SEMICONDUCTOR

# S1MS-V

## AUTOMOTIVE GENERAL PURPOSE RECTIFIER

Reverse Voltage - 1000 Volts
Forward Current - 1.0Amperes

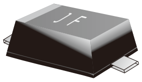
## FEATURES

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Stable,High temperature,Glass passivated junction
- -V suffix for Automative and other applications requiring unique site and conctrol change requirments
- PPAP capable
- AEC-Q101 qualified
- High temperature soldering guaranteed:260℃/10 seconds at terminals
- Component in accordance to RoHS 2015/863/EU

## MECHANICAL DATA

- Case: SMAF molded plastic body
- Terminals: Solder Plated, solderable per MIL-STD-750,method 2026
- Polarity: Color band denotes cathode end

SMAF



## TYPICAL APPLICATIONS

For use in high voltage rectifier,polarity protection,clamp applications

## MAXIMUM RATINGS

(Ratings at 25℃ ambient temperature unless otherwise specified )

| Parameters | Symbol | Value | Unit |
|---|---|---|---|
| Maximum repetitive peak reverse voltage | $V_{RRM}$ | 1000 | V |
| Maximum average forward rectified current | $I_{F(AV)}$ | 1.0 | A |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC method at rated TL) | $I_{FSM}$ | 30 | A |
| Operating junction temperature range | $T_J$ | -55 to+150 | ℃ |
| Storage temperature range | $T_{stg}$ | -55 to+150 | ℃ |

## ELECTRICAL CHARACTERISTCS （$T_A$=25℃ Unless otherwise noted)

| Parameter | Test Conditions | | Symbol | Min. | Typ. | Max . | Unit |
|---|---|---|---|---|---|---|---|
| Breakdown voltage<br>Blocking voltage | $I_R$=10μA | $T_J$=25℃ | $V_{BR}$<br>$V_R$ | 1150 | - | - | V |
| | | $T_J$=-55℃ | | 1000 | - | - | |
| Instaneous forward voltage | $I_F$=1.0A | $T_J$=-40℃ | $V_F$ 1) | - | - | 1.20 | V |
| | | $T_J$=25℃ | | - | 0.95 | 1.00 | |
| | | $T_J$=125℃ | | - | 0.85 | - | |
| Reverse current | $V_R$=1000V | $T_J$=25℃ | $I_R$ 2) | - | - | 2 | μ A |
| | | $T_J$=100℃ | | - | - | 50 | |
| | | $T_J$=125℃ | | - | - | 250 | |
| Junction capacitance | 4V ,1MHz | | $C_J$ | - | 6.0 | - | pF |

Notes: 1.Pulse test: 300μs pulse width,1% duty cycle

2.Pulse test: pulse width≤40ms

## THERMAL CHARACTERISTCS

| Parameter | Symbol | SMAF | Unit |
|---|---|---|---|
| Typical thermal resistance | $R_{\theta JA}$ 3) 4) | 150 | ℃/W |
| | $R_{\theta JM}$ | 15 | |

3.The heat generated must be less than the thermal conductivity from junction-to-ambient: $dP_D/dT_J < 1/R_{\theta JA}$

4.Thermal resistance junction-to-ambient to follow JEDEC51-2A, device mounted on FR4 PCB, 2 oz., standard footprint

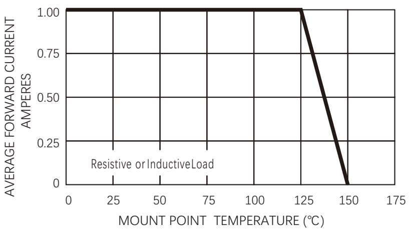
5.Thermal resistance junction-to-mount to follow JEDEC51-14 transient dual interface test method (TDIM)

## AVAILABALE PACK INFORMATION

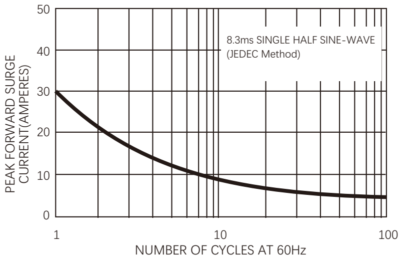
| Product code | Pack | Reel Size (mm) | Quantity (pcs/reel) | Box Size L×W×H (mm) | Quantity (reel/box) | Carton Size L×W×H (mm) | Quantity (box/carton) |
|---|---|---|---|---|---|---|---|
| S1MS-V-SMAF | T/R | Φ178 | 3000 | 180×73×180 | 2 | 380×380×200 | 10 |

# RATINGS AND CHARACTERISTIC OF S1MS-V

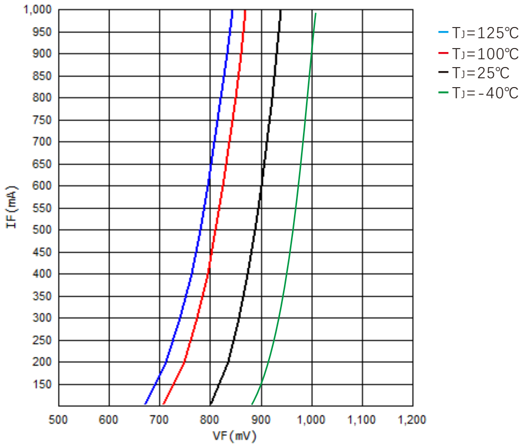
## FIG.1-FORWARD CURRENT DERATING CURVE



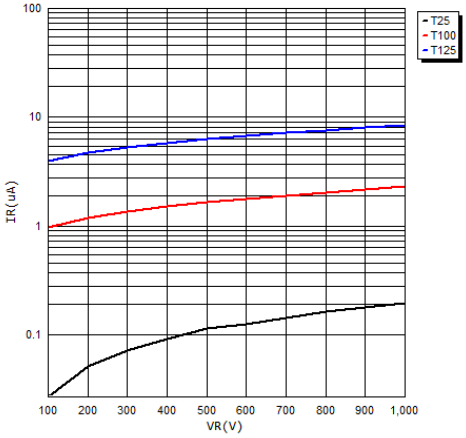
## FIG.2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



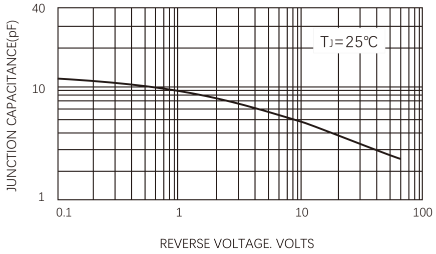
## FIG.3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



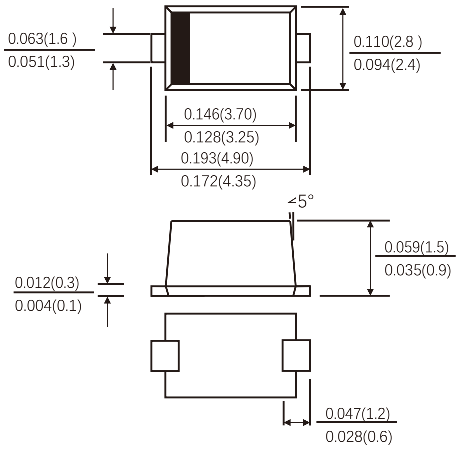
## FIG.4-TYPICAL REVERSE CHARACTERISTICS



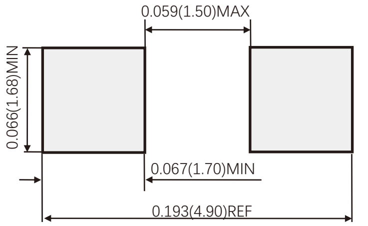
## FIG.5-TYPICAL JUNCTION CAPACITANCE



## SMAF



## Suggested PAD Layout



Dimensions in inches and (millimeters)

## Marking

### Marking:

JF:Logo
xxxx:Tracing code
S1MS-V: Type

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