





|   |  |
|---|--|
|  <p><b>ES2AF-ES2JF</b></p> <p><b>Features:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> For surface mounted applications</li> <li><input type="checkbox"/> Low profile package</li> <li><input type="checkbox"/> Glass Passivated Chip Junction</li> <li><input type="checkbox"/> Easy to pick and place</li> <li><input type="checkbox"/> High efficiency</li> <li><input type="checkbox"/> Lead free in comply with EU RoHS 2011/65/EU directives</li> </ul> | <p style="text-align: center;">SMAF </p> <div style="text-align: center;">  <p>1                      2</p> </div> <div style="text-align: center;">  <p>1.Cathode    2. Anode</p> </div> |
|---|--|

### Absolute Maximum Ratings and Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

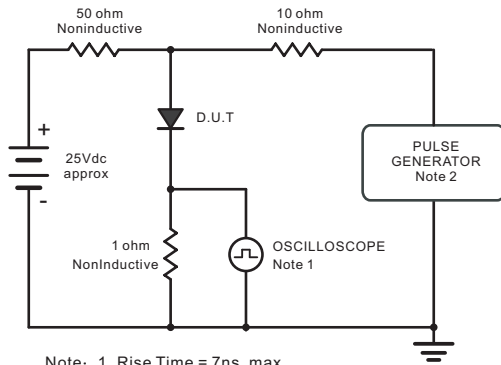
| Parameter  | Symbols                            | ES2AF      | ES2BF | ES2CF | ES2DF | ES2EF | ES2GF | ES2JF | Units              |
|--|------------------------------------|------------|-------|-------|-------|-------|-------|-------|--------------------|
| Maximum Repetitive Peak Reverse Voltage  | $V_{RRM}$                          | 50         | 100   | 150   | 200   | 300   | 400   | 600   | V                  |
| Maximum RMS voltage  | $V_{RMS}$                          | 35         | 70    | 105   | 140   | 210   | 280   | 420   | V                  |
| Maximum DC Blocking Voltage  | $V_{DC}$                           | 50         | 100   | 150   | 200   | 300   | 400   | 600   | V                  |
| Maximum Average Forward Rectified Current at $T_c = 125\text{ }^\circ\text{C}$   | $I_{F(AV)}$                        | 2          |       |       |       |       |       |       | A                  |
| Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load   | $I_{FSM}$                          | 50         |       |       |       |       |       |       | A                  |
| Maximum Forward Voltage at 2A  | $V_F$                              | 1          |       |       |       | 1.25  |       | 1.68  | V                  |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_a = 25\text{ }^\circ\text{C}$<br>$T_a = 125\text{ }^\circ\text{C}$ | $I_R$                              | 5<br>100   |       |       |       |       |       |       | $\mu\text{A}$      |
| Typical Junction Capacitance at $V_R=4\text{V}$ , $f=1\text{MHz}$  | $C_j$                              | 30         |       |       |       |       |       |       | pF                 |
| Maximum Reverse Recovery Time <sup>(1)</sup>   | $t_{rr}$                           | 35         |       |       |       |       |       |       | ns                 |
| Typical Thermal Resistance <sup>(2)</sup>  | $R_{\theta JA}$<br>$R_{\theta JC}$ | 65<br>20   |       |       |       |       |       |       | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range  | $T_j, T_{stg}$                     | -55 ~ +150 |       |       |       |       |       |       | $^\circ\text{C}$   |

( 1 ) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $I_{rr} = 0.25\text{ A}$ .

( 2 ) P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

Typical Characteristics

Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram



Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rise Time = 10ns, max.  
Source Impedance = 50 ohms.

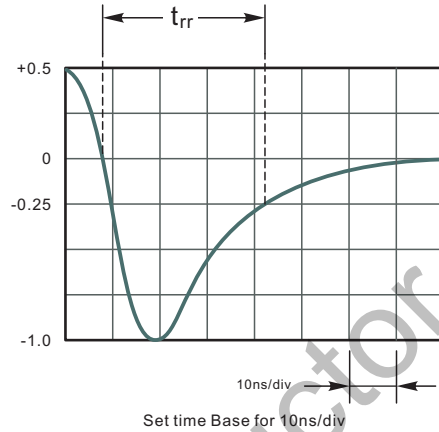


Fig.2 Maximum Average Forward Current Rating

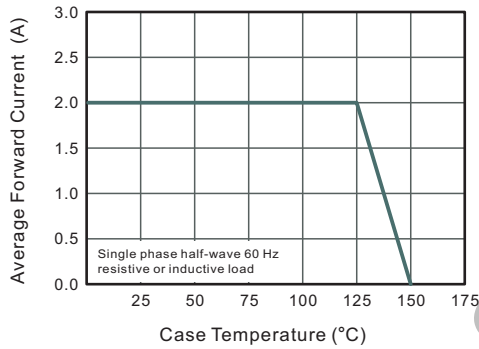


Fig.3 Typical Reverse Characteristics

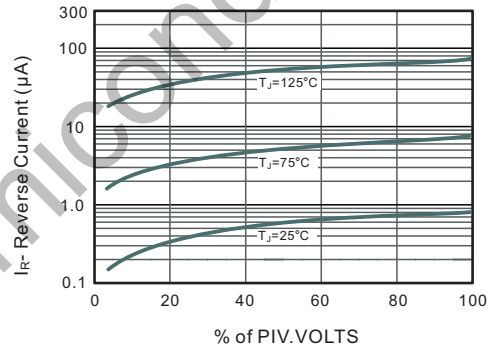


Fig.4 Typical Forward Characteristics

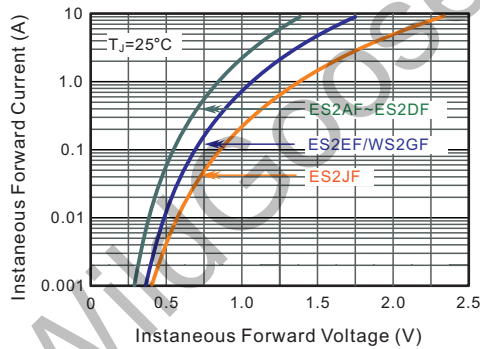


Fig.5 Typical Junction Capacitance

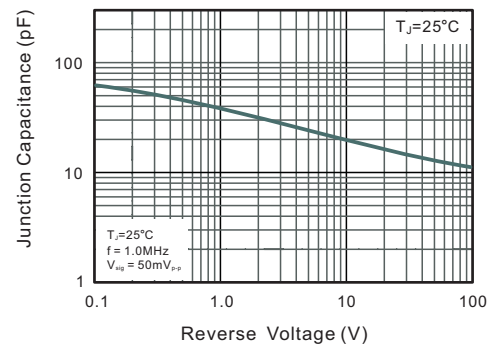
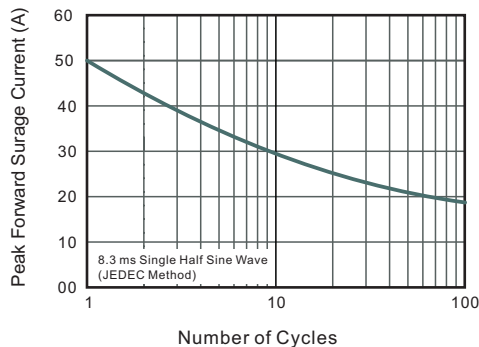


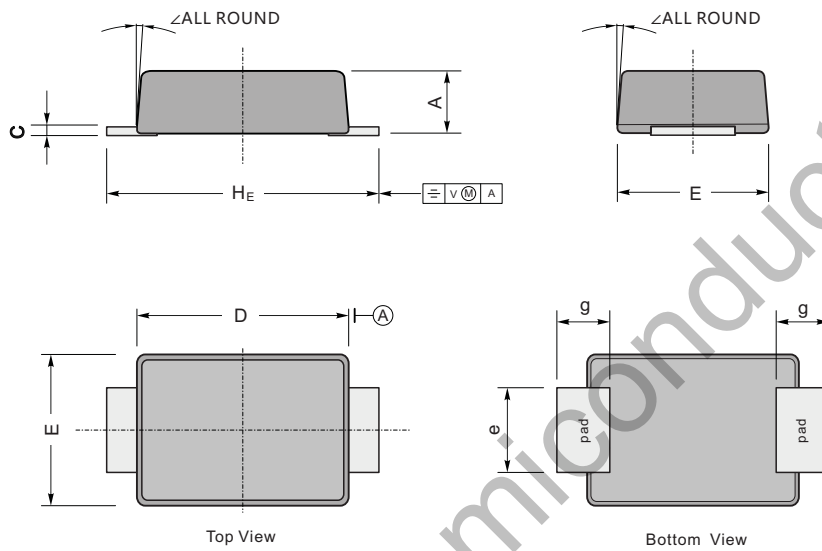
Fig.6 Maximum Non-Repetitive Peak Forward Surge Current



**Package Dimension**

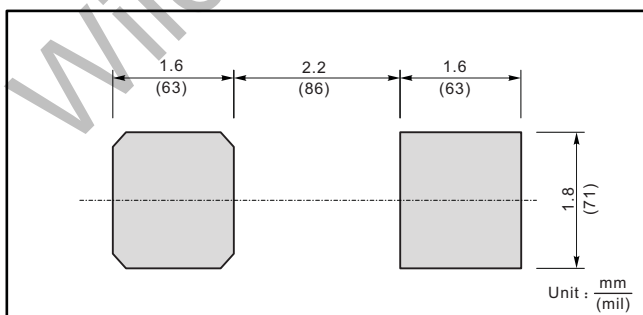
**SMAF**

Unit: mm



| UNIT |     | A   | C    | D   | E   | e   | g   | H <sub>E</sub> | ∠  |
|------|-----|-----|------|-----|-----|-----|-----|----------------|----|
| mm   | max | 1.2 | 0.20 | 3.7 | 2.7 | 1.6 | 1.2 | 4.9            | 7° |
|      | min | 0.9 | 0.12 | 3.3 | 2.4 | 1.3 | 0.8 | 4.4            |    |
| mil  | max | 47  | 7.9  | 146 | 106 | 63  | 47  | 193            |    |
|      | min | 35  | 4.7  | 130 | 94  | 51  | 31  | 173            |    |

**The recommended mounting pad size**



**Marking**

| Type number | Marking code |
|-------------|--------------|
| ES2AF       | ES2A         |
| ES2BF       | ES2B         |
| ES2CF       | ES2C         |
| ES2DF       | ES2D         |
| ES2EF       | ES2E         |
| ES2GF       | ES2G         |
| ES2JF       | ES2J         |

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