



SYNSEMI SEMICONDUCTOR

ES3A thru ES3M

3.0 Amps. Super Fast Surface Mount Rectifiers
Voltage Range 50 to 1000 Volts Forward Current 3.0 Amperes

Features

- ◆ Glass passivated junction chip
- ◆ For surface mounted application
- ◆ Low profile package
- ◆ Built-in strain relief
- ◆ Ideal for automated placement
- ◆ Easy pick and place
- ◆ Superfast recovery time for high efficiency
- ◆ Glass passivated chip junction
- ◆ High temperature soldering:
250°C/10 seconds at terminals
- ◆ Plastic material used carries Underwriters Laboratory
Classification 94V-0

Mechanical Data

- ◆ Cases: Molded plastic
- ◆ Terminals: Solder plated
- ◆ Polarity: Indicated by cathode band
- ◆ Weight: 0.007 ounce, 0.21 gram

Maximum Ratings and Electrical Characteristics

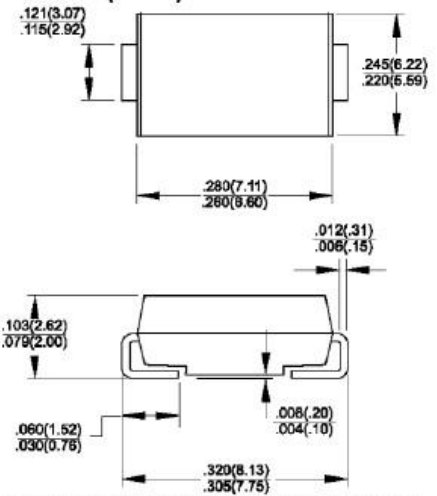
Ratings at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%



DO-214AB (SMC)



| Parameter | Symbols | ES 3A | ES 3B | ES 3C | ES 3D | ES 3F | ES 3G | ES 3J | ES 3K | ES 3M | Units | |
|---|------------------------------------|-------------|-------|-------|-------|-------|-------|-------|-------|-------|------------------|--------------------|
| Maximum repetitive peak reverse voltage | V_{RRM} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | 1000 | Volts | |
| Maximum RMS voltage | V_{RMS} | 35 | 70 | 105 | 140 | 210 | 280 | 420 | 560 | 700 | Volts | |
| Maximum DC blocking voltage | V_{DC} | 50 | 100 | 150 | 200 | 300 | 400 | 600 | 800 | 1000 | Volts | |
| Maximum average forward rectified current See Fig. 1 | $I_{(AV)}$ | 3.0 | | | | | | | | | Amps | |
| Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method) @ $T_A = 100^\circ\text{C}$ | I_{FSM} | 100.0 | | | | | | | | | Amps | |
| Maximum instantaneous forward voltage @ 3.0A | V_F | 0.95 | | | 1.3 | | | 1.7 | | | Volts | |
| Maximum DC reverse current at rated DC blocking voltage | I_R | | | | | 10.0 | | | | | | μA |
| | | | | | | 500 | | | | | | μA |
| Maximum reverse recovery time (Note 1) | t_r | | | | | 35 | | | | | | nS |
| Typical junction capacitance (Note 2) | C_j | 50 | | | | 40 | | | | | pF | |
| Typical thermal resistance (Note 3) | $R_{\theta JA}$ $R_{\theta JL}$ | | | | | 47 | | | | | | $^\circ\text{C/W}$ |
| | | | | | | 12 | | | | | | |
| Operating temperature range | T_J | -55 to +150 | | | | | | | | | $^\circ\text{C}$ | |
| Storage temperature range | T_{STG} | -55 to +150 | | | | | | | | | $^\circ\text{C}$ | |

- Notes:**
1. Reverse Recovery Test Conditions: $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $I_{RR} = 0.25\text{A}$
 2. Measured at 1 MHz and Applied $V_R = 4.0\text{ Volts}$
 3. Units Mounted on P.C.B. with $0.31 \times 0.31"$ ($8.0 \times 8.0\text{mm}$) Copper Pad Areas

ES3A thru ES3M

RATINGS AND CHARACTERISTIC CURVES

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

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

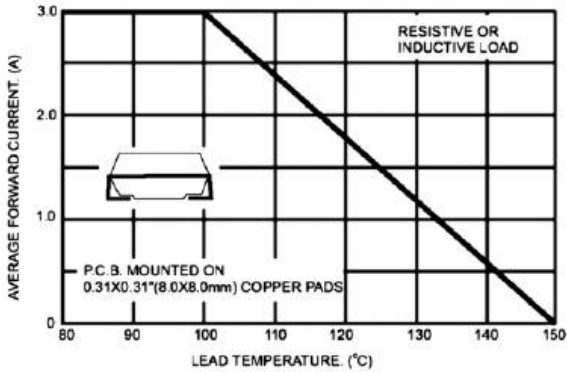


FIG.2- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

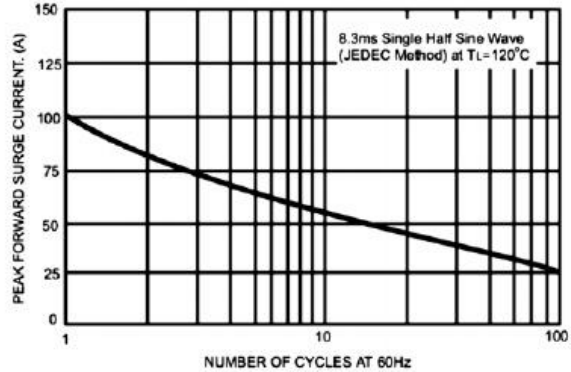


FIG.3- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

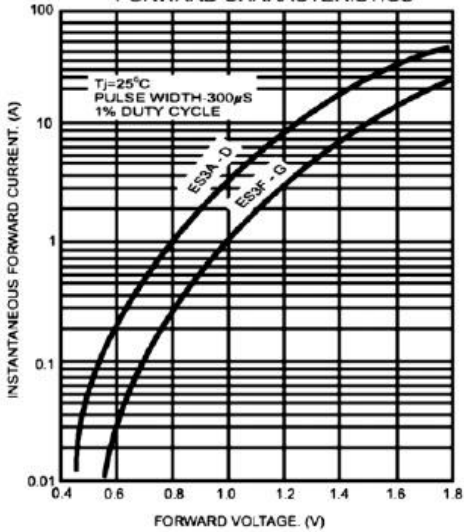


FIG.4- TYPICAL REVERSE CHARACTERISTICS

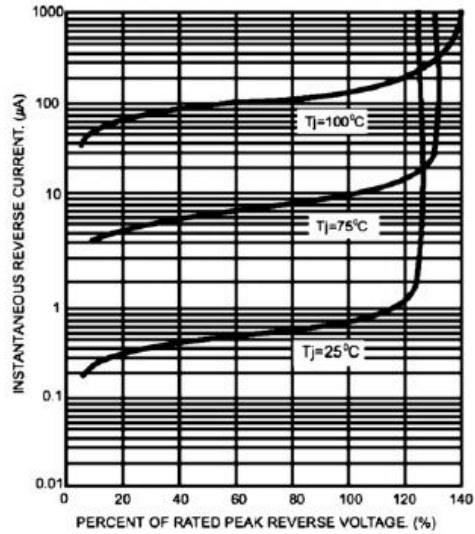


FIG.5- TYPICAL JUNCTION CAPACITANCE

