

## SMAF Plastic-Encapsulate Diodes

### RS3AF THRU RS3MF Fast Recovery Rectifier Diodes

#### Features

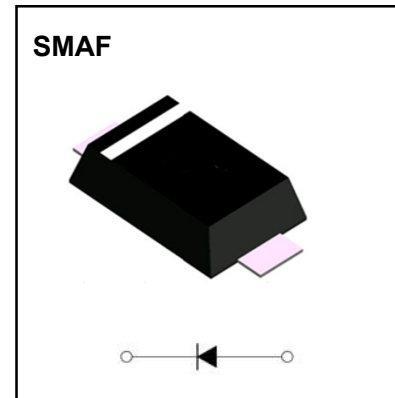
- $I_{F(AV)}$  3A
- $V_{RRM}$  50V-1000V
- High surge current capability
- Polarity: Color band denotes cathode

#### Applications

- Rectifier

#### Marking

- RS3X  
X : From A To M



#### Limiting Values(Absolute Maximum Rating)

| Item   | Symbol         | Unit             | Test Conditions  | RS3        |     |     |     |     |     |      |
|--|----------------|------------------|--|------------|-----|-----|-----|-----|-----|------|
|  |                |                  |  | AF         | BF  | DF  | GF  | JF  | KF  | MF   |
| Repetitive Peak Reverse Voltage                  | $V_{RRM}$      | V                |  | 50         | 100 | 200 | 400 | 600 | 800 | 1000 |
| Maximum RMS Voltage                              | $V_{RMS}$      | V                |  | 35         | 70  | 140 | 280 | 420 | 560 | 700  |
| Average Forward Current                          | $I_{F(AV)}$    | A                | 60Hz Half-sine wave,<br>Resistance load, $T_L = 120^\circ\text{C}$ | 3.0        |     |     |     |     |     |      |
| Surge(Non-repetitive)Forward Current             | $I_{FSM}$      | A                | 60Hz Half-sine wave,<br>1 cycle, $T_a = 25^\circ\text{C}$          | 90         |     |     |     |     |     |      |
| Operation Junction and Storage Temperature Range | $T_J, T_{STG}$ | $^\circ\text{C}$ |  | -55 ~ +150 |     |     |     |     |     |      |

#### Electrical Characteristics (T=25°C Unless otherwise specified)

| Item                                   | Symbol           | Unit               | Test Condition  | RS3                       |     |    |    |     |    |     |  |
|--|------------------|--------------------|---|---------------------------|-----|----|----|-----|----|-----|--|
|  |                  |                    |   | AF                        | BF  | DF | GF | JF  | KF | MF  |  |
| Peak Forward Voltage                   | $V_F$            | V                  | $I_F = 3.0\text{A}$   | 1.3                       |     |    |    |     |    |     |  |
| Peak Reverse Current                   | $I_{RRM1}$       | $\mu\text{A}$      | $V_{RM} = V_{RRM}$  | $T_a = 25^\circ\text{C}$  |     |    |    |     |    |     |  |
|  | $I_{RRM2}$       |                    |   | $T_a = 100^\circ\text{C}$ |     |    |    |     |    |     |  |
| Thermal Resistance(Typical)            | $R_{\theta J-A}$ | $^\circ\text{C/W}$ | Between junction and ambient                                  |                           | 90  |    |    |     |    |     |  |
|  | $R_{\theta J-L}$ |                    | Between junction and terminal                                 |                           | 10  |    |    |     |    |     |  |
| Typical junction capacitance per diode | $C_J$            | pF                 | Measured at 1.0MHz and applied reverse voltage of 4.0 volts.  |                           | 15  |    |    |     |    |     |  |
| Maximum reverse recovery time          | $t_{rr}$         | ns                 | $I_F = 0.5\text{A}, I_R = 1.0\text{A}, I_{rr} = 0.25\text{A}$ |                           | 150 |    |    | 250 |    | 500 |  |

#### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on 1" x 1"(25.4mm x 25.4mm) FR4 PCB, double sided copper, with minimum pad layout

# Typical Characteristics

FIG1. FORWARD CURRENT DERATING CURVE

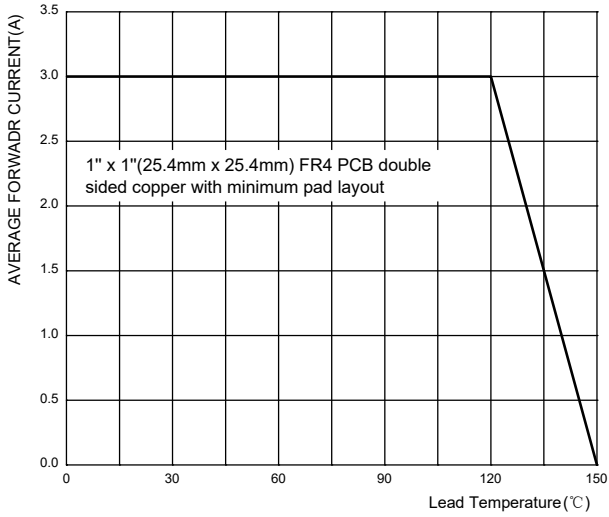


FIG2: Surge Forward Current Capability

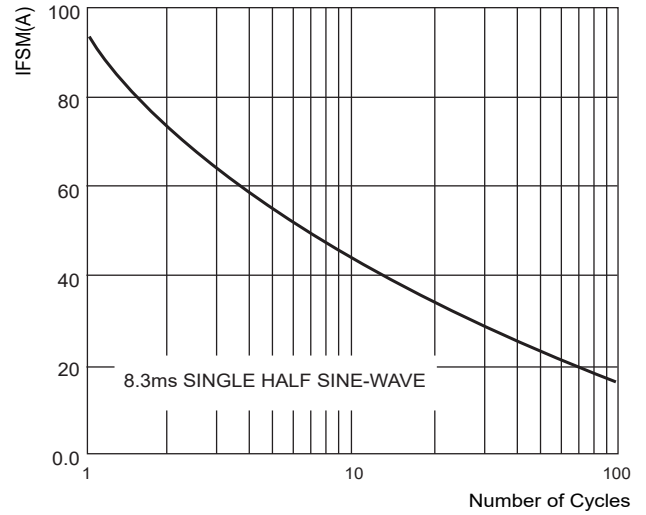


FIG.3: TYPICAL FORWARD CHARACTERISTICS

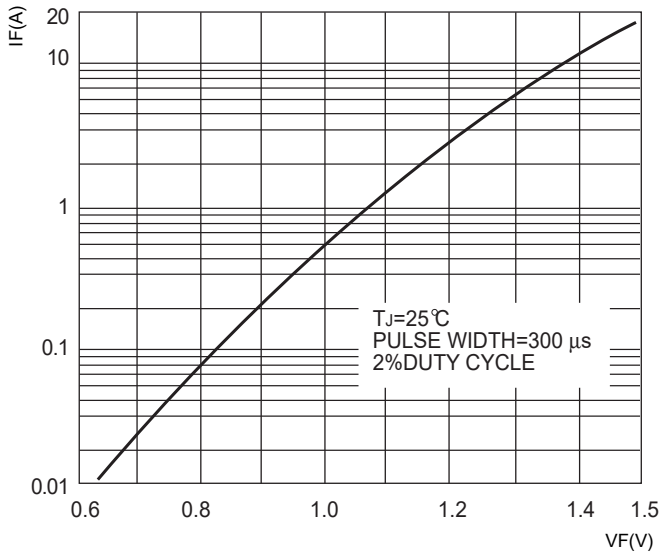


FIG.4 : TYPICAL REVERSE CHARACTERISTICS

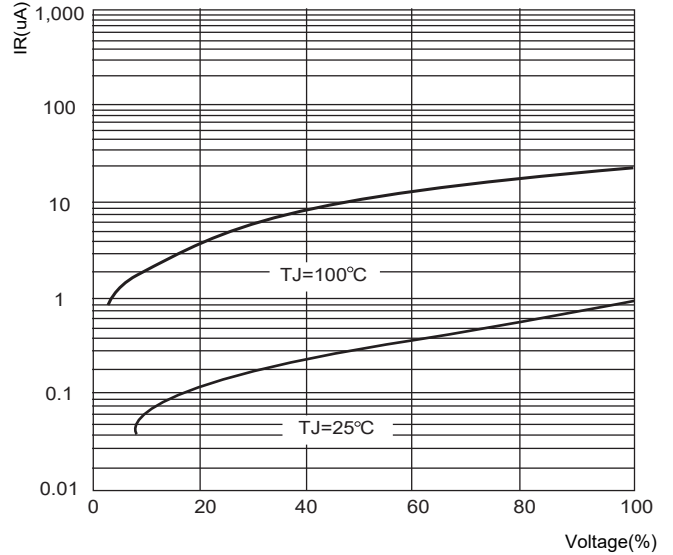
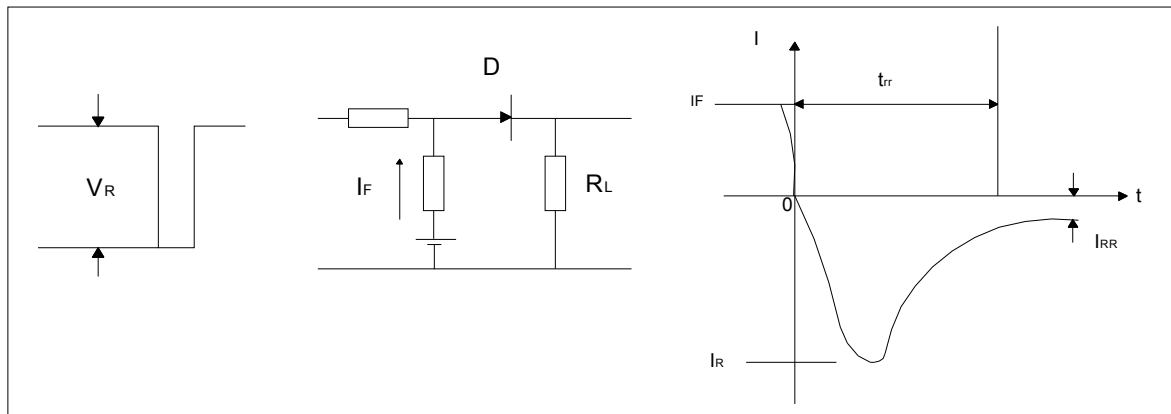
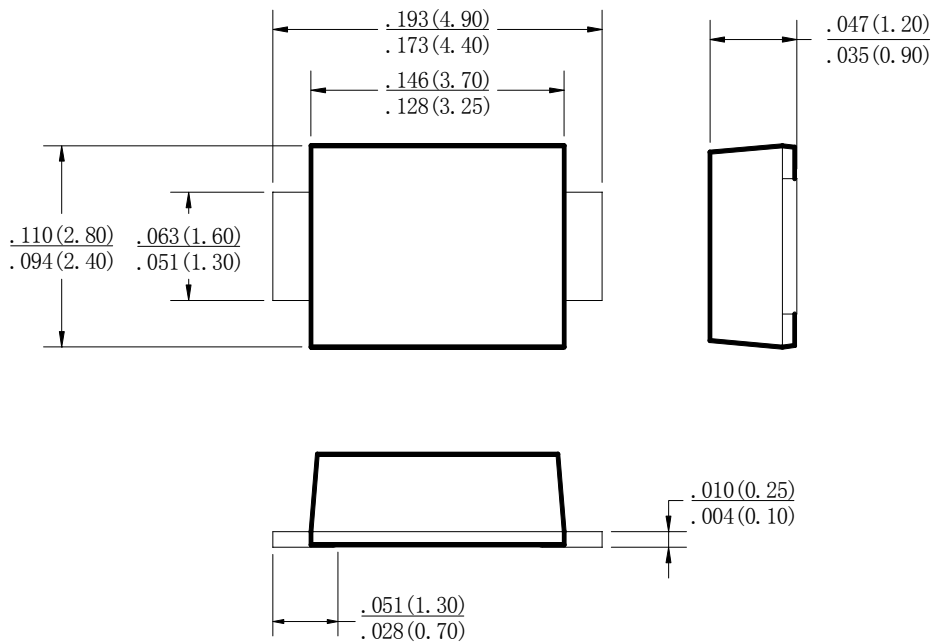


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

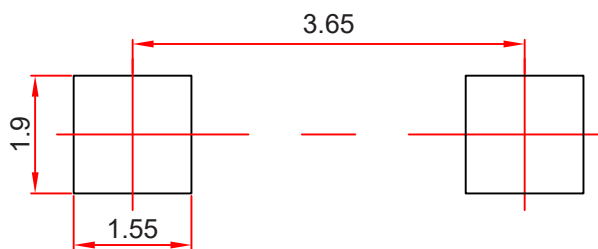


## SMAF Package Outline Dimensions



Dimensions in inches and (millimeters)

## SMAF Suggested Pad Layout



### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

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