



# ES1AF SERIES

## SURFACE MOUNT SUPERFAST RECTIFIER

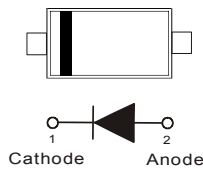
**VOLTAGE** 50~600 Volt **CURRENT** 1 Ampere

### FEATURES

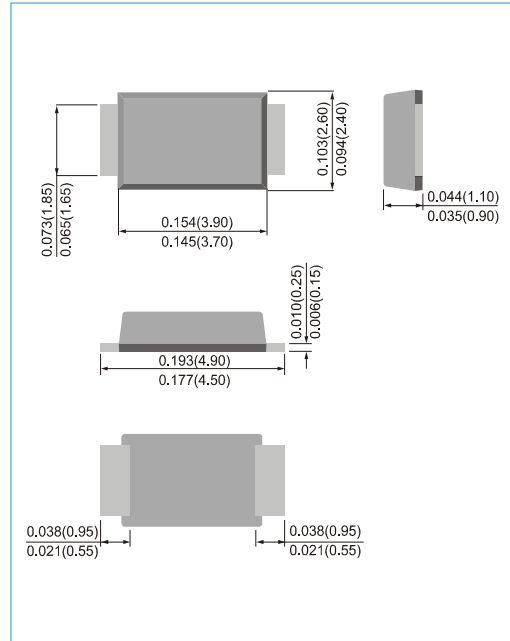
- For surface mounted applications in order to optimize board space
- Easy pick and place
- Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- Superfast recovery times for high efficiency
- Glass Passivated Chip Junction
- Ultra Thin Profile Package for Space Constrained Utilization
- Package suitable for Automated Handling
- Lead free in compliance with EU RoHS 2011/65/EU directive
- Green molding compound as per IEC61249 Std. . (Halogen Free)

### MECHANICAL DATA

- Case: SMAF molded plastic
- Terminals: Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Color band denotes cathode end
- Approx. Weight : 0.00116 ounces, 0.0328 grams



**SMAF** Unit : inch(mm)



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS (T<sub>A</sub>=25°C unless otherwise noted)

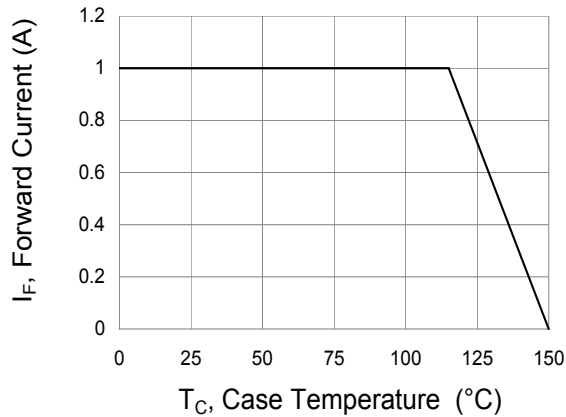
| PARAMETER   | SYMBOL                               | ES1AF       | ES1BF | ES1CF | ES1DF | ES1EF | ES1GF | ES1JF | UNITS  |
|---|--------------------------------------|-------------|-------|-------|-------|-------|-------|-------|--------|
| Recurrent Peak Reverse Voltage  | V <sub>RRM</sub>                     | 50          | 100   | 150   | 200   | 300   | 400   | 600   | V      |
| RMS Voltage   | V <sub>RMS</sub>                     | 35          | 70    | 105   | 140   | 210   | 280   | 420   | V      |
| DC Blocking Voltage   | V <sub>R</sub>                       | 50          | 100   | 150   | 200   | 300   | 400   | 600   | V      |
| Average Forward Current   | I <sub>F(AV)</sub>                   | 1           |       |       |       |       |       |       | A      |
| Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load       | I <sub>FSM</sub>                     | 30          |       |       |       |       |       |       | A      |
| Forward Voltage at 1A   | V <sub>F</sub>                       | 0.95        |       |       | 1.25  |       | 1.7   |       | V      |
| DC Reverse Current at Rated DC Blocking Voltage   | I <sub>R</sub>                       | 1           |       |       |       |       |       |       | μA     |
| Typical Junction Capacitance  | C <sub>J</sub>                       | 15          |       |       |       |       |       |       | pF     |
| Typical Thermal Resistance, Junction to Lead (Note 1)<br>Junction to Ambient (Note 2)     | R <sub>θJL</sub><br>R <sub>θJA</sub> | 24<br>150   |       |       |       |       |       |       | °C / W |
| Reverse Recovery Time at I <sub>F</sub> =0.5A, I <sub>R</sub> =1A, I <sub>RR</sub> =0.25A | t <sub>rr</sub>                      | 35          |       |       |       |       |       |       | nS     |
| Operating Junction Temperature and Storage Temperature Range                              | T <sub>J</sub> , T <sub>STG</sub>    | -55 to +150 |       |       |       |       |       |       | °C     |

NOTES : 1. Mounted on an FR4 PCB, single-sided copper, with 48cm<sup>2</sup> copper pad area  
 2. Mounted on an FR4 PCB, single-sided copper, mini pad.

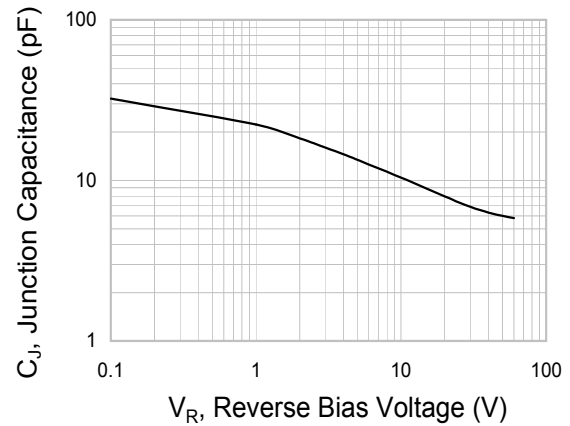


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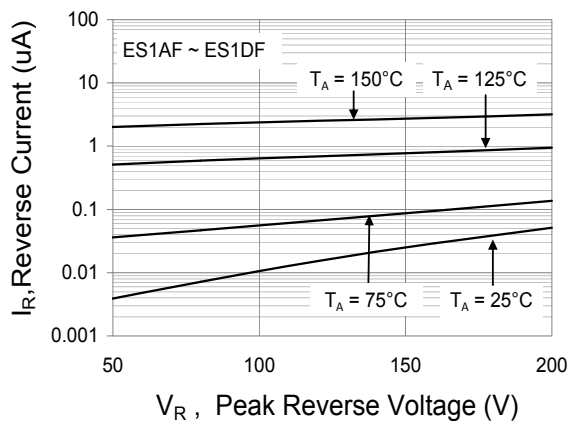
## RATING AND CHARACTERISTIC CURVES



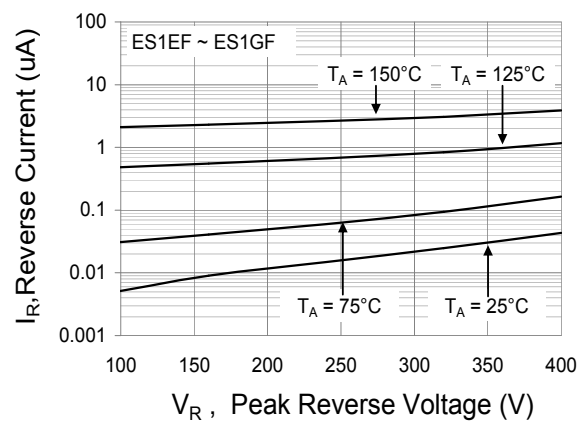
**Fig.1 Forward Current Derating Curve**



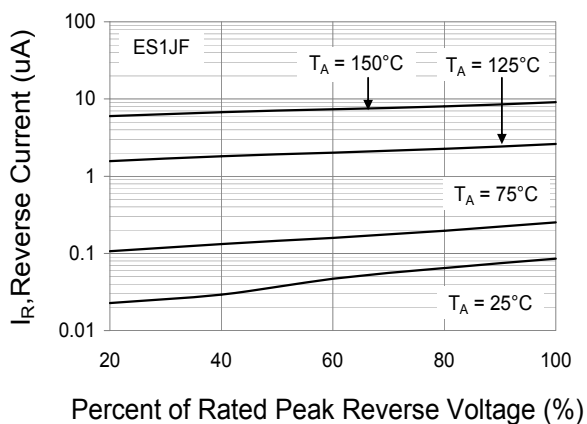
**Fig.2 Typical Junction Capacitance**



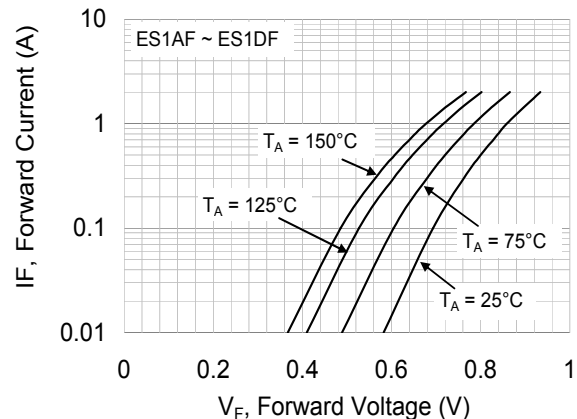
**Fig.3 Typical Reverse Characteristics**



**Fig.4 Typical Reverse Characteristics**



**Fig.5 Typical Reverse Characteristics**



**Fig.6 Typical Forward Characteristics**



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## RATING AND CHARACTERISTIC CURVES

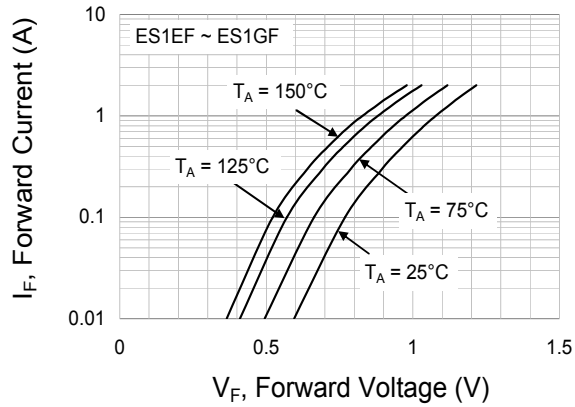


Fig.7 Typical Forward Characteristics

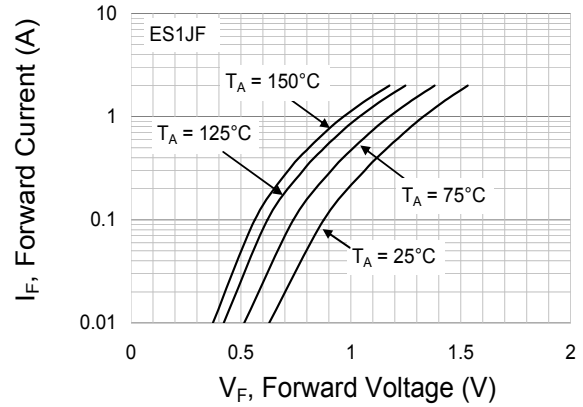
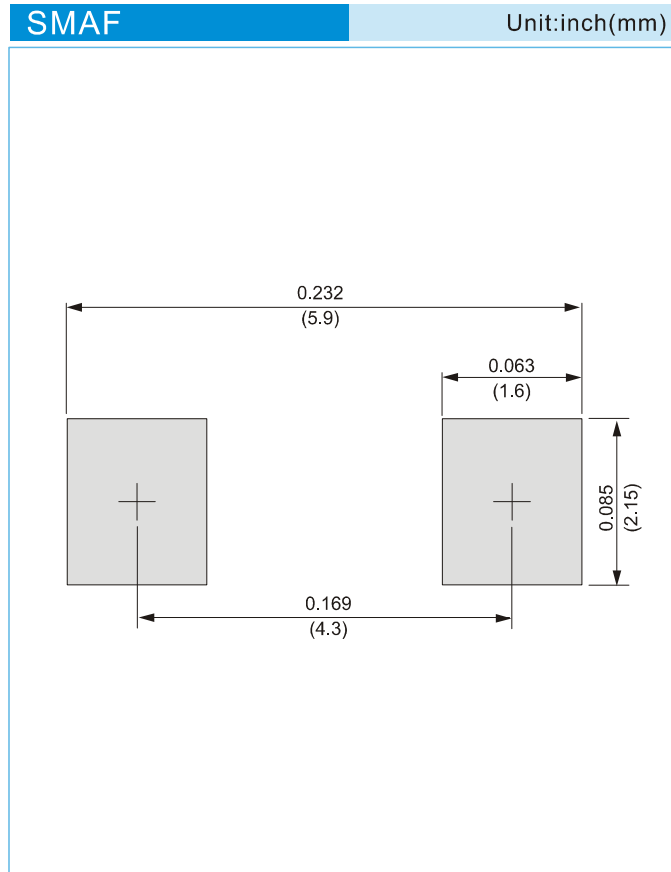


Fig.8 Typical Forward Characteristics



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## MOUNTING PAD LAYOUT



## ORDER INFORMATION

- Packing information
  - T/R - 10K per 13" plastic Reel
  - T/R - 3K per 7" plastic Reel



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## Part No\_packing code\_Version

ES1AF\_R1\_00001

ES1AF\_R2\_00001

For example :

**RB500V-40** **R2** **00001**



| Packing Code <b>XX</b>               |                      |                                  |                      | Version Code <b>XXXXXX</b> |                      |                                       |
|--------------------------------------|----------------------|----------------------------------|----------------------|----------------------------|----------------------|---------------------------------------|
| Packing type                         | 1 <sup>st</sup> Code | Packing size code                | 2 <sup>nd</sup> Code | HF or RoHS                 | 1 <sup>st</sup> Code | 2 <sup>nd</sup> ~5 <sup>th</sup> Code |
| Tape and Ammunition Box (T/B)        | <b>A</b>             | N/A                              | <b>0</b>             | <b>HF</b>                  | <b>0</b>             | serial number                         |
| Tape and Reel (T/R)                  | <b>R</b>             | 7"                               | <b>1</b>             | <b>RoHS</b>                | <b>1</b>             | serial number                         |
| Bulk Packing (B/P)                   | <b>B</b>             | 13"                              | <b>2</b>             |                            |                      |                                       |
| Tube Packing (T/P)                   | <b>T</b>             | 26mm                             | <b>X</b>             |                            |                      |                                       |
| Tape and Reel (Right Oriented) (TRR) | <b>S</b>             | 52mm                             | <b>Y</b>             |                            |                      |                                       |
| Tape and Reel (Left Oriented) (TRL)  | <b>L</b>             | PANASERT T/B CATHODE UP (PBCU)   | <b>U</b>             |                            |                      |                                       |
| FORMING                              | <b>F</b>             | PANASERT T/B CATHODE DOWN (PBCD) | <b>D</b>             |                            |                      |                                       |



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