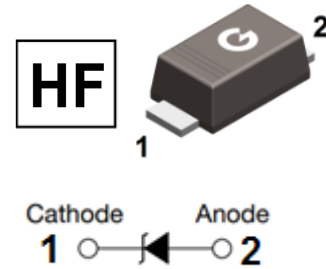


## Super-Fast Recovery Rectifier

## TSOD1E1- TSOD1E4

### 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            | TSOD1E1 | TSOD1E2 | TSOD1E3 | TSOD1E4 | Unit |
|---------------------------------------------------------|-------------------|---------|---------|---------|---------|------|
| Peak Repetitive Reverse Voltage                         | V <sub>RRM</sub>  | 50      | 100     | 150     | 200     | V    |
| RMS Reverse Voltage                                     | V <sub>RMS</sub>  | 35      | 70      | 105     | 140     | V    |
| DC Blocking Voltage                                     | V <sub>DC</sub>   | 50      | 100     | 150     | 200     | V    |
| Maximum Average Forward Output Current                  | I <sub>F_AV</sub> | 1.0     |         |         |         | A    |
| Peak Forward Surge Current, 8.3ms Single Half Sine wave | I <sub>FSM</sub>  | 30      |         |         |         | A    |

### Thermal Characteristics

| Parameter                            | Symbol           | TSOD1E1    | TSOD1E2 | TSOD1E3 | TSOD1E4 | 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

## Super-Fast Recovery Rectifier

## TSOD1E1- TSOD1E4

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

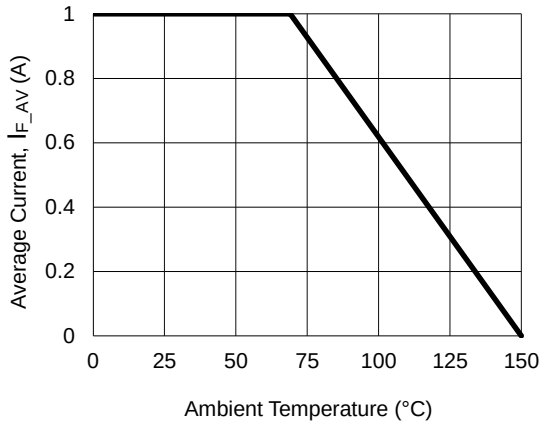
| Parameter                             | Symbol     | Test Condition                                                              |                             | Min. | Typ. | Max. | Unit          |
|---------------------------------------|------------|-----------------------------------------------------------------------------|-----------------------------|------|------|------|---------------|
| Reverse Breakdown Voltage             | $V_{(BR)}$ | $I_R = 2\mu\text{A}$ , TSOD1E1                                              |                             | 50   | -    | -    | V             |
|                                       |            | $I_R = 2\mu\text{A}$ , TSOD1E2                                              |                             | 100  | -    | -    | V             |
|                                       |            | $I_R = 2\mu\text{A}$ , TSOD1E3                                              |                             | 150  | -    | -    | V             |
|                                       |            | $I_R = 2\mu\text{A}$ , TSOD1E4                                              |                             | 200  | -    | -    | V             |
| Maximum Instantaneous Forward Voltage | $V_F$      | $I_F = 1.0\text{A}$                                                         |                             | -    | -    | 0.95 | V             |
| Maximum Reverse Current               | $I_R$      | Rated                                                                       | @ $T_A = 25^\circ\text{C}$  | -    | -    | 5.0  | $\mu\text{A}$ |
|                                       |            | $V_R$                                                                       | @ $T_A = 125^\circ\text{C}$ | -    | -    | 100  |               |
| Maximum Reverse Recovery Time         | $t_{rr}$   | $I_F = 0.5\text{A}$ , $I_{RM} = 1\text{A}$ ,<br>$I_{R(REC)} = 0.25\text{A}$ |                             | -    | -    | 35   | ns            |

# Super-Fast Recovery Rectifier

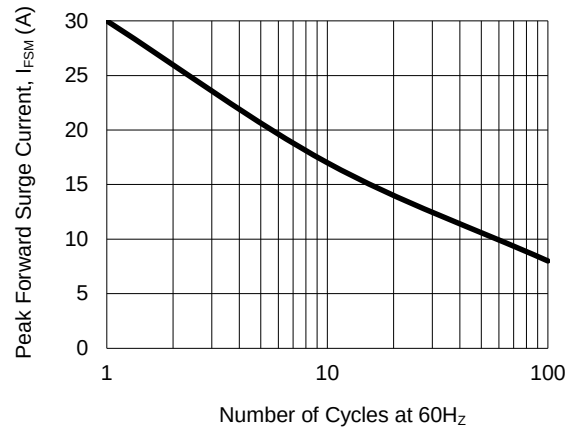
## TSOD1E1- TSOD1E4

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

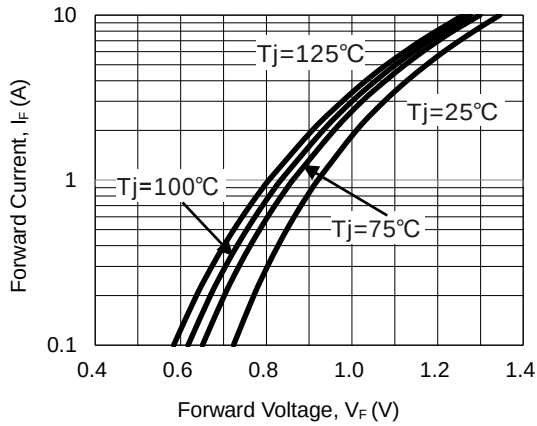
**Fig.1 Forward Current Derating Curve**



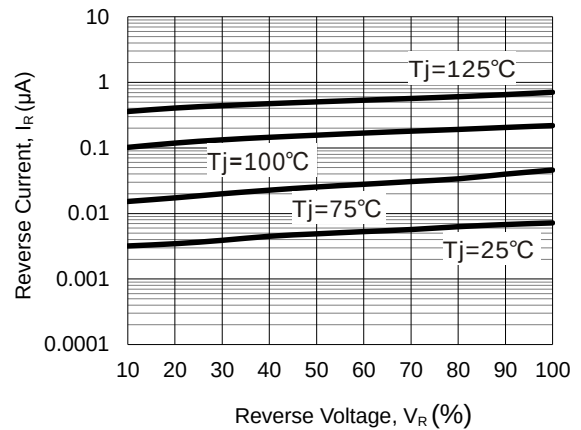
**Fig.2 Surge Current Derating Curve**



**Fig.3 Typical Forward Voltage Characteristics**



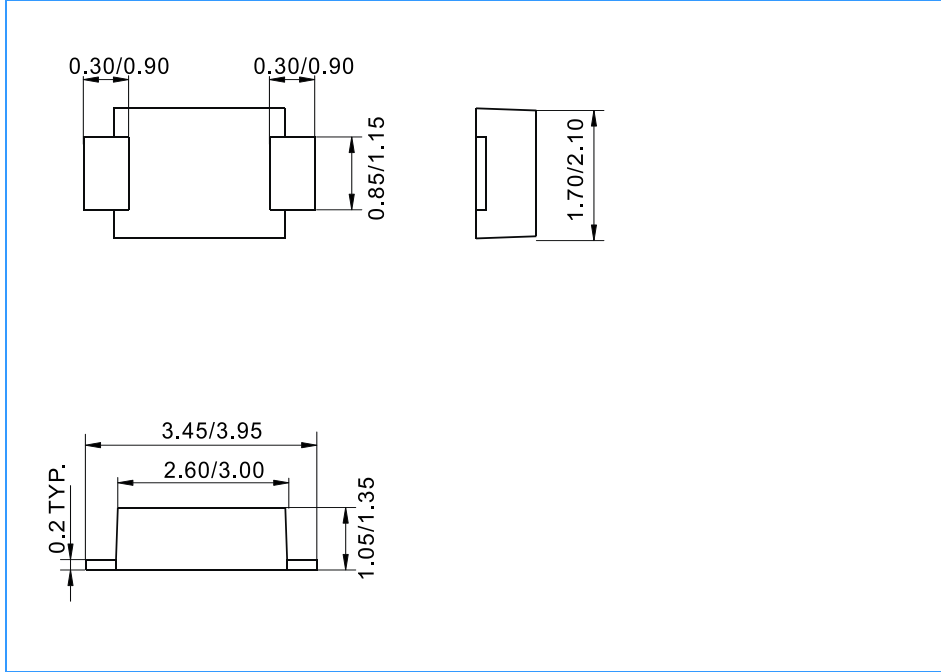
**Fig.4 Typical Reverse Characteristics**



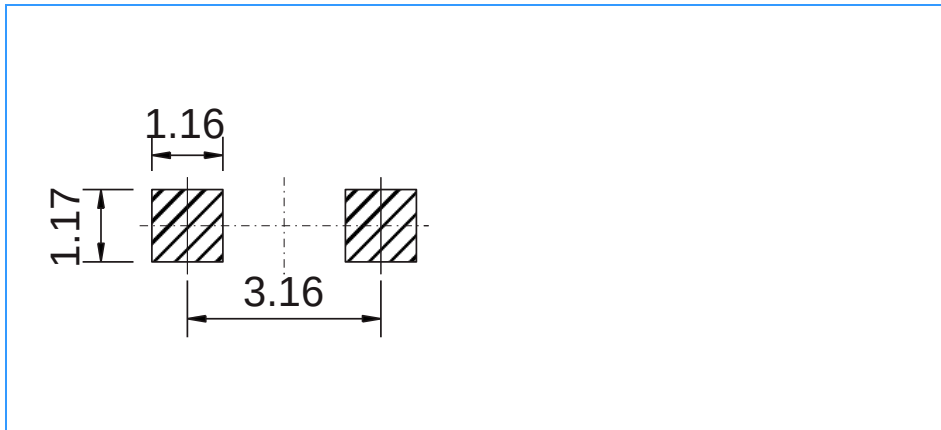
## Super-Fast Recovery Rectifier

## TSOD1E1- TSOD1E4

### Package Outline Dimensions (Unit: mm)



### Mounting Pad Layout (Unit: mm)



### Ordering Information

| Part Number | Marking | Package   | Shipping Quantity       |
|-------------|---------|-----------|-------------------------|
| TSOD1E1     | E1      | SOD-123FL | 10000 pcs / Tape & Reel |
| TSOD1E2     | E2      | SOD-123FL | 10000 pcs / Tape & Reel |
| TSOD1E3     | E3      | SOD-123FL | 10000 pcs / Tape & Reel |
| TSOD1E4     | E4      | SOD-123FL | 10000 pcs / Tape & Reel |