

SMAF Surface Mount Fast Recovery Rectifier

Features

- Low profile package
- Ideal for automated placement
- Glass passivated pallet chip junction
- Super fast reverse recovery time
- Low switching losses, high efficiency
- High forward surge capability

Applications

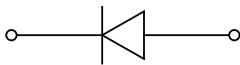
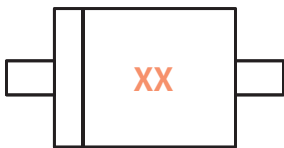
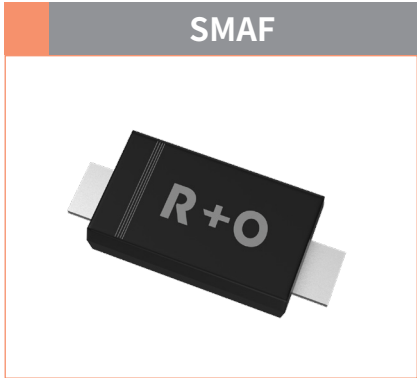
For use in high frequency rectification and freewheeling application in switching mode converters and inverters for consumer, computer, automotive, and telecommunication

Mechanical Data

- Case: SMAF
- Molding compound meets UL 94V-0 flammability rating, RoHS-compliant, halogen-free
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity: Cathode line denotes the cathode end

Function Diagram

Reverse Voltage
50-600 V
Forward Current
2 Ampere



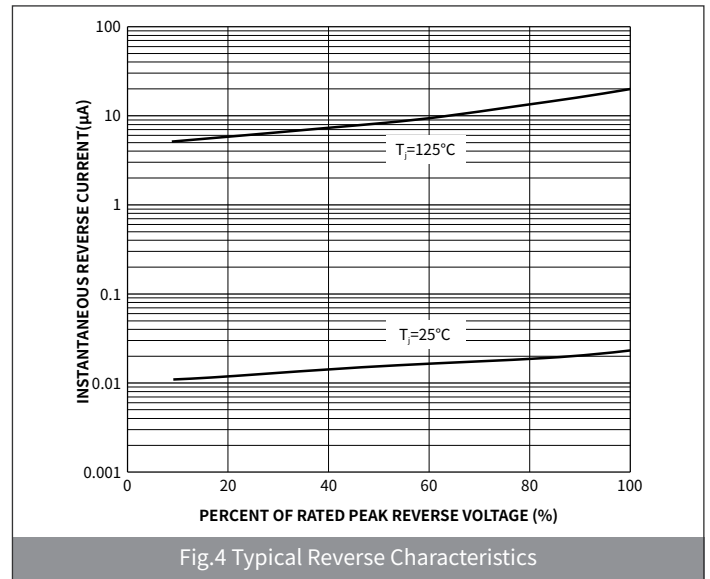
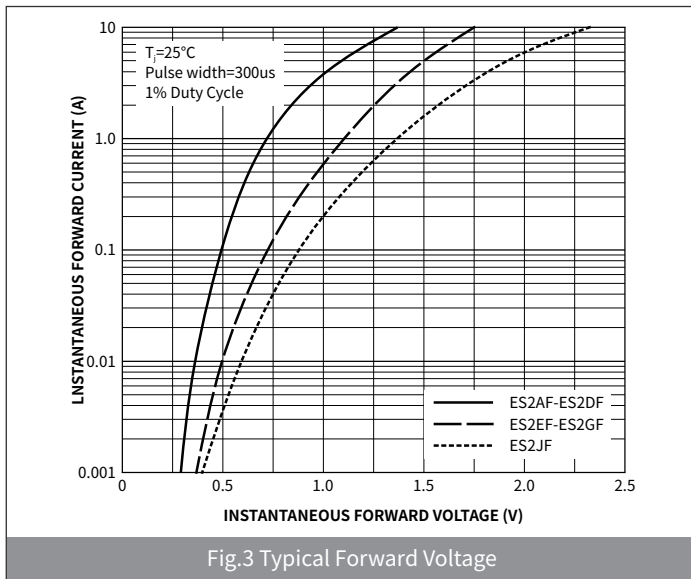
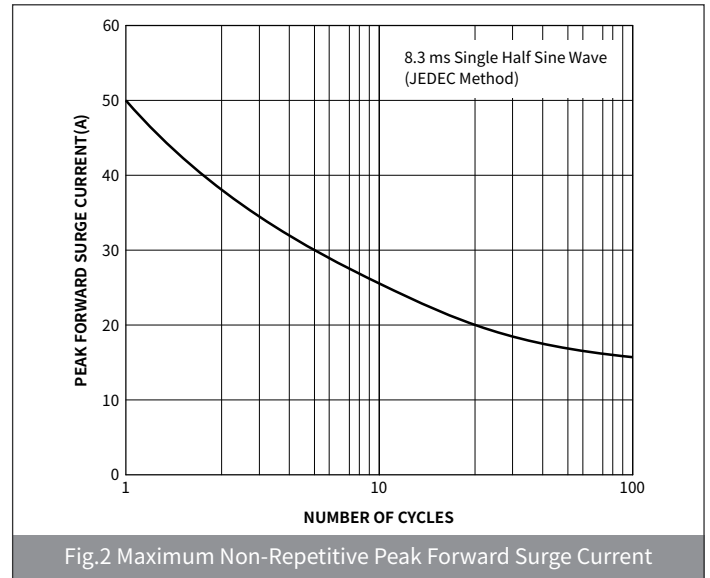
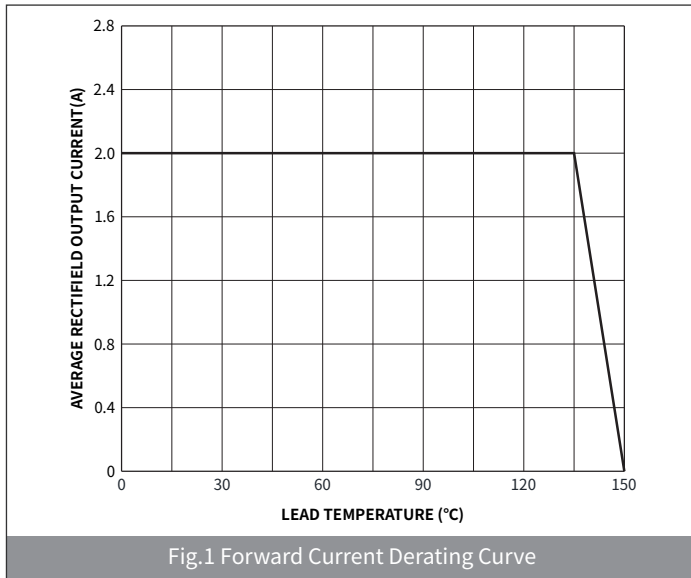
Maximum Ratings (Ta=25°C Unless otherwise specified)

| PARAMETER                                                                             | SYMBOL             | UNIT  | ES2AF     | ES2BF | ES2CF | ES2DF | ES2EF | ES2GF | ES2JF |
|---------------------------------------------------------------------------------------|--------------------|-------|-----------|-------|-------|-------|-------|-------|-------|
| Device marking code                                                                   |                    |       | ES2AF     | ES2BF | ES2CF | ES2DF | ES2EF | ES2GF | ES2JF |
| Maximum Repetitive Peak Reverse Voltage                                               | V <sub>RRM</sub>   | V     | 50        | 100   | 150   | 200   | 300   | 400   | 600   |
| Maximum RMS Voltage                                                                   | V <sub>RMS</sub>   | V     | 35        | 70    | 105   | 140   | 210   | 280   | 420   |
| Maximum DC blocking Voltage                                                           | V <sub>DC</sub>    | V     | 50        | 100   | 150   | 200   | 300   | 400   | 600   |
| Maximum Average Forward Rectified Current @ 60Hz sinewave, Resistance load,TL (Fig.1) | I <sub>F(AV)</sub> | A     | 2.0       |       |       |       |       |       |       |
| Non-repetitive Peak Forward Surge Current @ t=8.3ms Half-sine wave                    | I <sub>FSM</sub>   | A     | 50.0      |       |       |       |       |       |       |
| Storage temperature                                                                   | T <sub>stg</sub>   | °C    | -55 ~+150 |       |       |       |       |       |       |
| Junction temperature                                                                  | T <sub>j</sub>     | °C    | -55 ~+150 |       |       |       |       |       |       |
| Typical Thermal Resistance                                                            | R <sub>θJA</sub>   | °C /W | 65        |       |       |       |       |       |       |
|                                                                                       | R <sub>θJL</sub>   | °C /W | 20        |       |       |       |       |       |       |

## ● Electrical Characteristics (Ta=25°C Unless otherwise noted)

| PARAMETER                                               | TEST CONDITIONS                                                  | SYMBOL          | UNIT | ES2AF | ES2BF | ES2CF | ES2DF | ES2EF | ES2GF | ES2JF |
|---------------------------------------------------------|------------------------------------------------------------------|-----------------|------|-------|-------|-------|-------|-------|-------|-------|
| Maximum instantaneous forward voltage                   | I <sub>F</sub> =2.0A                                             | V <sub>F</sub>  | V    | 1.0   |       |       |       | 1.3   |       | 1.7   |
| Maximum reverse recovery time                           | I <sub>F</sub> =0.5A,I <sub>R</sub> =1.0A,I <sub>rr</sub> =0.25A | T <sub>rr</sub> | ns   | 35    |       |       |       |       |       |       |
| Maximum DC reverse current at rated DC blocking voltage | V <sub>R</sub> =V <sub>DC</sub> , T <sub>A</sub> =25°C           | I <sub>R1</sub> | μA   | 5.0   |       |       |       |       |       |       |
|                                                         | V <sub>R</sub> =V <sub>DC</sub> , T <sub>A</sub> =125°C          | I <sub>R2</sub> |      | 100   |       |       |       |       |       |       |
| Typical junction capacitance                            | 4.0V DC,1MHz                                                     | C <sub>J</sub>  | pF   | 31    |       |       |       | 17    |       | 12    |

## ● Ratings And Characteristics Curves (Ta=25°C Unless otherwise specified)



# ES2AF THRU ES2JF

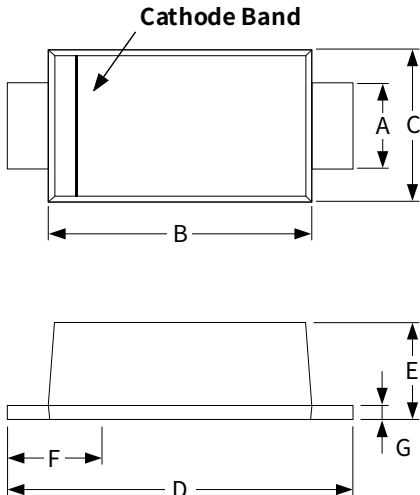
SURFACE MOUNT FAST RECOVERY RECTIFIER

## ● Ordering Information

| PACKAGE | PACKAGE CODE | UNIT WEIGHT(g) | REEL(pcs) | BOX(pcs) | CARTON(pcs) | DELIVERY MODE |
|---------|--------------|----------------|-----------|----------|-------------|---------------|
| SMAF    | R1           | 0.034          | 3000      | 12000    | 120000      | 7"            |
| SMAF    | R2           | 0.034          | 7500      | 15000    | 120000      | 11"           |
| SMAF    | R3           | 0.034          | 7500      | /        | 120000      | 13"           |

## ● Package Outline Dimensions (SMAF)

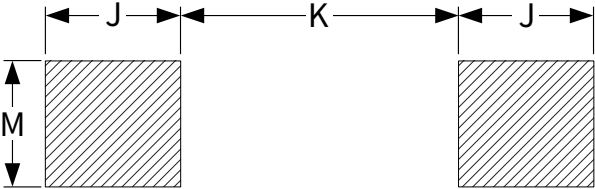
| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| A      | 1.30        | 1.60 | 0.051  | 0.063 |
| B      | 3.30        | 3.70 | 0.129  | 0.145 |
| C      | 2.40        | 2.70 | 0.094  | 0.105 |
| D      | 4.40        | 4.90 | 0.172  | 0.191 |
| E      | 0.90        | 1.20 | 0.035  | 0.047 |
| F      | 0.80        | 1.20 | 0.031  | 0.047 |
| G      | 0.12        | 0.20 | 0.005  | 0.008 |



The diagram shows two views of the SMAF package. The top view is a rectangle with dimensions B (width) and C (height). A vertical line on the left side is labeled 'Cathode Band'. The bottom view is a trapezoid with dimensions D (width), E (height), F (width of the top flange), and G (height of the top flange).

## ● Suggested Pad Layout

| Symbol | Dimensions  |      |        |       |
|--------|-------------|------|--------|-------|
|        | Millimeters |      | Inches |       |
|        | Min.        | Max. | Min.   | Max.  |
| M      | 1.80        | -    | 0.070  | -     |
| J      | 1.60        | -    | 0.063  | -     |
| K      | -           | 2.2  | -      | 0.086 |



The diagram shows two shaded rectangular pads. The left pad has width J and height M. The right pad has width J. The distance between the centers of the two pads is K.