# SMAF Plastic-Encapsulate Diodes

**Fast Recovery Rectifier**

## Features

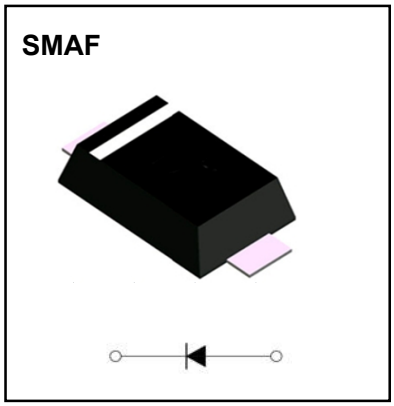
- $I_O$ 1A
- VRRM 50V-1000V
- High surge current capability
- Glass passivated chip
- Polarity: Color band denotes cathode

## Applications

- Rectifier

## Marking

- RS1AF-RS1MF ： RS1A-RS1M




## Limiting Values (Absolute Maximum Rating)

| Item | Symbo | nit | Conditions | RS1 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | 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 | 0Hz Half-sine wave, Resistance oad, Ta=90℃ | 1 | | | | | | |
| Surge(Non-repetitive)Forward Current | $I_{FSM}$ | A | 60Hz Half-sine wave,1 cycle, a=25℃ | 30 | | | | | | |
| Junction Temperature | $T_J$ | ℃ | | -55 ~ +150 | | | | | | |
| Storage Temperature | $T_{STG}$ | ℃ | | -55 ~ +150 | | | | | | |

## Electrical Characteristics ($T_a$ 25℃ Unless otherwise specified）

| Item | Symbol | Unit | Test Condition | | RS1 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | AF | BF | DF | GF | JF | KF | MF |
| Peak Forward Voltage | $V_{FM}$ | V | $I_{FM}$=1.0A | | 1.3 | | | | | | |
| Peak Reverse Current | $I_{RRM1}$ | μA | $V_{RM}=V_{RRM}$ | $T_a$=25℃ | 5 | | | | | | |
| | $I_{RRM2}$ | | | $T_a$=125℃ | 50 | | | | | | |
| Reverse Recovery time | $t_{rr}$ | ns | $I_F$=0.5A $I_R$=1A $I_{RR}$=0.25A | | 150 | | | | 250 | 500 | |
| Thermal Resistance(Typical) | $R_{\theta J-A}$ | ℃/W | Between junction and ambient | | 105[1)] | | | | | | |
| | $R_{\theta J-L}$ | | Between junction and terminal | | 32[1)] | | | | | | |

**Notes:**

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

## Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

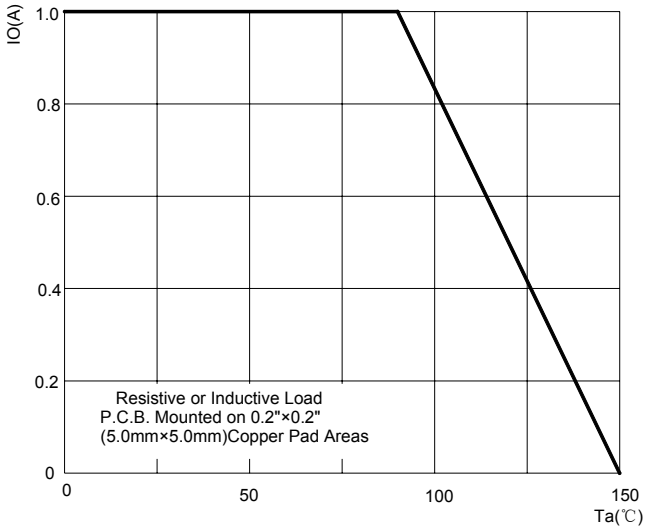



FIG.2: MAXIMUM NON-REPETITIVE FORWARD URGE CURRENT

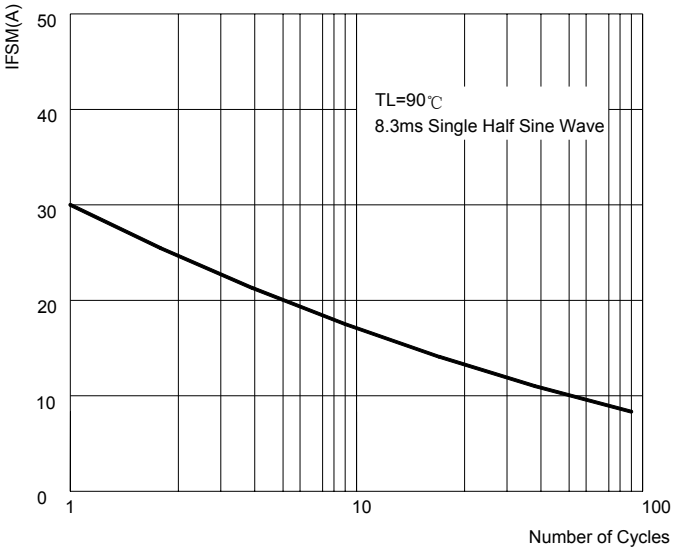



FIG.3: TYPICAL FORWARD CHARACTERISTICS

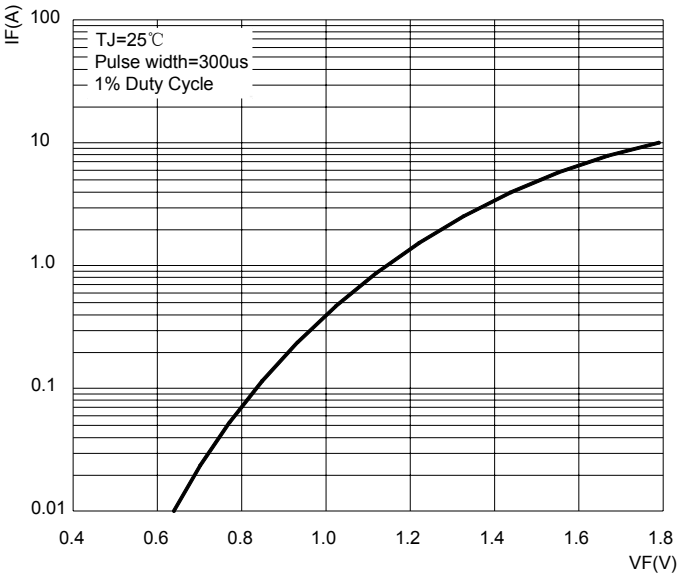



FIG.4：TYPICAL REVERSE CHARACTERISTICS

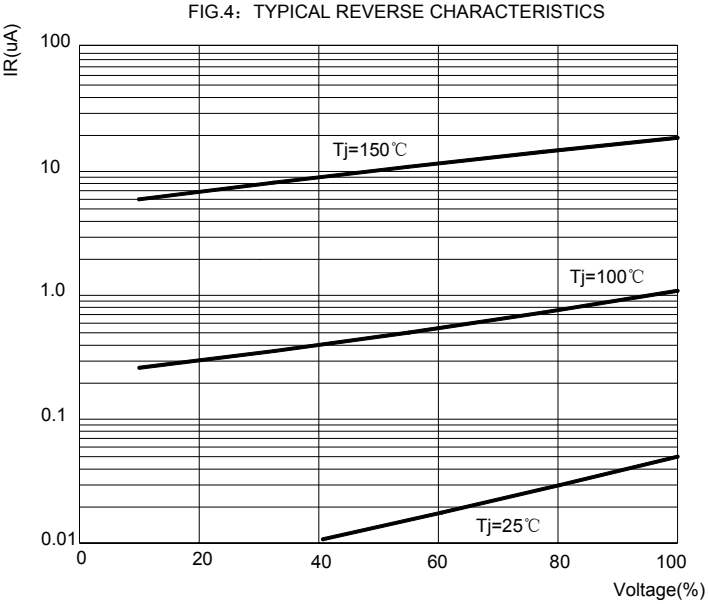
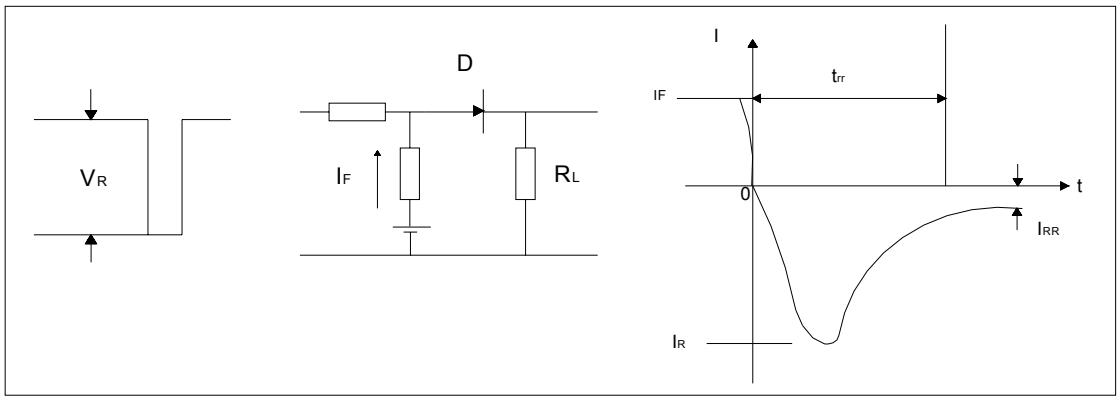
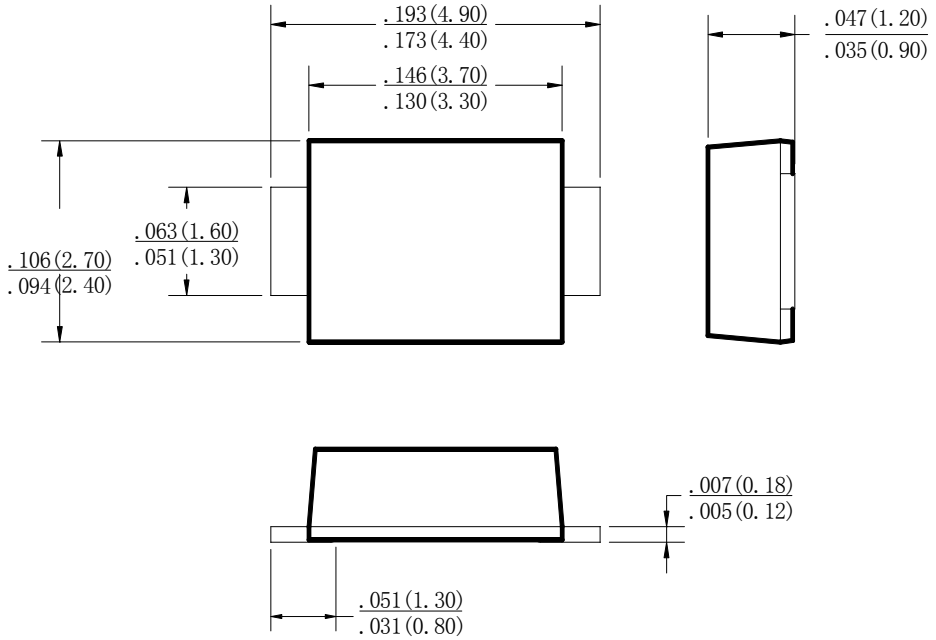



FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

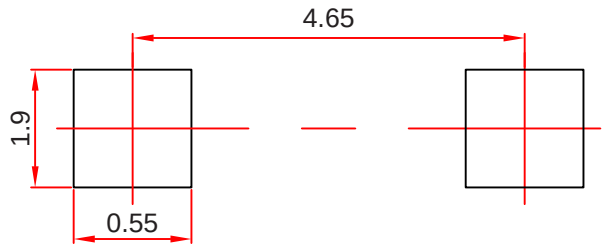


## SMAF Package Outline Dimensions




Dimensions in inches and (millimeters)

## SMAF Suggested Pad Layout




**Note:**
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

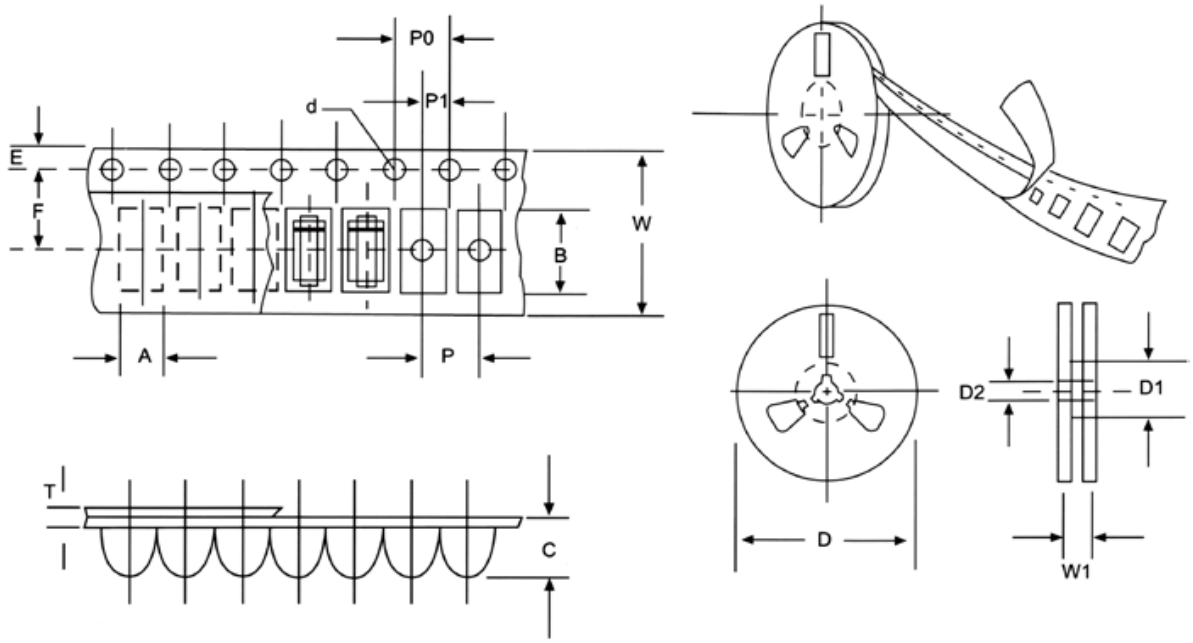



FIG:CONFIGURATION OF AXIAL TAPING

| ITEM | SYMBOL | SMAF mm(inch) |
|---|---|---|
| Carrier width | A | 2.83+0.1(0.112+0.004) |
| Carrier length | B | 4.90+0.1(0.193+0.004) |
| Carrier depth | C | 1.45+0.1(0.057+0.004) |
| Sprocket hole | d | 1.55+0.05(0.061+0.002) |
| Reel outside diameter | D | 280/178+2.0(11/7.0+0.079) |
| Reel inner diameter | D1 | 8.0+0.2(0.315+0.008) |
| Feed hole diameter | D2 | 13+0.5(0.512+0.020) |
| Stroket hole position | E | 1.75+0.1(0.069+0.004) |
| Punch hole position | F | 5.5+0.05(0.217+0.002) |
| Punch hole pitch | P | 4.0+0.1(0.157+0.004) |
| Sprocket hole pitch | P0 | 4.0+0.1(0.157+0.004) |
| Embossment center | P1 | 2.0+0.1(0.079+0.004) |
| Totall tape thickness | T | 0.23-0.29(0.009-0.011) |
| Tape width | W | 12.0+0.1(0.472+0.004) |
| Reel width | W1 | 16.8+2.0(0.661+0.079) |

NOTE:Devices are packde in accordance with EIA standard RS-481-A and specification given above.