



**FEATURES**

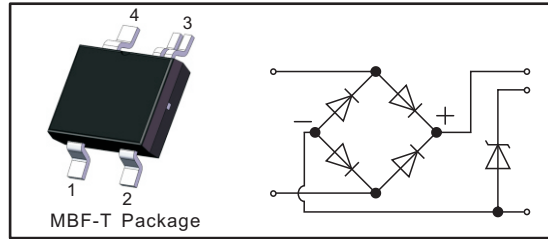
- Lead Free Finish/RoHS Compliant
- Green Molding Compound (No Halogen and Antimony)
- Lower clamping voltage and excellent performance on ringing waves testing.
- Glass Passivated Chip Junction
- High Surge Current Capability
- Designed for Surface Mount Application

**PINNING**

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

**MECHANICAL DATA**

- Case: MBF-T
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 75mg / 0.0026oz



Maximum Ratings and Thermal Characteristics(TA = 25°C unless otherwise specified)  
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 of Bridge Rectifier   | Symbols                           | TB110F     | TB110FA | TB120F | TB120FA | TB240F | TB240FA | Units |
|---|-----------------------------------|------------|---------|--------|---------|--------|---------|-------|
| Average Rectified Output Current at T <sub>C</sub> = 125 °C                                       | I <sub>O</sub>                    | 1.0        |         |        |         |        |         | A     |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | I <sub>FSM</sub>                  | 20         |         |        |         |        |         | A     |
| Maximum Forward Voltage at 1.0 A  | V <sub>F</sub>                    | 1.1        |         |        |         |        |         | V     |
| Maximum DC Reverse Current at Rated DC Blocking Voltage (@VR=1000V)                               | I <sub>R</sub>                    | 5<br>100   |         |        |         |        |         | μA    |
| Typical Junction Capacitance ( f=1MHz,4V DC )   | C <sub>j</sub>                    | 8          |         |        |         |        |         | pF    |
| Typical Thermal Resistance ( Note1 )  | R <sub>θJA</sub>                  | 130        |         |        |         |        |         | °C/W  |
| Operating and Storage Temperature Range   | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150 |         |        |         |        |         | °C    |

Note: 1. Mounted on glass epoxy PC board with 4×1.5"×1.5" ( 3.81×3.81 cm ) copper pad.

| Parameter of TVS                                   | Symbol                            | TB110F     | TB120F  | TB240F  | TB110FA | TB120FA | TB240FA | Unit |
|--|-----------------------------------|------------|---------|---------|---------|---------|---------|------|
| Maximum allowable continuous AC voltage at 50-60Hz | V <sub>RMS</sub>                  | 135        | 155     | 310     | 135     | 155     | 310     | V    |
| Breakdown voltage @ 1mA                            | V <sub>BR</sub>                   | 209~231    | 237~263 | 492~543 | 209~231 | 237~263 | 492~543 | V    |
| Maximum allowable continuous DC voltage            | V <sub>DC</sub>                   | 190        | 220     | 440     | 190     | 220     | 440     | V    |
| Maximum peak current(8/20us@12Ω)(Note2)            | I <sub>peak</sub>                 | 35         |         |         | 40      |         |         | A    |
| Operating and Storage Temperature Range            | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150 |         |         |         |         |         | °C   |

Note: 2.The internal resistance of lightning surge generator is 2 Ω, and the series resistance of test circuit is 10 Ω.



Fig.1 Average Rectified Output Current Derating Curve

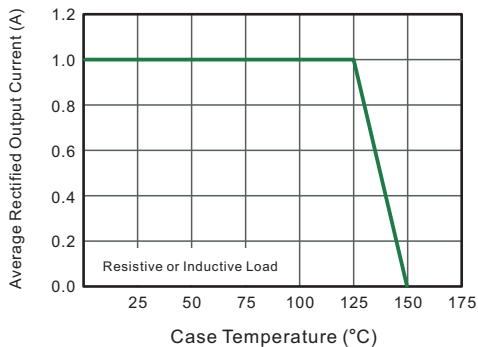


Fig.2 Typical Reverse Characteristics

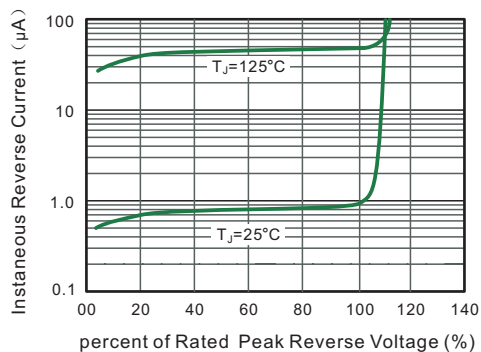


Fig.3 Typical Instantaneous Forward Characteristics

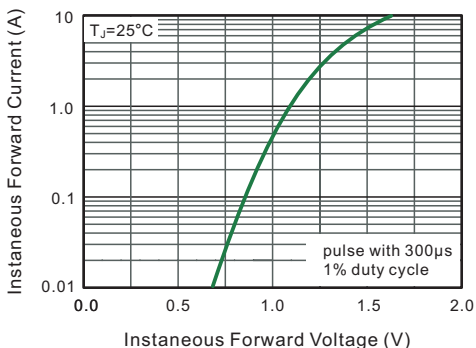


Fig.4 Typical Junction Capacitance

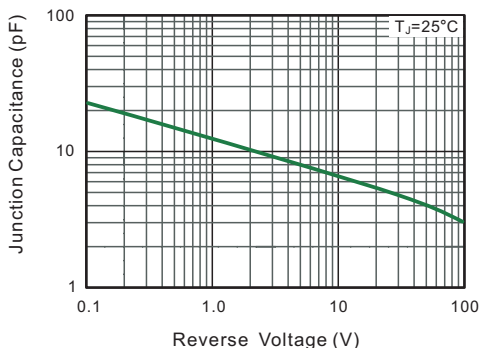


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

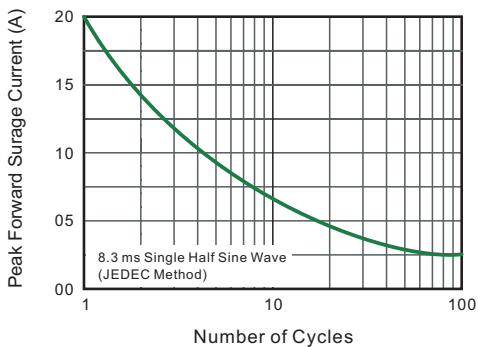
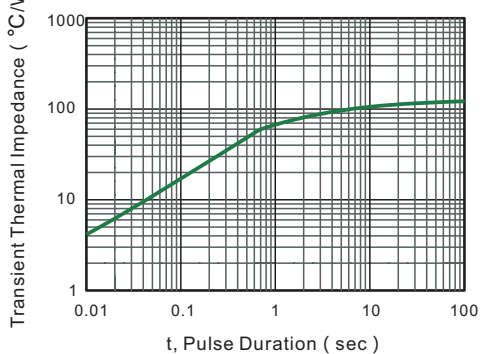
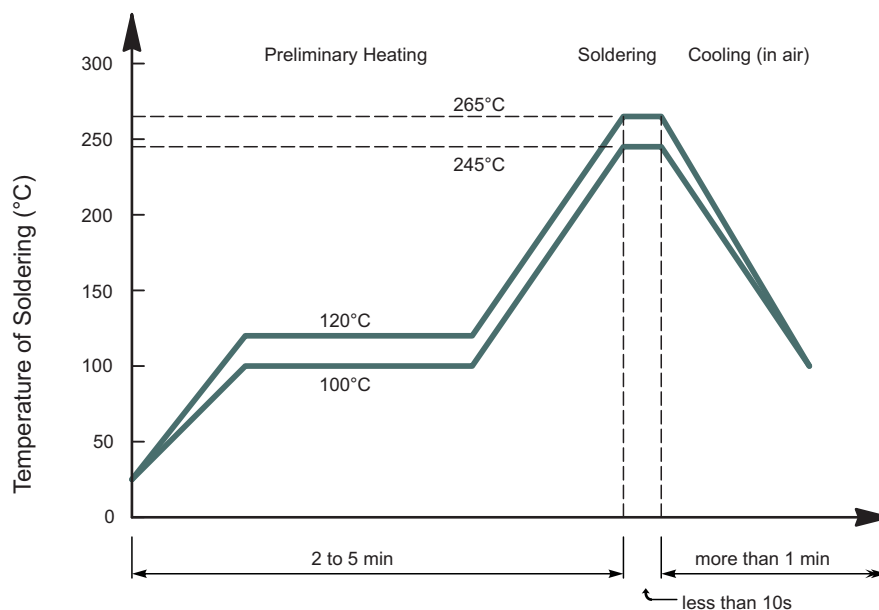


Fig.6- Typical Transient Thermal Impedance

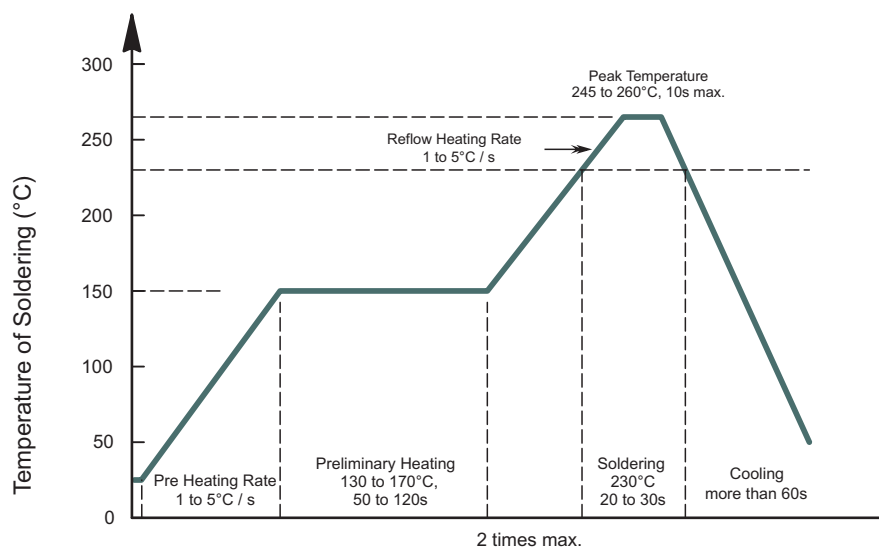




• Recommended condition of flow soldering



• Recommended condition of reflow soldering



Recommended peak temperature is over 245 °C. If peak temperature is below 245 °C, you may adjust the following parameters; time length of peak temperature (longer), time length of soldering (longer), thickness of solder paste (thicker)

• Condition of hand soldering

Temperature: 370°C

Time: 3s max.

Times: one time

• Remark:

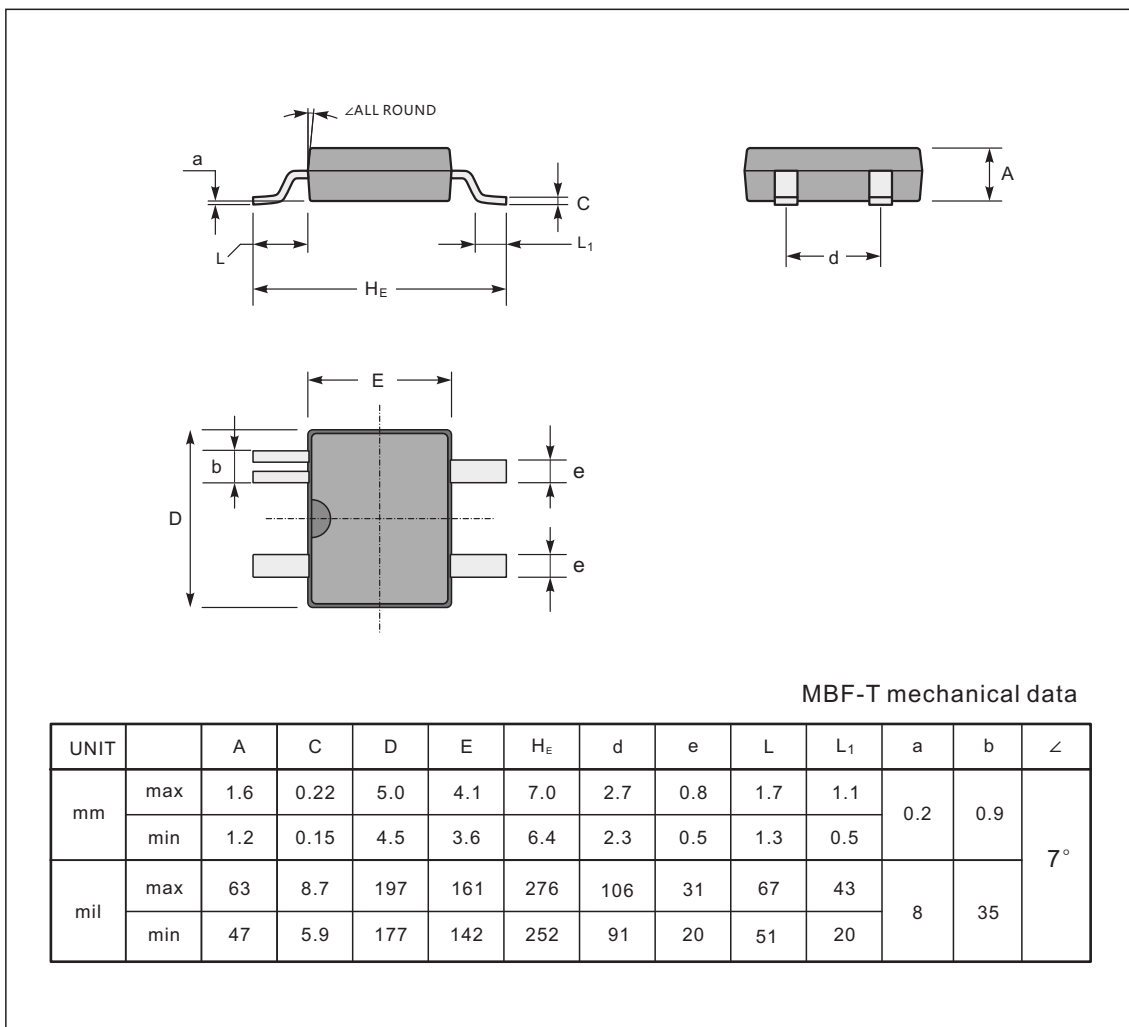
Lead free solder paste (96.5Sn/3.0Ag/0.5Cu)



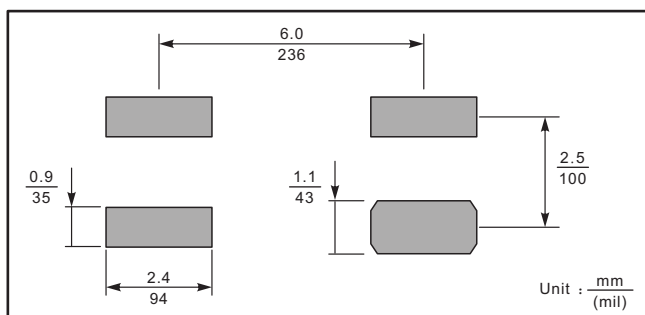
**PACKAGE OUTLINE**

Plastic surface mounted package; 5 leads

**MBF-T**

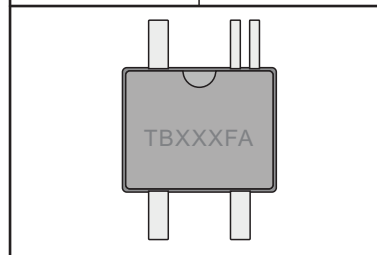


**The recommended mounting pad size**



**Marking**

| Type number | Marking code |
|-------------|--------------|
| TB110F      | TB110F       |
| TB120F      | TB120F       |
| TB240F      | TB240F       |
| TB110FA     | TB110FA      |
| TB120FA     | TB120FA      |
| TB240FA     | TB240FA      |



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