

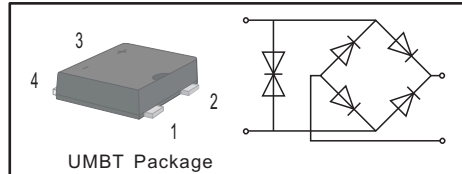


FEATURES:

- RoHS compliant
- Large withstanding surge current capability : 200A (@8/20μs)
- Lower clamping voltage and excellent performance on ringing waves testing.
- Lead Free Finish/RoHS Compliant
- Green Molding Compound (No Halogen and Antimony)
- Glass Passivated Chip Junction
- High Surge Current Capability
- Designed for Surface Mount Application

PINNING

PIN	DESCRIPTION
1	Input Pin (~)
2	Input Pin (~)
3	Output Anode (+)
4	Output Cathode (-)



MECHANICAL DATA

- Case: UMBT
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 60mg/0.0021oz

Maximum Ratings and Electrical characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

Parameter	Symbols	TB110B	TB120B	TB240B	Units
Average Rectified Output Current at T _c = 125 °C	I _O		1.0		A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I _{FSM}		30		A
Maximum Forward Voltage at 1.0 A	V _F		1.1		V
Maximum DC Reverse Current at Rated DC Blocking Voltage (@V _R =1000V)	I _R	@T _A =25 °C @T _A =125 °C	5 40		μA
Typical Junction Capacitance (Note1)	C _j		13		pF
Typical Thermal Resistance (Note2)	R _{θJA} R _{θJC}		85 25		°C/W
Operating and Storage Temperature Range	T _j , T _{stg}		-55 ~ +150		°C

Note: 1. Measured at 1MHz and applied reverse voltage of 4 V D.C.

2. Mounted on glass epoxy PC board with 4×1.5"×1.5" (3.81×3.81 cm) copper pad.

Maximum Ratings and Thermal Characteristics(TA = 25°C unless otherwise specified)

Technology Data	Symbol	TB110B	TB120B	TB240B	Unit
Maximum allowable continuous AC voltage at 50-60Hz	V _{RMS}	125	155	310	V
Breakdown Voltage at 1mA	V _{BR}	190~210	237~263	492~543	V
Maximum allowable continuous DC voltage	V _{DC}	170	220	440	V
Maximum allowable clamping voltage	V _C	300	350	700	V
Maximum peak current (8/20μs@2Ω)	I _{peak}	200			A
Operating Junction Temperature and Storage Temperature Range	T _j , T _{stg}	-55 ~ +150			°C

NOTES:

1. The breakdown voltage was measured at 1mA
2. The clamping voltage was measured at 8/20μs standard current, (1A)
3. The peak current was tested at 8/20μs waveform



Fig.1 Average Rectified Output Current Derating Curve

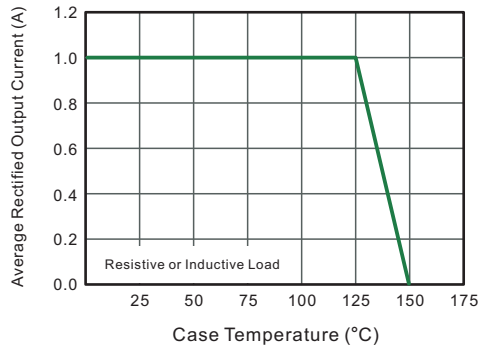


Fig.2 Typical Reverse Characteristics

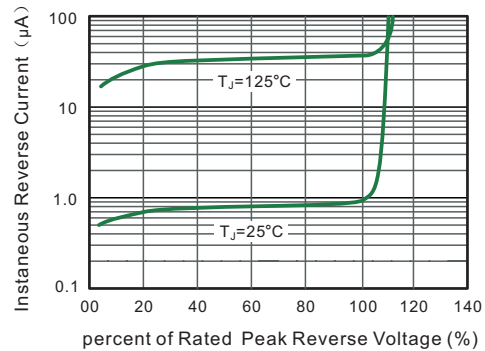


Fig.3 Typical Instantaneous Forward Characteristics

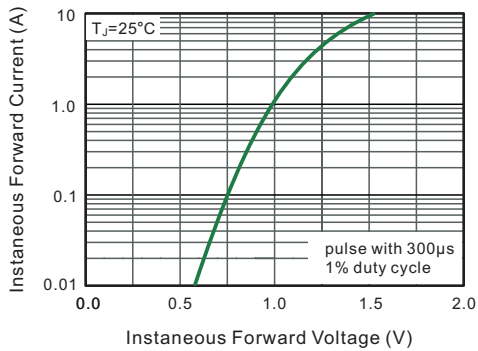


Fig.4 Typical Junction Capacitance

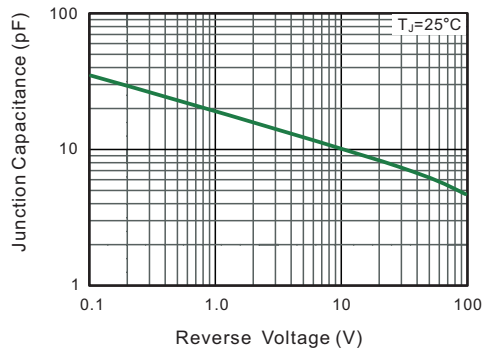


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

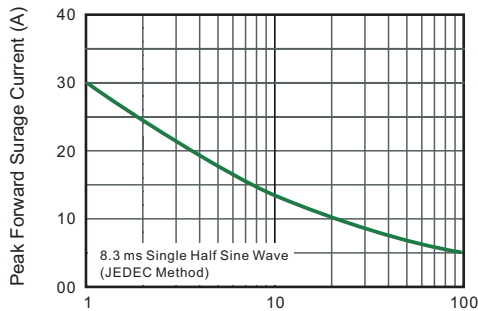


Fig.6 Off-State Current vs. Junction Temperature

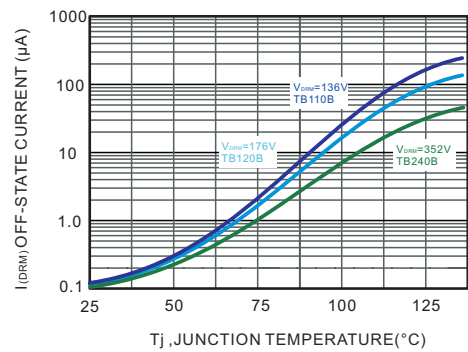


Fig.7 Peak Pulse Power Rating Curve

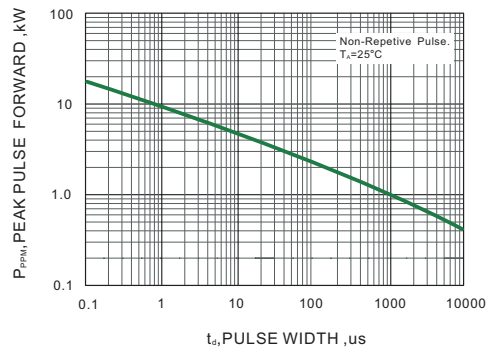




Fig.8 Derating Curve for number of pulses

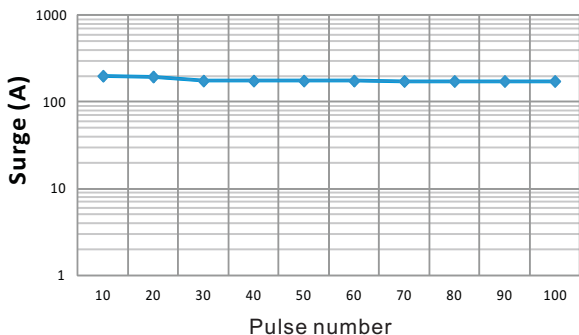


Fig.9 V/I Curve

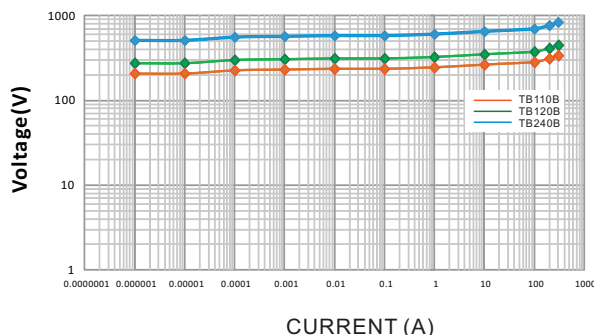
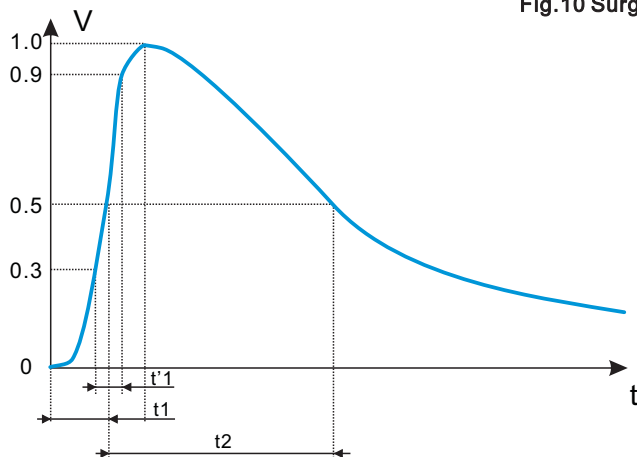


Fig.10 Surge Waveform

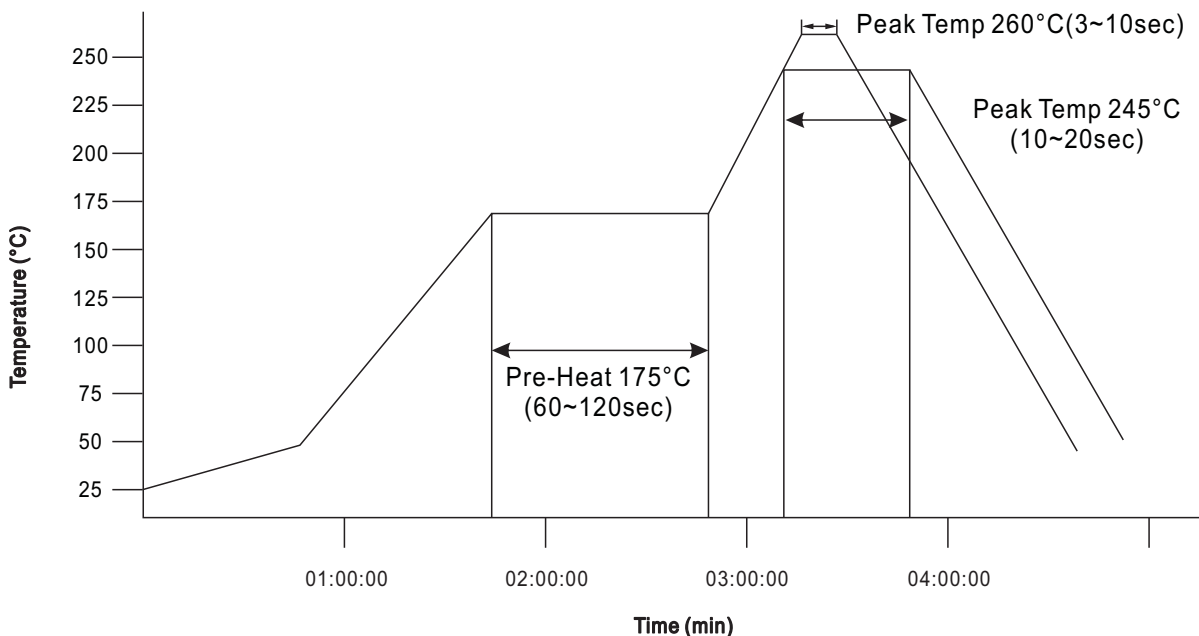


IEC61000-4-5 Standards

SEVERITY LEVEL	T1(=1.67t ₁)	T2
1	10us	1000us
2	8us	20us

8/20us waveform current

Fig.11 The IR reflow and temperature of soldering for Pb free process



IR reflow Pb free process suggestion profile:

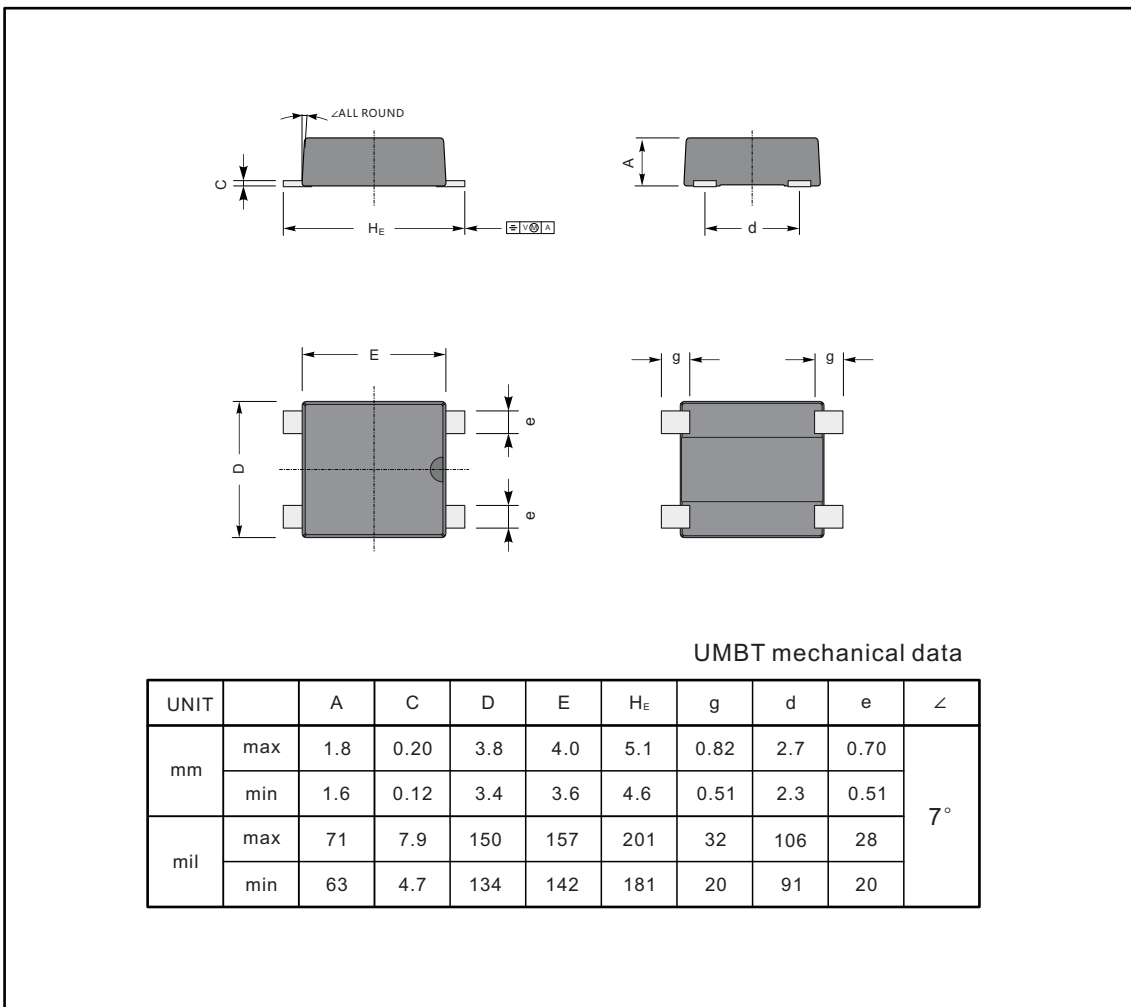
- (1) Ramp-up rate (217°C to peak) +3°C/second max.
- (2) Temp. maintain at 175±25 180seconds max.
- (3) Temp. maintain above 217°C 60~150 seconds
- (4) The peak temperature must be at least 260°C, the time above the 255°C must be within 20s



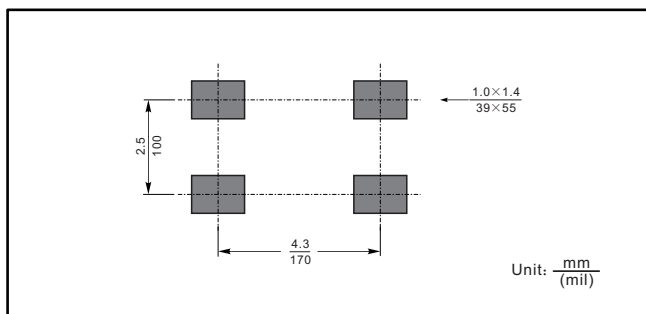
PACKAGE OUTLINE

Plastic surface mounted package; 4 leads

UMBT



The recommended mounting pad size



Marking

Type number	Marking code
TB110B	T110B
TB120B	T120B
TB240B	T240B