

SMAF Plastic-Encapsulate Diodes

RS1AF THRU RS1MF Fast Recovery Rectifier Diodes

Features

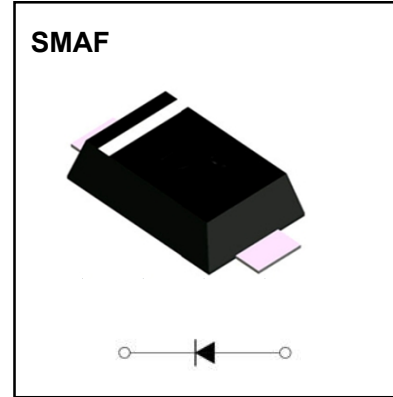
- $I_{F(AV)}$ 1A
- V_{RRM} 50V-1000V
- High surge current capability
- Polarity: Color band denotes cathode

Applications

- Rectifier

Marking

- RS1X
X : From A To M



Limiting Values(Absolute Maximum Rating)

| Item | Symbol | Unit | Test 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 | 60Hz Half-sine wave, Resistance load, $T_a=90^\circ\text{C}$ | 1.0 | | | | | | |
| Surge(Non-repetitive)Forward Current | I_{FSM} | A | 60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$ | 30 | | | | | | |
| Operation Junction and Storage Temperature Range | T_J, T_{STG} | $^\circ\text{C}$ | | -55 ~ +150 | | | | | | |

Electrical Characteristics ($T=25^\circ\text{C}$ Unless otherwise specified)

| Item | Symbol | Unit | Test Condition | RS1 | | | | | | |
|-------------------------------|------------------|---------------------------|---|-------------------------|----|----|-----|----|-----|----|
| | | | | AF | BF | DF | GF | JF | KF | MF |
| Peak Forward Voltage | V_F | V | $I_F=1.0\text{A}$ | 1.3 | | | | | | |
| 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 | |
| Peak Reverse Current | I_{RRM1} | μA | $V_{RM}=V_{RRM}$ | $T_a=25^\circ\text{C}$ | | | | | | |
| | I_{RRM2} | | | $T_a=125^\circ\text{C}$ | | | | | | |
| Thermal Resistance(Typical) | $R_{\theta J-A}$ | $^\circ\text{C}/\text{W}$ | Between junction and ambient | | | | 55 | | | |
| | $R_{\theta J-L}$ | | Between junction and terminal | | | | 25 | | | |

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

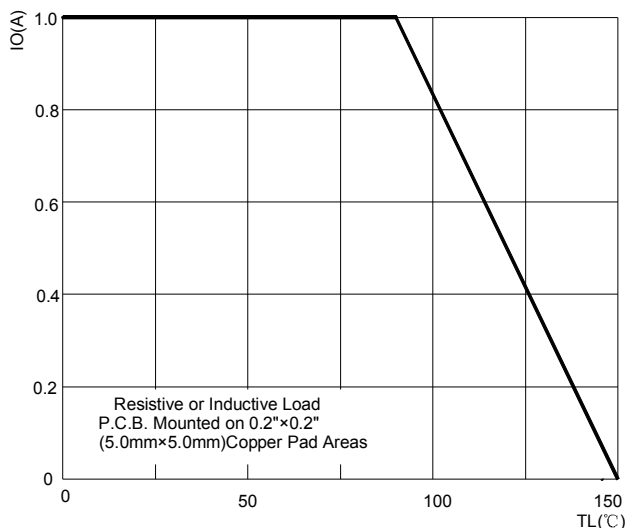


FIG.2: MAXIMUM NON-REPETITIVE FORWARD URGE CURRENT

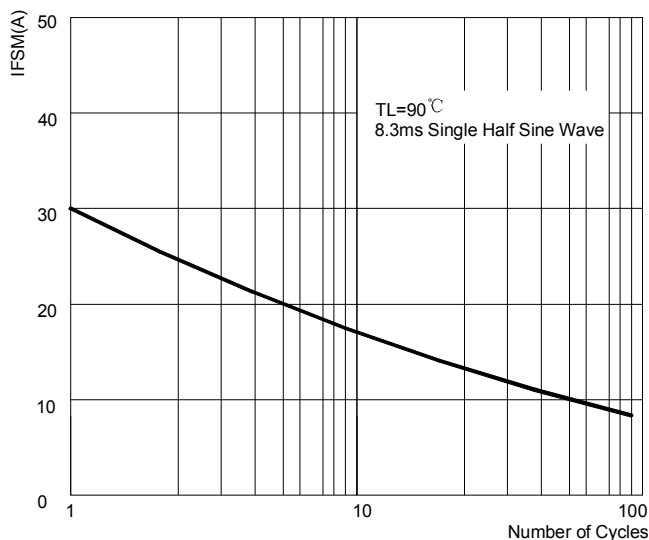


FIG.3: TYPICAL FORWARD CHARACTERISTICS

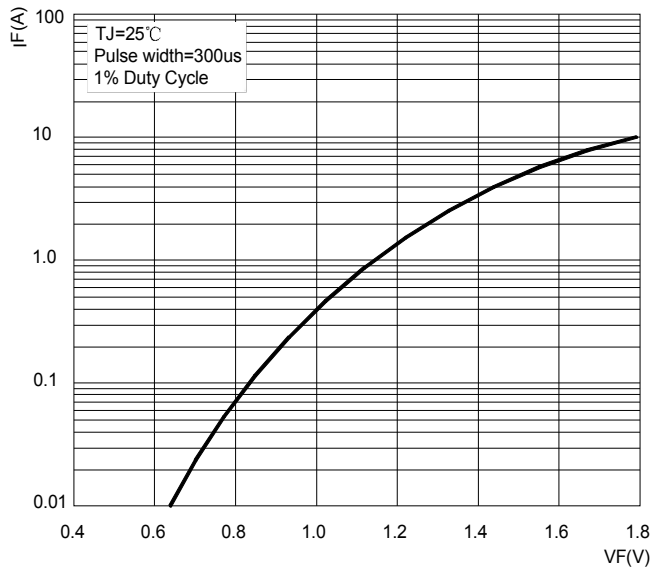


FIG.4: TYPICAL REVERSE CHARACTERISTICS

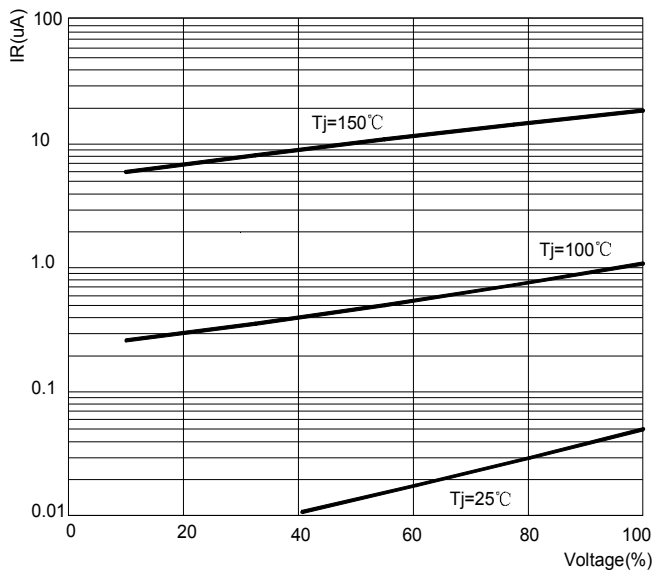
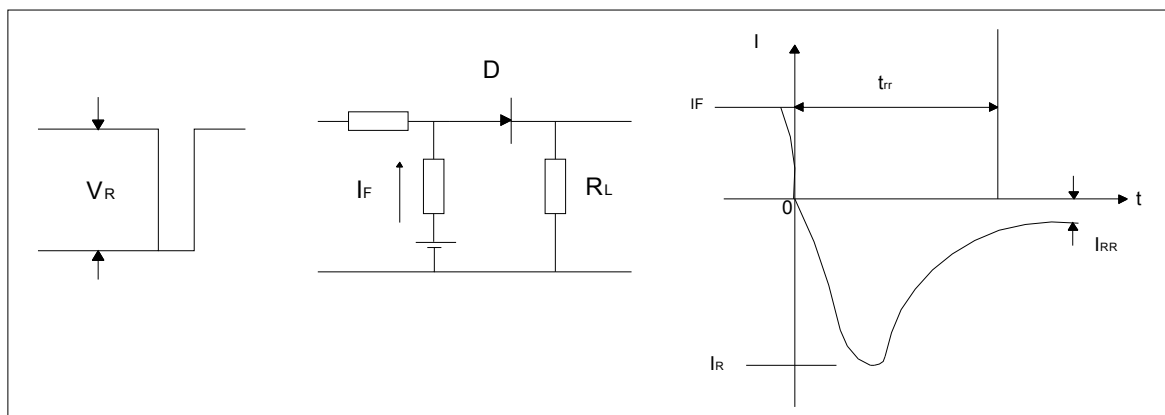
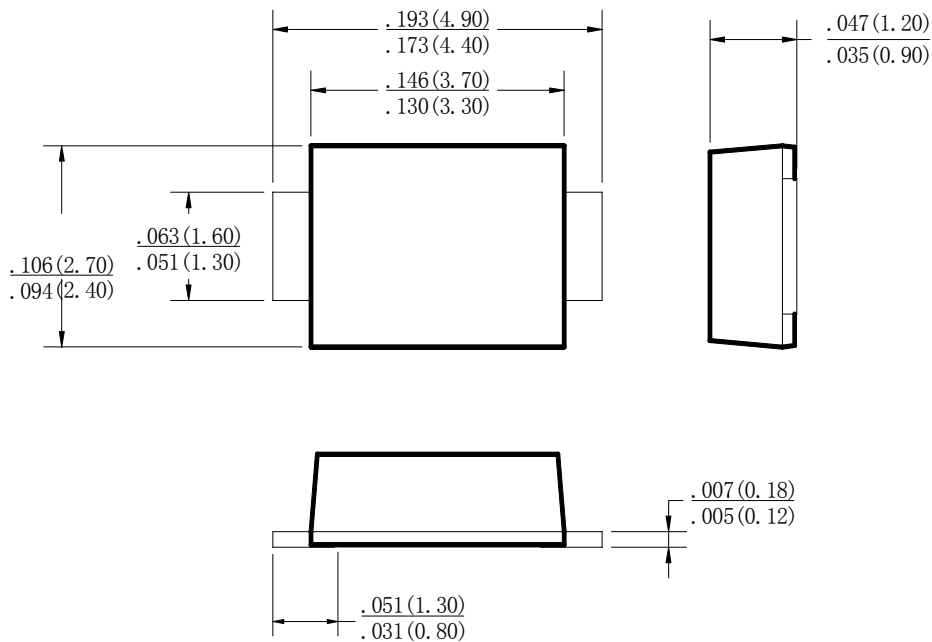


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

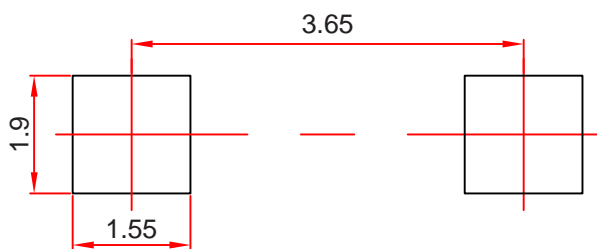


SMAF Package Outline Dimensions



Dimensions in inches and (millimeters)

SMAF Suggested Pad Layout



Note:

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

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Reel Taping Specifications For Surface Mount Devices- SMAF

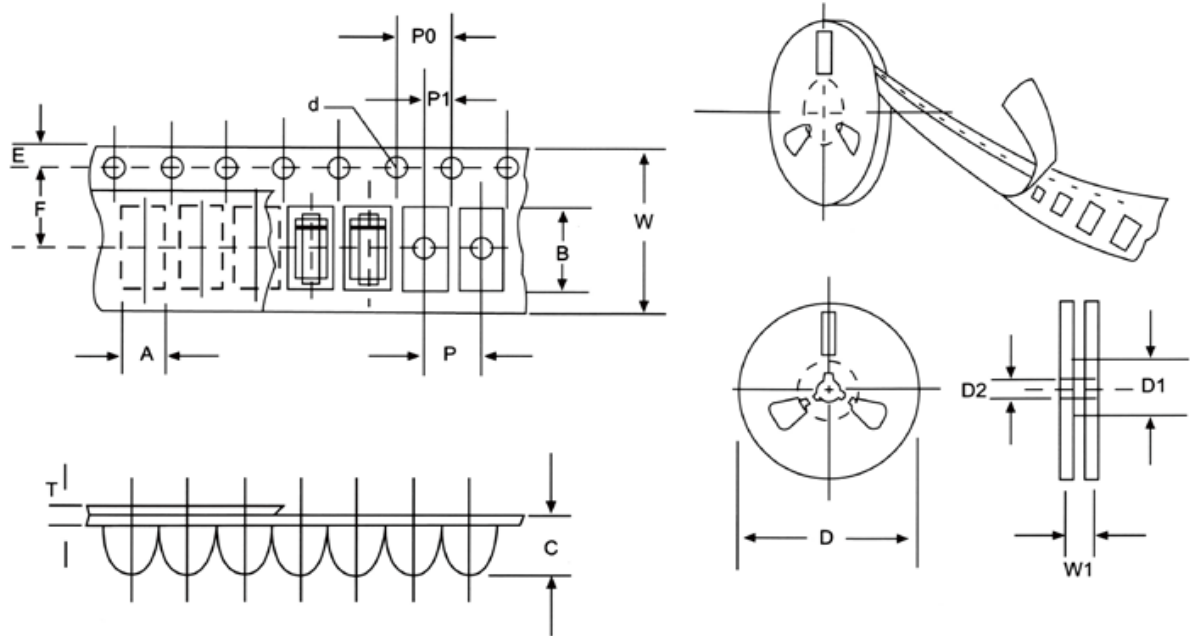


FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING

| 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 | 178+2.0(7.0+0.079) |
| Reel inner diameter | D1 | 54±1.0(2.13±0.039) |
| Feed hole diameter | D2 | 13+0.5(0.512+0.020) |
| Sprocket 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) |
| Total 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 packed in accordance with EIA standard RS-481-A and specification given above.

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