# US1ABF THRU US1MBF

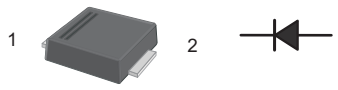
## Surface Mount Ultrafast Recovery Rectifier

**Reverse Voltage – 50V~1000 V**

**Forward Current – 1.0 A**

### PINNING

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




Top View
Marking Code: U1AB~U1MB
Simplified outline SMBF symbol

## 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

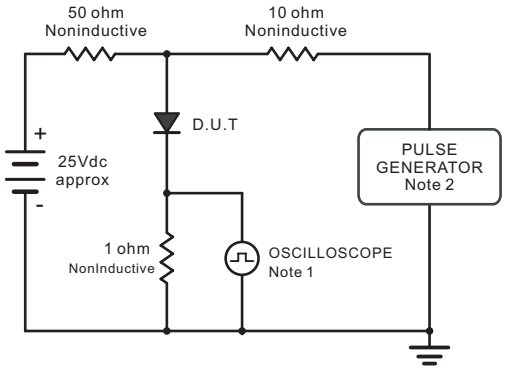
### Maximum Ratings and Electrical characteristics

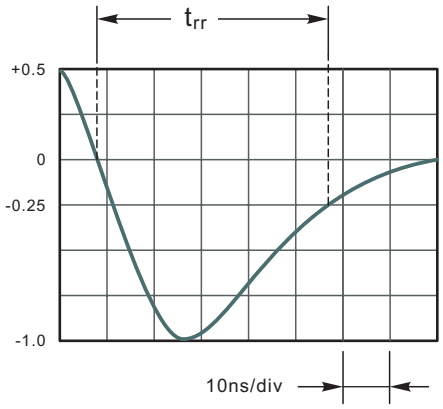
Ratings at 25 °C ambient temperature unless otherwise specified.
Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

| Parameter | Symbols | US1ABF | US1BBF | US1DBF | US1GBF | US1JBF | US1KBF | US1MBF | 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 Ta = 75 °C | $I_{F(AV)}$ | 1 | | | | | | | A |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$ | 35 | | | | | | | A |
| Maximum Instantaneous Forward Voltage at 1 A | $V_F$ | 1.0 | | | 1.3 | 1.5 | | | V |
| Maximum DC Reverse Current Ta = 25 °C<br>at Rated DC Blocking Voltage Ta =125 °C | $I_R$ | 5<br>50 | | | | | | | μA |
| Typical Junction Capacitance 1) | $C_j$ | 45 | | | | | | | pF |
| Maximum Reverse Recovery Time 2) | $t_{rr}$ | 50 | | | | 75 | | | ns |
| Typical Thermal Resistance 3) | $R_{\theta JA}$<br>$R_{\theta JL}$ | 85<br>25 | | | | | | | °C/W |
| Operating and Storage Temperature Range | $T_j$, $T_{stg}$ | -55 ~ +150 | | | | | | | °C |

1 ) Measured at 1 MHz and applied reverse voltage of 4 V D.C
2 ) Measured with IF = 0.5 A, IR = 1 A, Irr = 0.25 A
3 ) P.C.B. mounted with 0.5 X 0.5" (12.7 X 12.7 $mm^2$) copper pad areas.

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

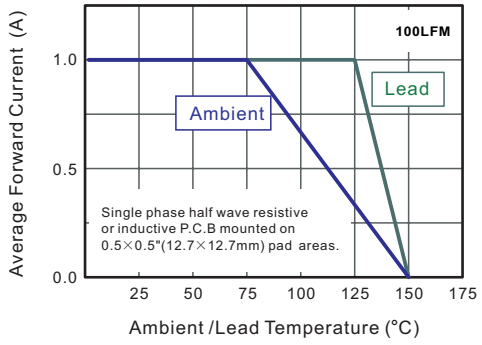


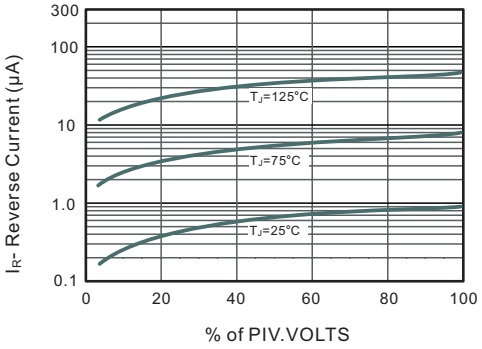

Set time Base for 10ns/div

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

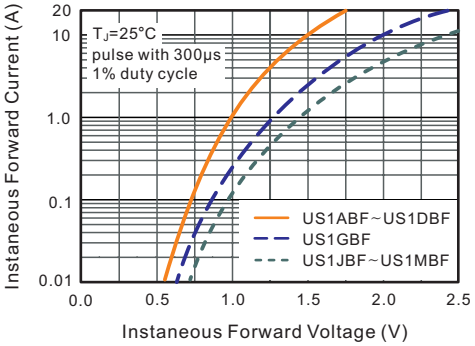
### Fig.2 Maximum Average Forward Current Rating



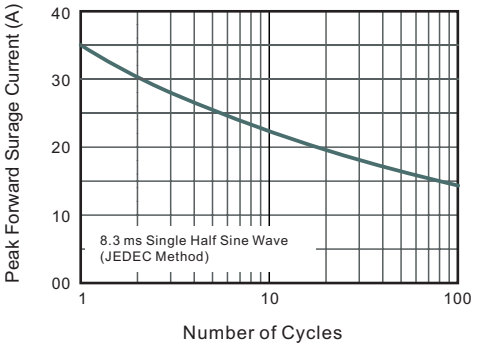

### Fig.3 Typical Reverse Characteristics




### Fig.3 Typical Instaneous Forward Characteristics

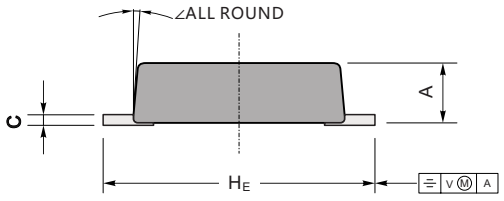


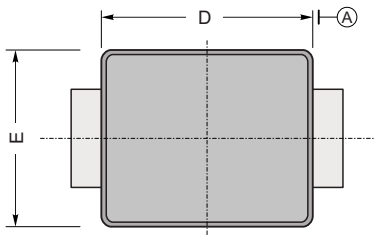

### Fig.4 Maximum Non-Repetitive Peak Forward Surage Current



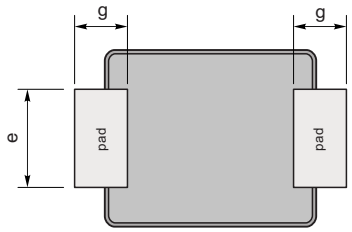
## PACKAGE OUTLINE

**Plastic surface mounted package; 2 leads** SMBF



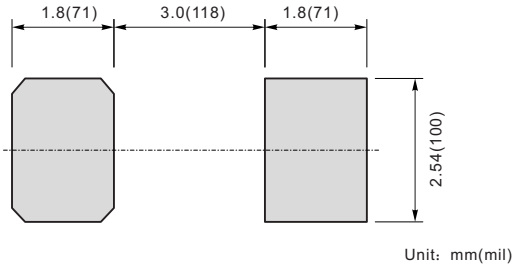

Top View




Bottom View

| UNIT | | A | C | D | E | $H_E$ | 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 |
|---|---|
| US1ABF | U1AB |
| US1BBF | U1BB |
| US1DBF | U1DB |
| US1GBF | U1GB |
| US1JBF | U1JB |
| US1KBF | U1KB |
| US1MBF | US1MB |