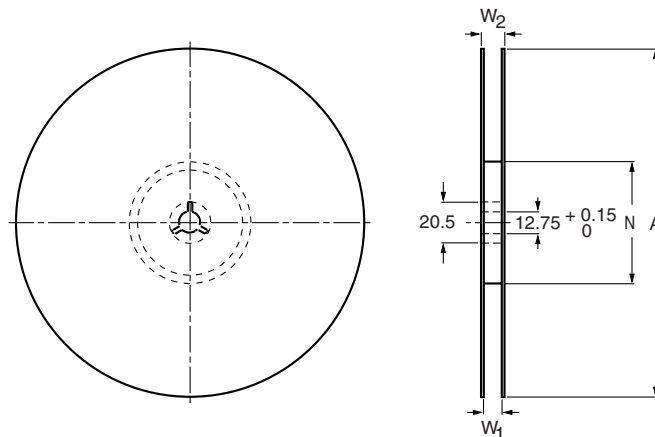


Cumulative pitch error: 0.2 mm over 10 pitches
Cumulative tolerance over 10 holes: ± 0.2 mm

DIMENSIONS OF BLISTER TAPE in millimeters			
A ₀	8.85 ± 0.1	D ₁	1.5 + 0.1
B ₀	9.3 ± 0.1	P ₀	4.0 ± 0.1
K ₀	11.25 ± 0.1	P ₁	16.0 ± 0.1
W	24.0 ± 0.3	P ₂	2.0 ± 0.1
E	1.75 ± 0.1	T	0.5 ± 0.05
F	11.5 ± 0.1	T ₁	0.05
D ₀	1.5 + 0.1	T ₂	12.0 max.

REEL SPECIFICATIONS in millimeters

Reel



REEL DIMENSIONS in millimeters					
UNITS PER REEL	TAPE WIDTH	A	N	W ₁	W ₂ MAX.
500	24	380	64	24.4	30.4

Note

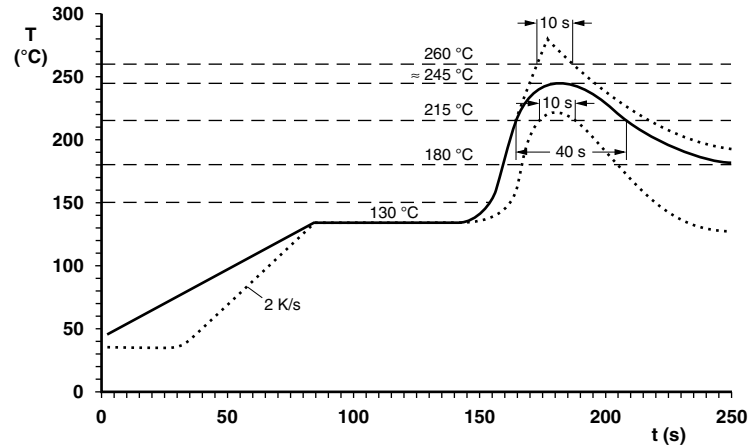
- Reels are packed in sealed plastic bags for protection against high humidity and corrosive atmospheres

SOLDERING CONDITIONS

This SMD thermistor is only suitable for reflow soldering. Soldering processes which can be used are reflow (infrared and convection heating) and vapour phase. The maximum temperature of 260 °C during 10 s should not be exceeded and no liquid flux should be allowed to reach the ceramic body.

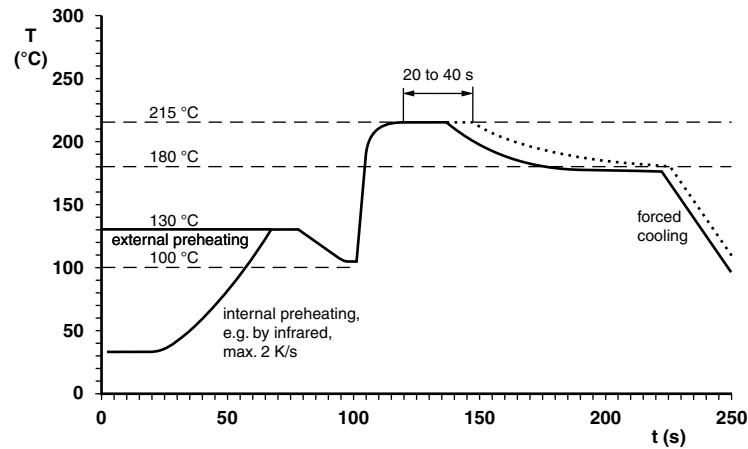
Typical examples of soldering processes that will provide reliable joints without damage, are shown below.

Reflow soldering



Typical values (solid line)
Process limits (dotted lines)

Vapour phase soldering



Typical values (solid line)
Process limits (dotted line)

HANDLING PRECAUTIONS

Because of the nature of PTC ceramic material the component should not be touched with bare hands, as the residue of perspiration can influence component behaviour at high temperatures.

Handling forces applied to the centre of the component should be limited to 10 N vertically and 5 N horizontally in non-soldered condition. These forces should not be exceeded during the handling, transportation and packaging of the soldered product.



Disclaimer

All product specifications and data are subject to change without notice.

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