

# Schottky Barrier Rectifier

## TSH52A - TSH54A

### Features

- Metal silicon junction, majority carrier conduction
- High forward surge current capability
- Low forward voltage drop
- High temperature soldering guaranteed: 260°C @ 10s
- Robust guarding for over voltage protection
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards



### Mechanical Data

- Case: SMA molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Matte tin plated leads; solderable per J-STD-002 and JESD22-B102
- Polarity: Color band denotes cathode end

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

| Parameter                                                  | Symbol            | TSH52A | TSH53A | TSH54A | Unit |
|------------------------------------------------------------|-------------------|--------|--------|--------|------|
| Peak Repetitive Reverse Voltage                            | V <sub>RRM</sub>  | 20     | 30     | 40     | V    |
| RMS Reverse Voltage                                        | V <sub>RMS</sub>  | 14     | 21     | 28     | V    |
| DC Blocking Voltage                                        | V <sub>DC</sub>   | 20     | 30     | 40     | V    |
| Average Forward Output Current                             | I <sub>F_AV</sub> | 5.0    |        |        | A    |
| Peak Forward Surge Current,<br>8.3ms Single Half Sine wave | I <sub>FSM</sub>  | 150    |        |        | A    |

### Thermal Characteristics

| Parameter                            | Symbol           | TSH52A     | TSH53A | TSH54A | Unit |
|--------------------------------------|------------------|------------|--------|--------|------|
| Typical Thermal Resistance *1        | R <sub>θJA</sub> | 70         |        |        | °C/W |
|                                      | R <sub>θJC</sub> | 25         |        |        |      |
|                                      | R <sub>θJL</sub> | 30         |        |        |      |
| 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 0.1 mm copper pad area

# Schottky Barrier Rectifier

## TSH52A - TSH54A

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

| Parameter                                   | Symbol | Test Conditions     |                             | Typ. | Max. | Unit          |
|---------------------------------------------|--------|---------------------|-----------------------------|------|------|---------------|
| Instantaneous Forward Voltage* <sup>1</sup> | $V_F$  | $I_F = 5.0\text{A}$ | @ $T_A = 25^\circ\text{C}$  | -    | 0.55 | V             |
| Reverse Current* <sup>2</sup>               | $I_R$  | Rated $V_R$         | @ $T_J = 25^\circ\text{C}$  | -    | 100  | $\mu\text{A}$ |
|                                             |        |                     | @ $T_J = 100^\circ\text{C}$ | -    | 10   | mA            |

Note 1: Pulse test: 300us pulse width, 1 % duty cycle

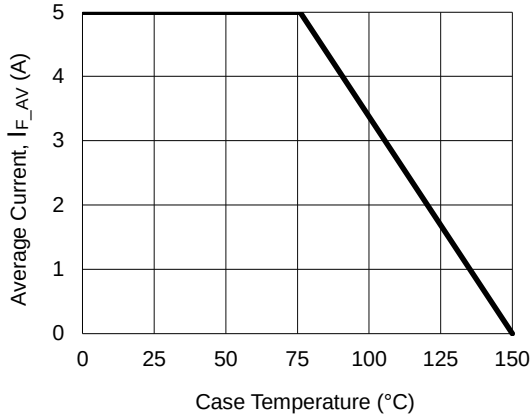
Note 2: Pulse test: Pulse width 40ms

# Schottky Barrier Rectifier

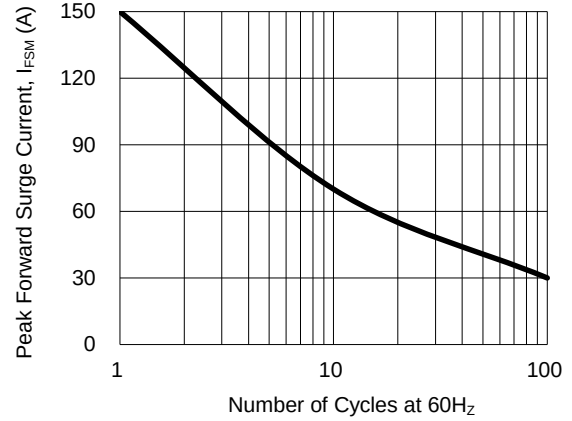
## TSH52A - TSH54A

### Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise noted)

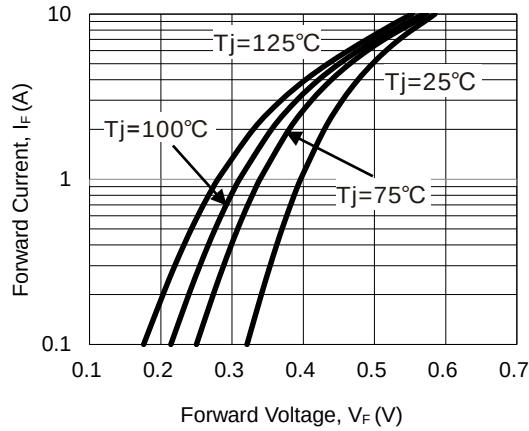
**Fig. 1 Forward Current Derating Curve**



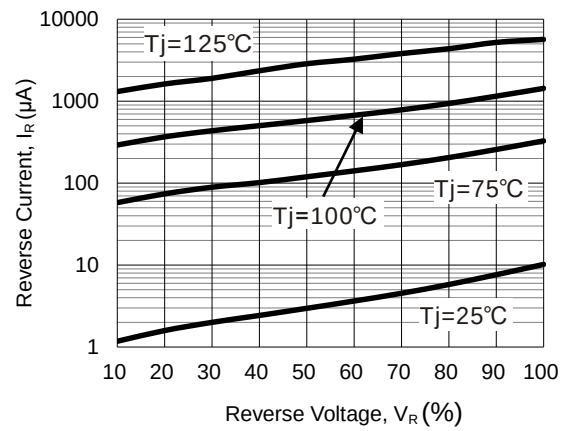
**Fig. 2 Surge Current Derating Curve**



**Fig. 3 Typical Forward Voltage Characteristics**



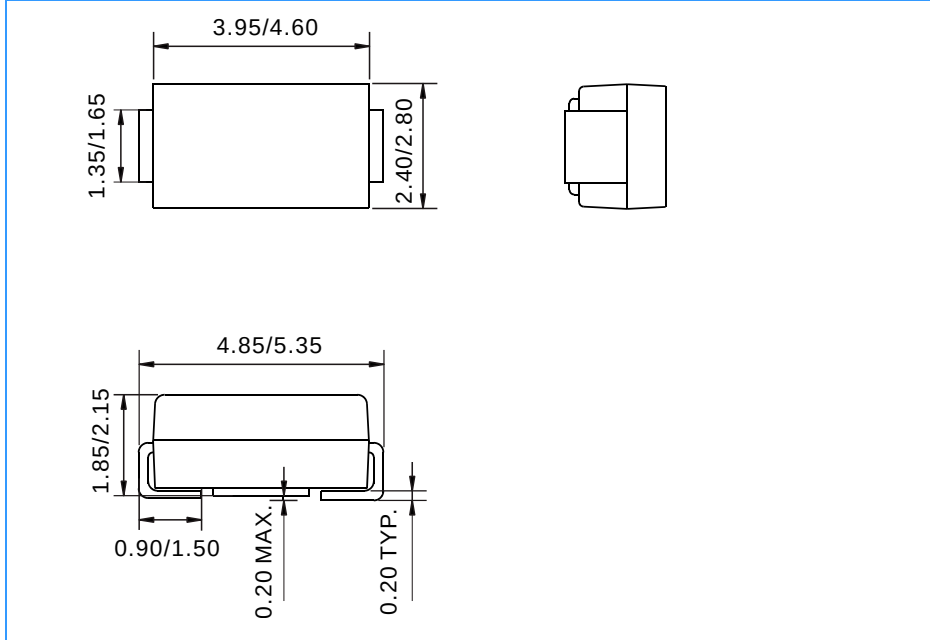
**Fig. 4 Typical Reverse Characteristics**



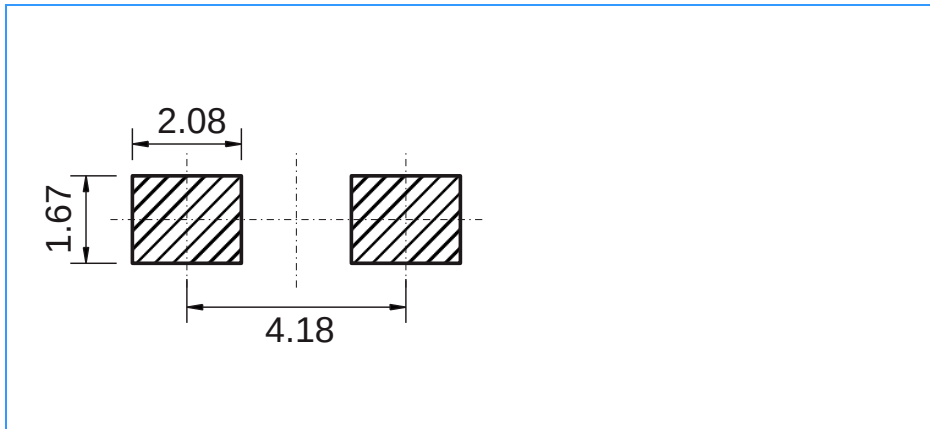
# Schottky Barrier Rectifier

TSH52A - TSH54A

## Package Outline Dimensions (Unit: mm)



## Mounting Pad Layout (Unit: mm)



## Ordering Information

| Part Number | Marking | Package | Shipping Quantity      |
|-------------|---------|---------|------------------------|
| TSH52A      | SH52A   | SMA     | 5000 pcs / Tape & Reel |
| TSH53A      | SH53A   | SMA     | 5000 pcs / Tape & Reel |
| TSH54A      | SH54A   | SMA     | 5000 pcs / Tape & Reel |