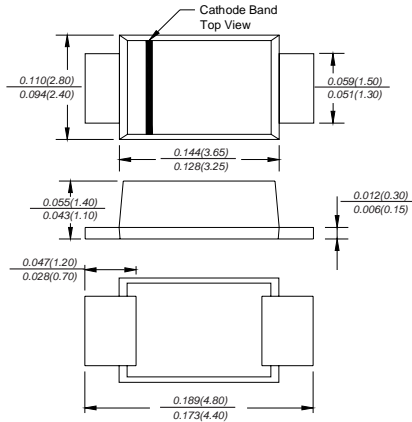


ES1AAF THRU ES1JAF

SURFACE MOUNT SUPER FAST RECTIFIER

Reverse Voltage - 50 to 600 Volts Forward Current - 1.0 Ampere

SMAF



Dimensions in inches and (millimeters)

FEATURES

- ◆ The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- ◆ For surface mounted applications
- ◆ Super fast switching for high efficiency
- ◆ Low reverse leakage
- ◆ Built-in strain relief, ideal for automated placement
- ◆ High forward surge current capability
- ◆ High temperature soldering guaranteed: 260°C/10 seconds at terminals
- ◆ Glass passivated chip junction

MECHANICAL DATA

Case: JEDEC SMAF molded plastic body over passivated chip

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: Color band denotes cathode end

Mounting Position: Any

Weight: 0.0014 ounce, 0.038 grams

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

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

| | SYMBOLS | ES1AAF | ES1BAF | ES1CAF | ES1DAF | ES1EAF | ES1GAF | ES1JAF | UNITS | |
|---|-----------------|-------------|--------|--------|--------|--------|--------|--------|---------------|---------------------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | VOLTS | |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | VOLTS | |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | VOLTS | |
| Maximum average forward rectified current at $T_L=55^\circ\text{C}$ | $I_{(AV)}$ | 1.0 | | | | | | | Amp | |
| Peak forward surge current 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) | I_{FSM} | 30.0 | | | | | | | Amps | |
| Maximum instantaneous forward voltage at 1.0A | V_F | 0.95 | | | | 1.25 | 1.7 | | Volts | |
| Maximum DC reverse current $T_A=25^\circ\text{C}$ at rated DC blocking voltage $T_A=100^\circ\text{C}$ | I_R | 5.0 | | | | 50.0 | | | μA | |
| Maximum reverse recovery time (NOTE 1) | t_{rr} | 35 | | | | | | | | ns |
| Typical junction capacitance (NOTE 2) | C_J | 15.0 | | | | | | | | pF |
| Typical thermal resistance (NOTE 3) | $R_{\theta JA}$ | 95.0 | | | | | | | | $^\circ\text{C}/\text{W}$ |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | | | | | | | | $^\circ\text{C}$ |

Note: 1. Reverse recovery condition $I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$

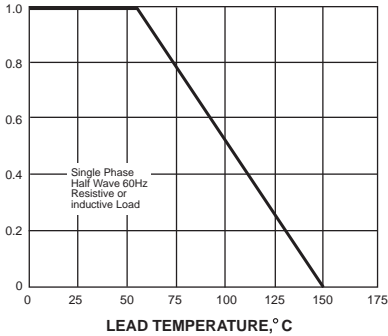
2. Measured at 1MHz and applied reverse voltage of 4.0V D.C.

3. P.C.B. mounted with 0.2x0.2" (5.0x5.0mm) copper pad areas

RATINGS AND CHARACTERISTIC CURVES ES1AAF THRU ES1JAF

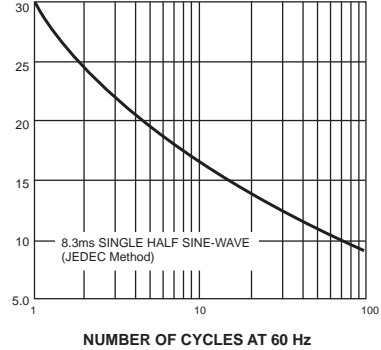
AVERAGE FORWARD RECTIFIED CURRENT,
AMPERES

FIG. 1- FORWARD CURRENT DERATING CURVE



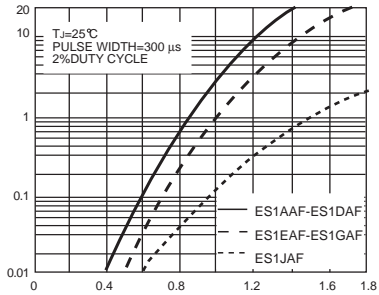
PEAK FORWARD SURGE CURRENT,
AMPERES

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



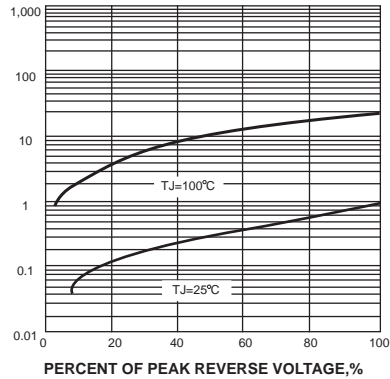
INSTANTANEOUS FORWARD CURRENT, AMPERES

FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS



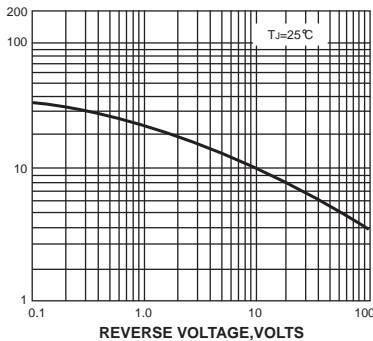
INSTANTANEOUS REVERSE CURRENT,
MICROAMPERES

FIG. 4-TYPICAL REVERSE CHARACTERISTICS



JUNCTION CAPACITANCE, pF

FIG. 5-TYPICAL JUNCTION CAPACITANCE



TRANSIENT THERMAL IMPEDANCE,
°C/W

FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE

