

## Ultra-Fast Recovery Rectifier

## TSOD1H6 - TSOD1H8

### Features

- Low forward voltage drop
- High forward surge current capability
- Low-profile SMD ideal for automated manufacturing
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards



### Mechanical Data

- Case: SOD-123FL molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated; solderable per MIL- STD-202, Method 208
- Polarity: Color band denotes cathode end

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

| Parameter                                                  | Symbol            | TSOD1H6 | TSOD1H7 | TSOD1H8 | Unit |
|------------------------------------------------------------|-------------------|---------|---------|---------|------|
| Peak Repetitive Reverse Voltage                            | V <sub>RRM</sub>  | 600     | 800     | 1000    | V    |
| RMS Reverse Voltage                                        | V <sub>RMS</sub>  | 420     | 560     | 700     | V    |
| DC Blocking Voltage                                        | V <sub>DC</sub>   | 600     | 800     | 1000    | V    |
| Average Forward Output Current                             | I <sub>F_AV</sub> | 1.0     |         |         | A    |
| Peak Forward Surge Current,<br>8.3ms Single Half Sine wave | I <sub>FSM</sub>  | 30      |         |         | A    |

### Thermal Characteristics

| Parameter                            | Symbol           | TSOD1H6    | TSOD1H7 | TSOD1H8 | Unit |
|--------------------------------------|------------------|------------|---------|---------|------|
| Typical Thermal Resistance *1        | R <sub>θJA</sub> | 85         |         |         | °C/W |
|                                      | R <sub>θJC</sub> | 23         |         |         |      |
|                                      | R <sub>θJL</sub> | 15         |         |         |      |
| Operating Junction Temperature Range | T <sub>J</sub>   | -55 ~ +150 |         |         | °C   |
| Storage Temperature Range            | T <sub>STG</sub> | -55 ~ +150 |         |         | °C   |

Note \*1: Device mounted on p.c.b. with 10 mm x 20 mm x 0.1mm copper pad area

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### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

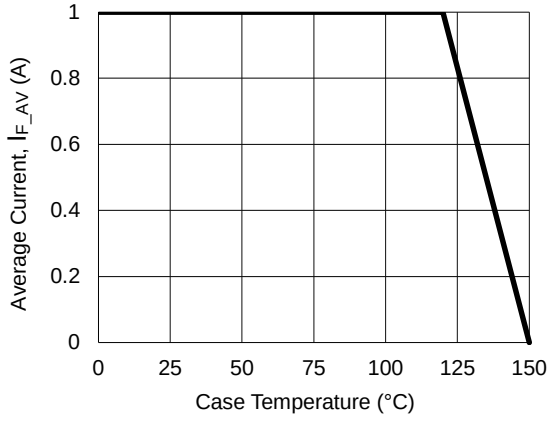
| Parameter                     | Symbol   | Test Condition                                                              |                             | Typ. | Max. | Unit          |
|-------------------------------|----------|-----------------------------------------------------------------------------|-----------------------------|------|------|---------------|
| Instantaneous Forward Voltage | $V_F$    | $I_F = 1.0\text{A}$                                                         |                             | -    | 1.7  | V             |
| Reverse Current               | $I_R$    | Rated<br>$V_R$                                                              | @ $T_A = 25^\circ\text{C}$  | -    | 10   | $\mu\text{A}$ |
|                               |          |                                                                             | @ $T_A = 125^\circ\text{C}$ | -    | 200  |               |
| Reverse Recovery Time         | $t_{rr}$ | $I_F = 0.5\text{A}$ , $I_{RM} = 1\text{A}$ ,<br>$I_{R(REC)} = 0.25\text{A}$ |                             | -    | 75   | ns            |

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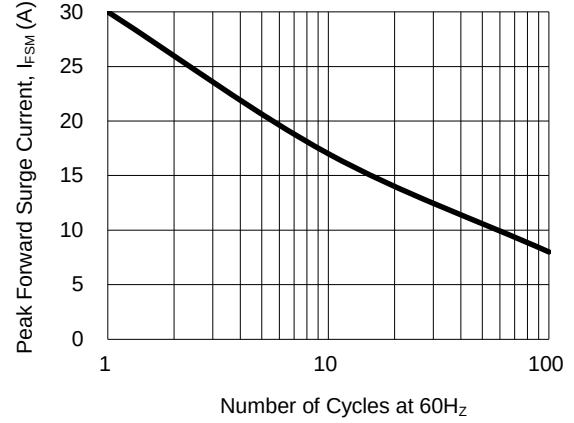
## TSOD1H6 - TSOD1H8

### Ratings and Characteristic Curves (@T<sub>A</sub>=25°C unless otherwise noted)

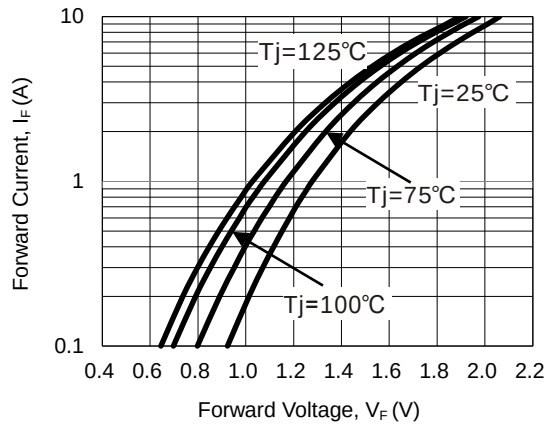
**Fig.1 Forward Current Derating Curve**



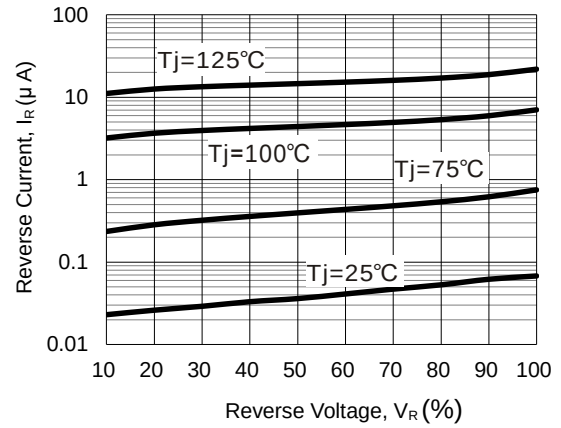
**Fig.2 Surge Current Derating Curve**



**Fig.3 Typical Forward Voltage Characteristic**



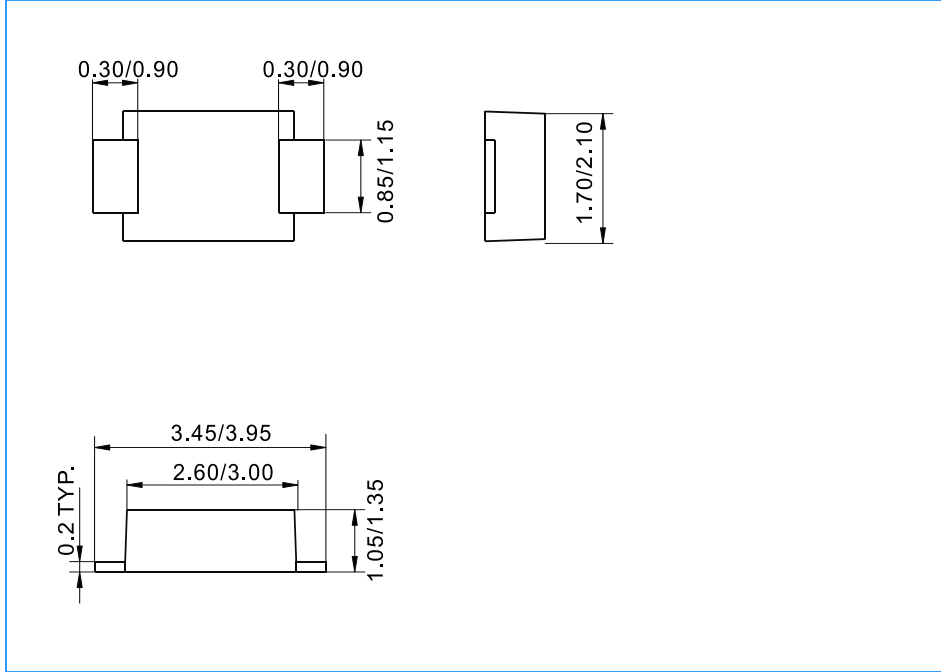
**Fig.4 Typical Reverse Characteristic**



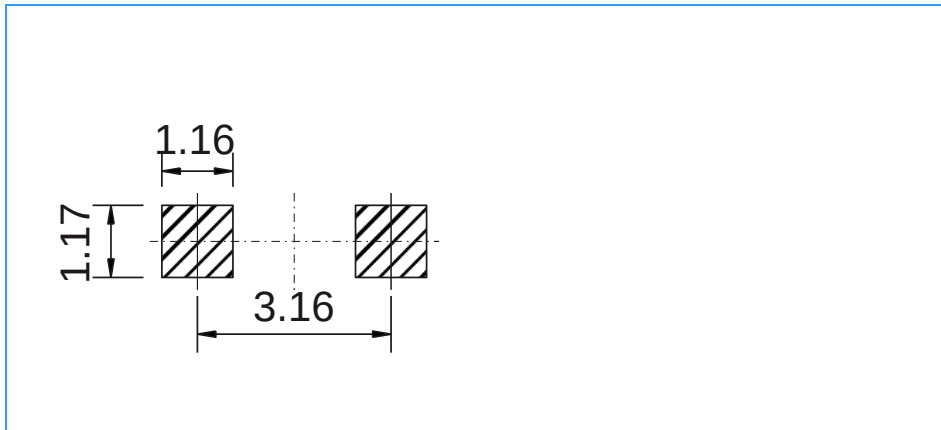
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### Package Outline Dimensions (Unit: mm)



### Mounting Pad Layout (Unit: mm)



### Ordering Information

| Part Number | Marking | Package   | Shipping Quantity   |
|-------------|---------|-----------|---------------------|
| TSOD1H6     | H6      | SOD-123FL | 10000 / Tape & Reel |
| TSOD1H7     | H7      | SOD-123FL | 10000 / Tape & Reel |
| TSOD1H8     | H8      | SOD-123FL | 10000 / Tape & Reel |