



ES3AF THRU ES3JF

Surface Mount Superfast Rectifiers

SMAF

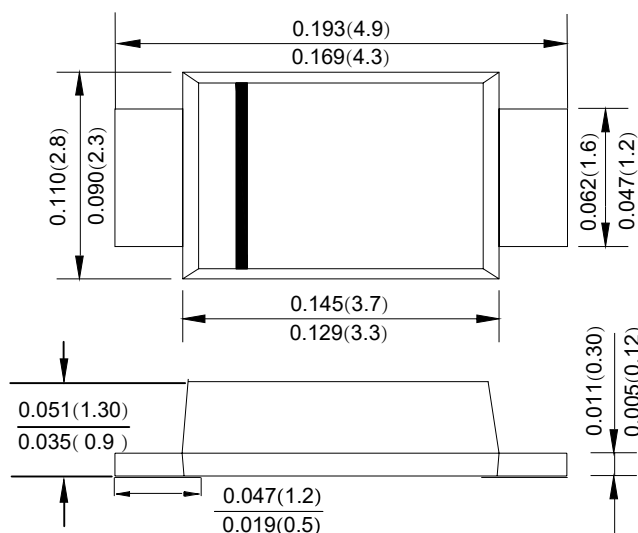
FEATURES

- Low profile package
- Glass Passivated Chip Junction
- Easy to pick and place
- High forward surge capability
- High temperature soldering : 260°C/10 seconds at terminals
- Lead free in comply with EU ROHS 2011/65/EU directives



Mechanical Data

- **Case** : SMAF
- **Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026
- **Polarity** : Cathode line denotes the cathode end
- **Mounting Position** : Any



Dimensions in inches and (millimeters)

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	ES3AF	ES3BF	ES3CF	ES3DF	ES3EF	ES3GF	ES3JF	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 $T_c = 125\text{ }^{\circ}\text{C}$	$I_{F(AV)}$	3							A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load	I_{FSM}	80							A
Maximum Forward Voltage at 3 A	V_F	1.0				1.25	1.65		V
Maximum DC Reverse Current $T_a = 25\text{ }^{\circ}\text{C}$ at Rated DC Blocking Voltage $T_a = 125\text{ }^{\circ}\text{C}$	I_R	5 100							μA
Typical Junction Capacitance at $V_R = 4\text{ V}$, $f = 1\text{ MHz}$	C_j	40							pF
Maximum Reverse Recovery Time ⁽¹⁾	t_{rr}	35							ns
Typical Thermal Resistance ⁽²⁾	$R_{\theta JA}$ $R_{\theta JC}$	50 16							$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	T_j, T_{stg}	$-55 \sim +150$							$^{\circ}\text{C}$

(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.



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Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Forward Current Derating Curve

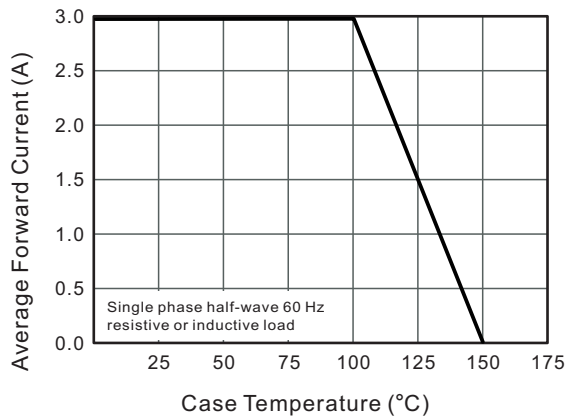


Fig.2 Typical Reverse Characteristics

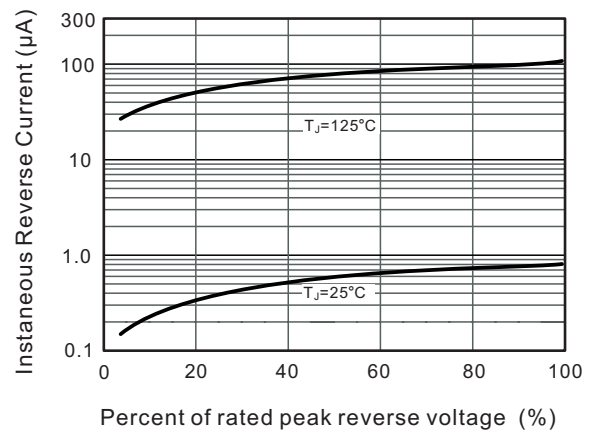


Fig.3 Typical Forward Characteristics

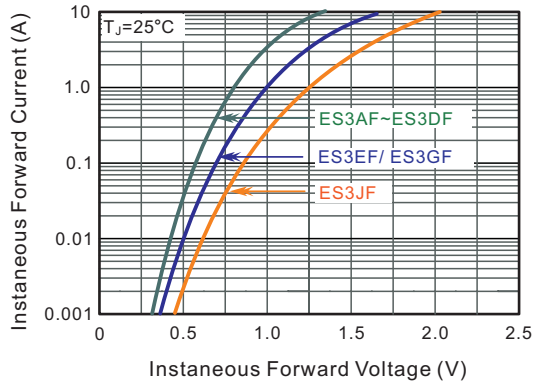
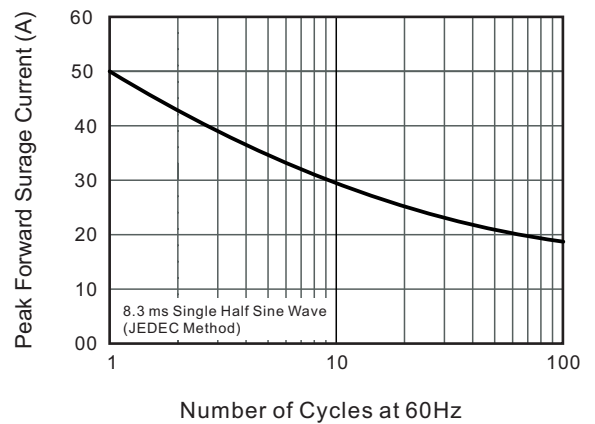
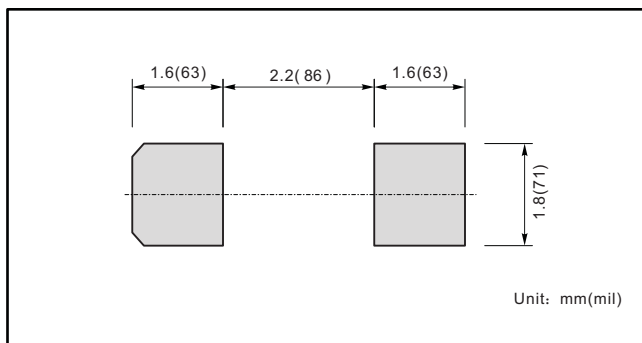


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



The recommended mounting pad size



Marking

Type number	Marking code
ES3AF	ES3A
ES3BF	ES3B
ES3CF	ES3C
ES3DF	ES3D
ES3EF	ES3E
ES3GF	ES3G
ES3JF	ES3J