

# US1A THRU US1M

## SURFACE MOUNT ULTRAFAST RECOVERY RECTIFIER

Reverse Voltage - 50 to 1000 V

Forward Current - 1 A

### FEATURES

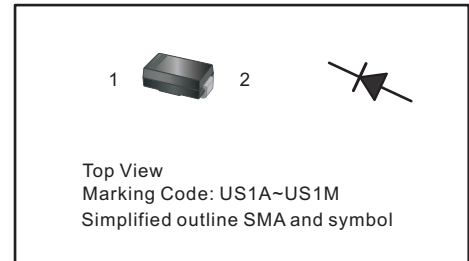
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Easy to pick and place
- High efficiency
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SMA
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.055g / 0.002oz

### PINNING

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



### 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 %.

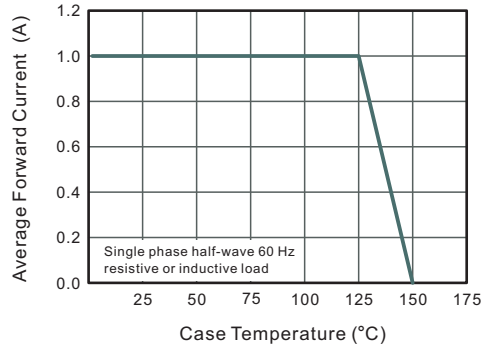
| Parameter  | Symbols         | US1A       | US1B | US1D | US1G | US1J | US1K | US1M | Units                |
|--|-----------------|------------|------|------|------|------|------|------|----------------------|
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$       | 50         | 100  | 200  | 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 $T_c = 125\text{ °C}$                                       | $I_{F(AV)}$     | 1          |      |      |      |      |      |      | A                    |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load                       | $I_{FSM}$       | 30         |      |      |      |      |      |      | A                    |
| Maximum Instantaneous Forward Voltage at 1 A   | $V_F$           | 1.0        |      |      | 1.3  | 1.65 |      |      | V                    |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_a = 25\text{ °C}$<br>$T_a = 125\text{ °C}$ | $I_R$           | 5          |      |      |      |      | 100  |      | $\mu\text{A}$        |
| Maximum Reverse Recovery Time <sup>(1)</sup>   | $t_{rr}$        | 50         |      |      |      | 75   |      |      | ns                   |
| Typical Thermal Resistance <sup>(2)</sup>  | $R_{\theta JA}$ | 75         |      |      |      |      |      |      | $^{\circ}\text{C/W}$ |
| Operating and Storage Temperature Range  | $T_j, T_{stg}$  | -55 ~ +150 |      |      |      |      |      |      | $^{\circ}\text{C}$   |

( 1 ) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .

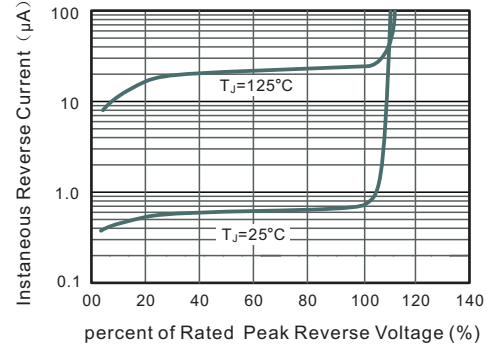
( 2 ) P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

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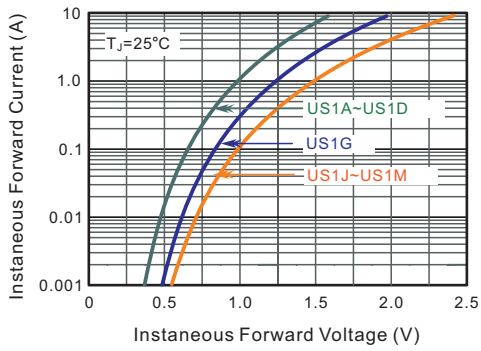
**Fig.1 Forward Current Derating Curve**



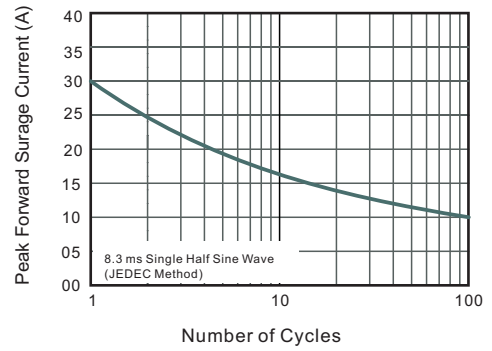
**Fig.2 Typical Reverse Characteristics**



**Fig.3 Typical Forward Characteristics**



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

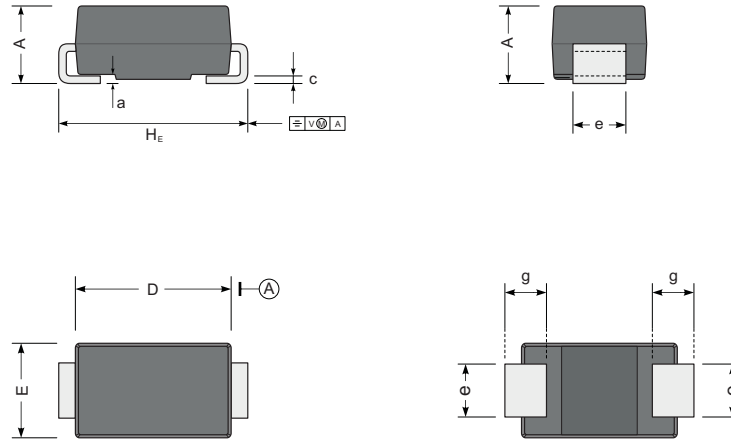


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## PACKAGE OUTLINE

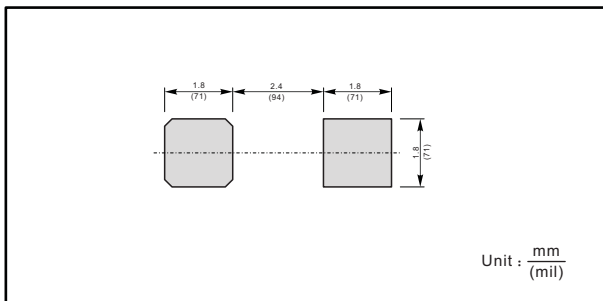
Plastic surface mounted package; 2 leads

SMA



| UNIT |     | A   | D   | E   | $H_E$ | c    | e   | g   | a   |
|------|-----|-----|-----|-----|-------|------|-----|-----|-----|
| mm   | max | 2.2 | 4.5 | 2.7 | 5.2   | 0.31 | 1.6 | 1.5 | 0.3 |
|      | min | 1.9 | 4.0 | 2.3 | 4.7   | 0.15 | 1.3 | 0.9 |     |
| mil  | max | 87  | 181 | 106 | 205   | 12   | 63  | 59  | 12  |
|      | min | 75  | 157 | 91  | 185   | 6    | 51  | 35  |     |

## The recommended mounting pad size



## Marking

| Type number | Marking code |
|-------------|--------------|
| US1A        | US1A         |
| US1B        | US1B         |
| US1D        | US1D         |
| US1G        | US1G         |
| US1J        | US1J         |
| US1K        | US1K         |
| US1M        | US1M         |