

# TDS:EMIC

## 拓 電 半 導 體

自主封測 品質把控 售後保障

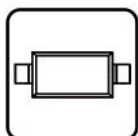
WEB | [WWW.TDSEMIC.COM](http://WWW.TDSEMIC.COM)



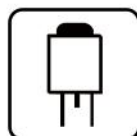
電源管理



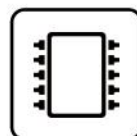
顯示驅動



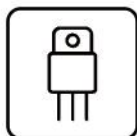
二三極管



LDO穩壓器



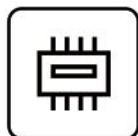
觸摸芯片



MOS管



運算放大器



存儲芯片



MCU



串口通信

## US1M-TD

產品規格說明書

### 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 <sub>RRM</sub>                  | 50         | 100  | 200  | 400  | 600  | 800  | 1000 | V     |
| Maximum RMS voltage                                                                                            | V <sub>RMS</sub>                  | 35         | 70   | 140  | 280  | 420  | 560  | 700  | V     |
| Maximum DC Blocking Voltage                                                                                    | V <sub>DC</sub>                   | 50         | 100  | 200  | 400  | 600  | 800  | 1000 | V     |
| Maximum Average Forward Rectified Current at T <sub>c</sub> = 125 °C                                           | I <sub>F(AV)</sub>                | 1          |      |      |      |      |      |      | A     |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load                             | I <sub>FSM</sub>                  | 30         |      |      |      |      |      |      | A     |
| Maximum Instantaneous Forward Voltage at 1 A                                                                   | V <sub>F</sub>                    | 1.0        |      |      | 1.3  | 1.65 |      |      | V     |
| Maximum DC Reverse Current<br>T <sub>a</sub> = 25 °C<br>at Rated DC Blocking Voltage<br>T <sub>a</sub> =125 °C | I <sub>R</sub>                    | 5<br>100   |      |      |      |      |      |      | μA    |
| Maximum Reverse Recovery Time <sup>(1)</sup>                                                                   | t <sub>rr</sub>                   | 50         |      |      |      | 75   |      |      | ns    |
| Typical Thermal Resistance <sup>(2)</sup>                                                                      | R <sub>θJA</sub>                  | 75         |      |      |      |      |      |      | °C/W  |
| Typical Junction Capacitance <sup>(3)</sup>                                                                    | C <sub>j</sub>                    | 15         |      |      |      |      |      |      | pF    |
| Operating and Storage Temperature Range                                                                        | T <sub>j</sub> , T <sub>stg</sub> | -55 ~ +150 |      |      |      |      |      |      | °C    |

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

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

( 3 ) Measured at 1 MHz and applied reverse voltage of 4 V D.C

Fig.1 Forward Current Derating Curve

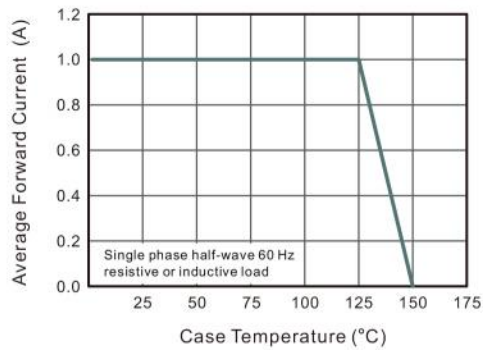


Fig.2 Typical Reverse Characteristics

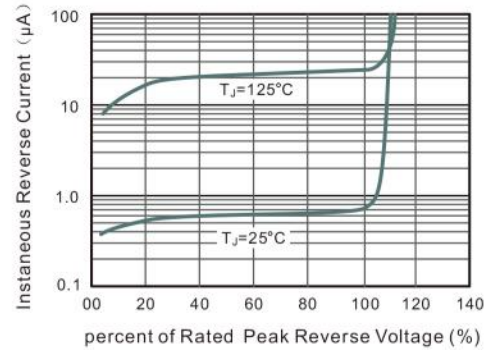


Fig.3 Typical Forward Characteristics

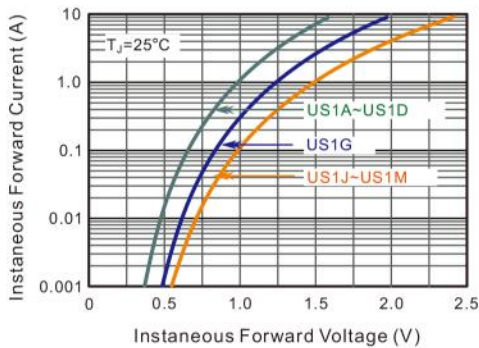


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current

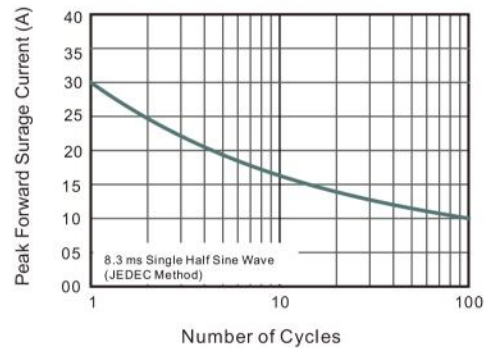


Fig.5- Typical Transient Thermal Impedance

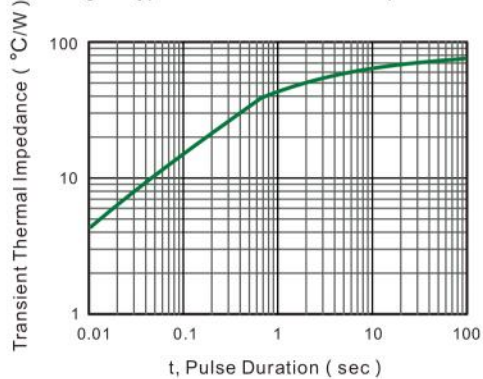
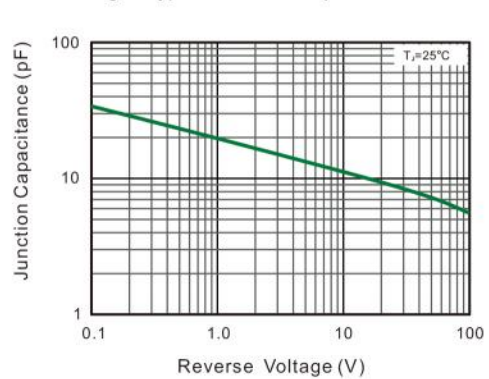
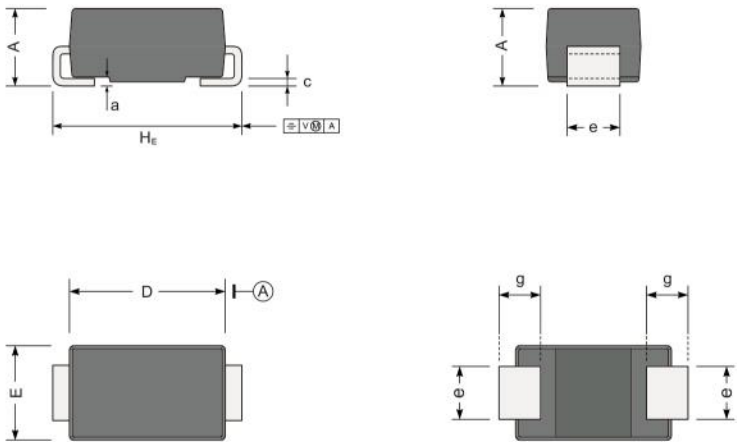


Fig.6 Typical Junction Capacitance



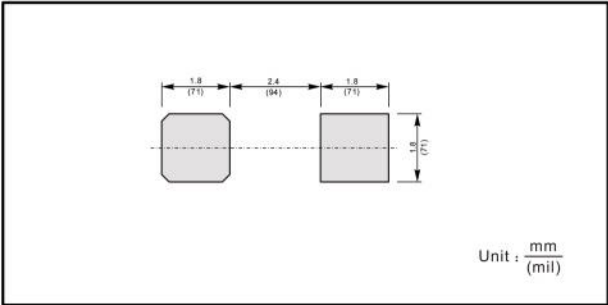
PACKAGE OUTLINE  
Plastic surface mounted package; 2 leads

SMA



| UNIT |     | A   | D   | E   | H <sub>E</sub> | 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         |