

**VOLTAGE RANGE: 50 - 600V**

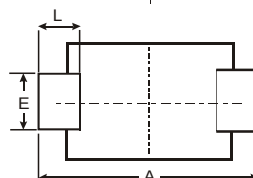
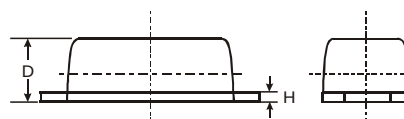
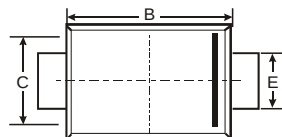
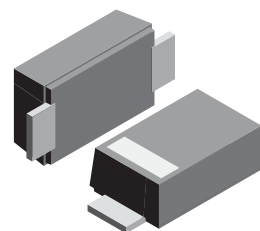
**CURRENT: 3.0 A**

### Features

- Glass Passivated Die Construction
- Ideally Suited for Automatic Assembly
- Low Forward Voltage Drop, High Efficiency
- Low Power Loss
- Super-Fast Recovery Time
- Plastic Case Material has UL Flammability Classification Rating 94V-0

### Mechanical Data

- Case: SMBF , Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.0018 ounces, 0.05grams



| SMBF                 |       |       |      |
|----------------------|-------|-------|------|
| Dim                  | Min   | Max   | Typ  |
| A                    | 5.45  | 5.55  | 5.50 |
| B                    | 4.27  | 4.33  | 4.30 |
| C                    | 3.57  | 3.63  | 3.60 |
| D                    | 1.32  | 1.38  | 1.35 |
| E                    | 1.96  | 2.00  | 1.98 |
| H                    | 0.019 | 0.021 | 0.20 |
| L                    | 0.73  | 0.77  | 0.75 |
| All Dimensions in mm |       |       |      |

### Maximum Ratings and Electrical Characteristics $T_A = 25^\circ\text{C}$ unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

| Characteristic                                                                                                     | Symbol                          | ES3AF       | ES3BF | ES3CF | ES3DF | ES3EF | ES3GF | ES3JF | Unit               |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------|-------|-------|-------|-------|-------|-------|--------------------|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage                             | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | 50          | 100   | 150   | 200   | 300   | 400   | 600   | V                  |
| RMS Reverse Voltage                                                                                                | $V_R(RMS)$                      | 35          | 70    | 105   | 140   | 210   | 280   | 420   | V                  |
| Average Rectified Output Current @ $T_L = 75^\circ\text{C}$                                                        | $I_O$                           | 3.0         |       |       |       |       |       |       | A                  |
| Non-Repetitive Peak Forward Surge Current<br>8.3ms Single half sine-wave superimposed on rated load (JEDEC Method) | $I_{FSM}$                       | 100         |       |       |       |       |       |       | A                  |
| Forward Voltage @ $I_F = 3.0A$                                                                                     | $V_{FM}$                        | 0.95        |       |       |       | 1.25  | 1.7   |       | V                  |
| Peak Reverse Current @ $T_A = 25^\circ\text{C}$<br>At Rated DC Blocking Voltage @ $T_A = 100^\circ\text{C}$        | $I_{RM}$                        | 5.0<br>500  |       |       |       |       |       |       | $\mu A$            |
| Reverse Recovery Time (Note 1)                                                                                     | $t_{rr}$                        | 35          |       |       |       |       |       |       | nS                 |
| Typical Junction Capacitance (Note 2)                                                                              | $C_j$                           | 45          |       |       |       |       |       |       | pF                 |
| Typical Thermal Resistance (Note 3)                                                                                | $R_{\theta JL}$                 | 16          |       |       |       |       |       |       | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                                                                            | $T_J, T_{STG}$                  | -65 to +150 |       |       |       |       |       |       | $^\circ\text{C}$   |

Note: 1. Measured with  $I_F = 0.5A$ ,  $I_R = 1.0A$ ,  $I_{rr} = 0.25A$ . See figure 5.  
 2. Measured at 1.0 MHz and applied reverse voltage of 4.0 V DC.  
 3. Mounted on P.C. Board with 8.0mm<sup>2</sup> land area.

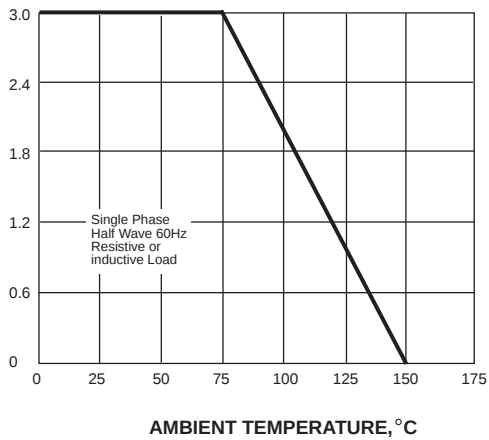


**SUNMATE**

## RATINGS AND CHARACTERISTIC CURVES ES3AF THRU ES3JF

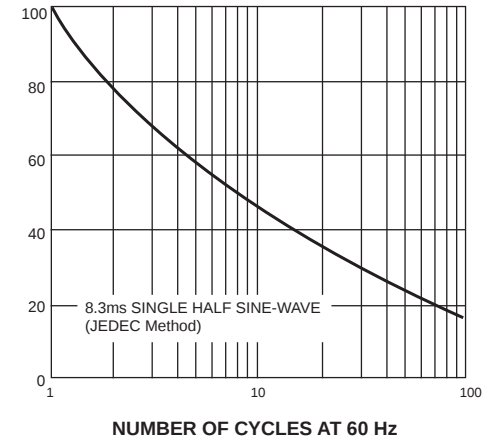
AVERAGE FORWARD RECTIFIED CURRENT,  
AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



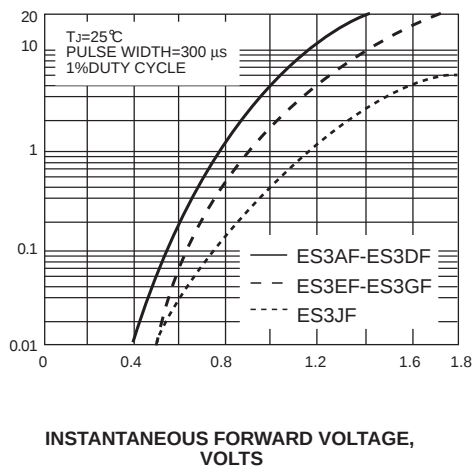
PEAK FORWARD SURGE CURRENT,  
AMPERES

FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



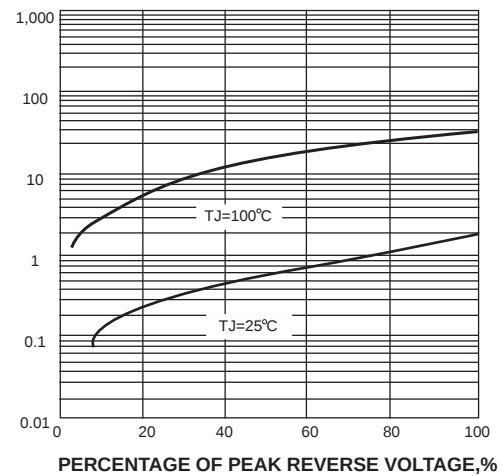
INSTANTANEOUS FORWARD  
CURRENT, AMPERES

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



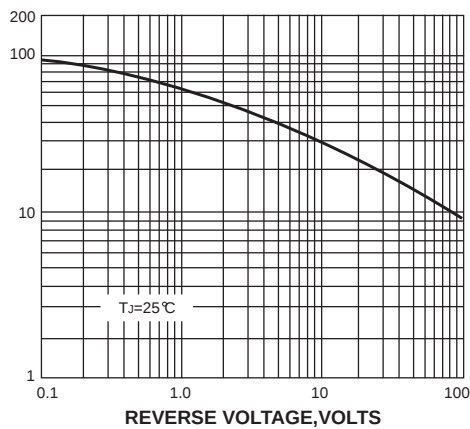
INSTANTANEOUS REVERSE CURRENT,  
MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS



JUNCTION CAPACITANCE, pF

FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE,  
°C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

