

# US2ABF THRU US2MBF

## Surface Mount Ultrafast Recovery Rectifier FEATURES

- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Superfast reverse recovery time
- Lead free in comply with EU RoHS 2011/65/EU directives

## MECHANICAL DATA

- Case: SMBF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 57mg / 0.002oz

## 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 %.

### PINNING

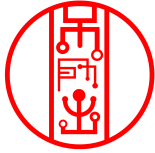
| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



| Parameter                                                                                                                            | Symbols                            | US2ABF     | US2BBF | US2DBF | US2GBF | US2JBF | US2KBF | US2MBF | Units                |
|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------|--------|--------|--------|--------|--------|--------|----------------------|
| Maximum Repetitive Peak Reverse Voltage                                                                                              | $V_{RRM}$                          | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V                    |
| Maximum RMS voltage                                                                                                                  | $V_{RMS}$                          | 35         | 70     | 140    | 280    | 420    | 560    | 700    | V                    |
| Maximum DC Blocking Voltage                                                                                                          | $V_{DC}$                           | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V                    |
| Maximum Average Forward Rectified Current at $T_a = 65\text{ }^{\circ}\text{C}$                                                      | $I_{F(AV)}$                        | 2          |        |        |        |        |        |        | A                    |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)                                    | $I_{FSM}$                          | 55         |        |        |        | 50     |        |        | A                    |
| Maximum Instantaneous Forward Voltage at 2 A                                                                                         | $V_F$                              | 1.0        |        |        | 1.3    |        | 1.6    |        | V                    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_a = 25\text{ }^{\circ}\text{C}$<br>$T_a = 125\text{ }^{\circ}\text{C}$ | $I_R$                              | 5<br>100   |        |        |        |        |        |        | $\mu\text{A}$        |
| Typical Junction Capacitance <sup>1)</sup>                                                                                           | $C_j$                              | 60         |        |        |        |        |        |        | pF                   |
| Maximum Reverse Recovery Time <sup>2)</sup>                                                                                          | $t_{rr}$                           | 50         |        |        |        | 75     |        |        | ns                   |
| Typical Thermal Resistance <sup>3)</sup>                                                                                             | $R_{\theta JA}$<br>$R_{\theta JL}$ | 60<br>20   |        |        |        |        |        |        | $^{\circ}\text{C/W}$ |
| Operating and Storage Temperature Range                                                                                              | $T_j, T_{stg}$                     | -55 ~ +150 |        |        |        |        |        |        | $^{\circ}\text{C}$   |

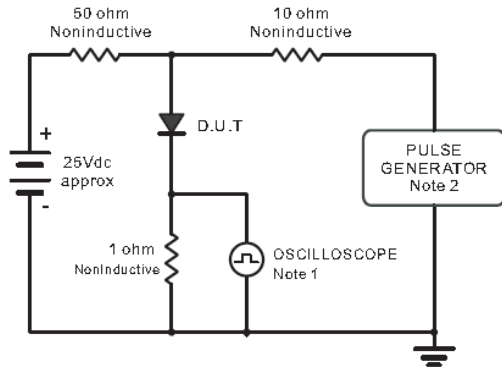
1) Measured at 1 MHz and applied reverse voltage of 4 V D.C    2) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$

3) P.C.B. mounted with 0.5 X 0.5" (12.7 X 12.7 mm) copper pad areas.

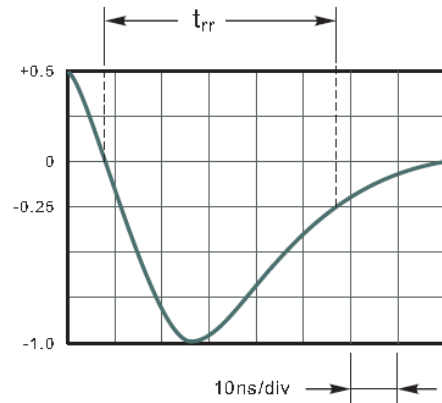


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**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**

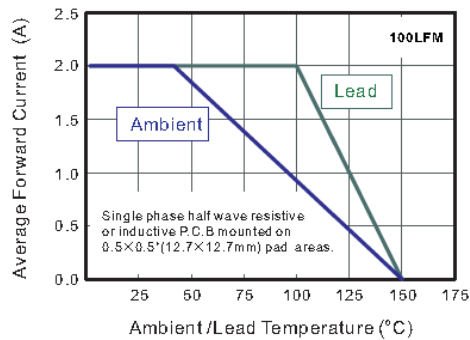


Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.

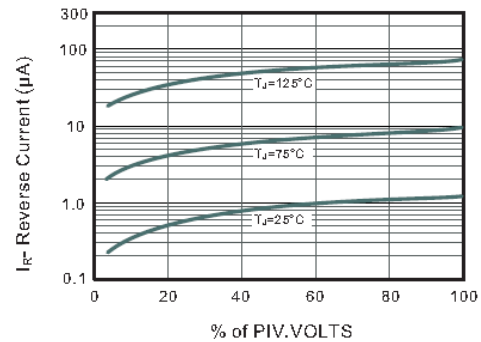


Set time Base for 10ns/div

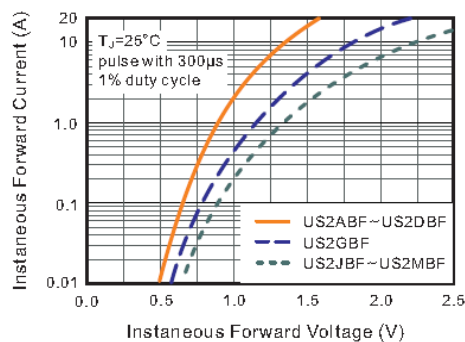
**Fig.2 Maximum Average Forward Current Rating**



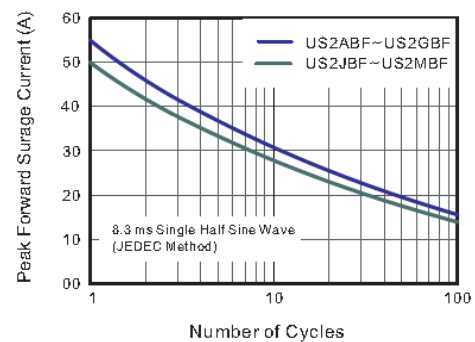
**Fig.3 Typical Reverse Characteristics**

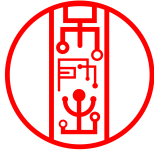


**Fig.3 Typical Instantaneous Forward Characteristics**



**Fig.4 Maximum Non-Repetitive Peak Forward Surge Current**



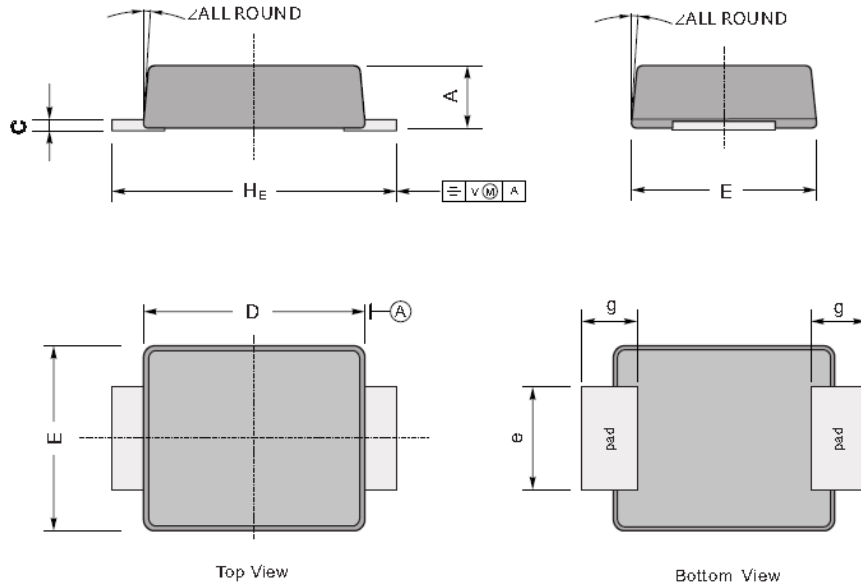


# US2ABF THRU US2MBF

## PACKAGE OUTLINE

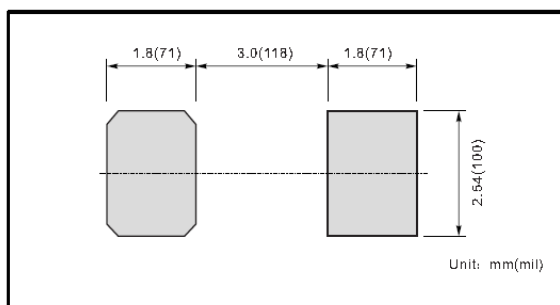
Plastic surface mounted package; 2 leads

SMBF



| UNIT |     | A   | C    | D   | E   | H <sub>E</sub> | e   | g   | ∠  |
|------|-----|-----|------|-----|-----|----------------|-----|-----|----|
| mm   | max | 1.3 | 0.26 | 4.4 | 3.7 | 5.5            | 2.2 | 1.0 | 9° |
|      | min | 1.1 | 0.18 | 4.2 | 3.5 | 5.1            | 1.9 |     |    |
| mil  | max | 51  | 10   | 173 | 146 | 216            | 86  | 40  |    |
|      | min | 43  | 7    | 165 | 138 | 200            | 75  |     |    |

### The recommended mounting pad size



### Marking

| Type number | Marking code |
|-------------|--------------|
| US2ABF      | U2AB         |
| US2BBF      | U2BB         |
| US2DBF      | U2DB         |
| US2GBF      | U2GB         |
| US2JBF      | U2JB         |
| US2KBF      | U2KB         |
| US2MBF      | U2MB         |