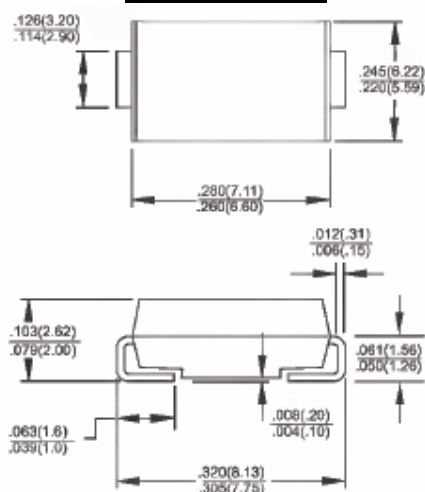




## ES3A - ES3J

3.0 AMPs. Surface Mount Super Fast Rectifiers

### SMC/DO-214AB



### Features

- ◇ Glass passivated junction chip
- ◇ For surface mounted application
- ◇ Low-Profile Package
- ◇ Built-in strain relief, Ideal for automated placement
- ◇ Easy Pick and place
- ◇ Esuper fast recovery time for high efficiency
- ◇ High temperature soldering guaranteed:  
260°C/10 seconds at terminals.
- ◇ Plastic material used carriers underwriters  
Laboratory classification 94V-0
- ◇ Green compound with suffix "G" on packing code  
& prefix "G" on datecode.
- ◇ High reliability grade (AEC Q101 specified)

### Mechanical Data

- ◇ Cases: Molded plastic
- ◇ Epoxy: UL 94V-O rate flame retardant
- ◇ Terminal : Pure tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed
- ◇ Polarity: Color band denotes cathode.
- ◇ Weight: 0.21 gram
- ◇ Packing : 16mm tape per EIA STD RS-481

### Dimensions in inches and (millimeters)

#### Marking Diagram



ES3X = Specific Device Code  
G = Green Compound  
Y = Year  
M = Work Month

### Maximum Ratings and Electrical Characteristics

Rating 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%

| Type Number                                                                                               | Symbol       | ES<br>3A    | ES<br>3B | ES<br>3C | ES<br>3D | ES<br>3F | ES<br>3G | ES<br>3H | ES<br>3J | Units |
|-----------------------------------------------------------------------------------------------------------|--------------|-------------|----------|----------|----------|----------|----------|----------|----------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                                    | VRRM         | 50          | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V     |
| Maximum RMS Voltage                                                                                       | VRMS         | 35          | 70       | 105      | 140      | 210      | 280      | 350      | 420      | V     |
| Maximum DC Blocking Voltage                                                                               | VDC          | 50          | 100      | 150      | 200      | 300      | 400      | 500      | 600      | V     |
| Maximum Average Forward Rectified see fig.1                                                               | I(AV)        | 3.0         |          |          |          |          |          |          |          | A     |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave<br>Superimposed on Rated Load (JEDEC method )    | IFSM         | 100         |          |          |          |          |          |          |          | A     |
| Maximum Instantaneous Forward Voltage @ 3.0A                                                              | VF           | 0.95        |          |          |          | 1,3      |          | 1.7      |          | V     |
| Maximum DC Reverse Current @ T <sub>A</sub> =25°C<br>at Rated DC Blocking Voltage @ T <sub>A</sub> =100°C | IR           | 10<br>500   |          |          |          |          |          |          |          | uA    |
| Typical Junction Capacitance (Note 1)                                                                     | Cj           | 45          |          |          |          | 30       |          |          |          | pF    |
| Typical Reverse Recovery Time (Note 2)                                                                    | TRR          | 35          |          |          |          |          |          |          |          | nS    |
| Typical Thermal Resistance (Note 3)                                                                       | RθJA<br>RθJL | 47<br>12    |          |          |          |          |          |          |          | °C/W  |
| Operating Temperature Range                                                                               | TJ           | -55 to +150 |          |          |          |          |          |          |          | °C    |
| Storage Temperature Range                                                                                 | TSTG         | -55 to +150 |          |          |          |          |          |          |          | °C    |

Note 1. Measured at 1 MHz and Applied Reverse Voltage of 4.0 V D.C.

2. Reverse Recovery Time Condition : IF=0.5A, IR=1.0A, IRR=0.25A

3. Mount on P.C. Board with 0.6" x 0.6" ( 16mm x16mm ) Copper pad areas.

## Ratings and Characteristics Curve (ES3A Thru ES3J)

FIG 1 Maximum Forward Current Derating Curve

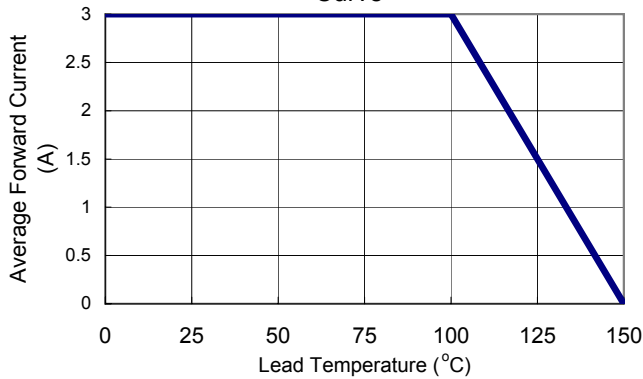


FIG 2 Maximum Non-Repetitive Forward Surge Current

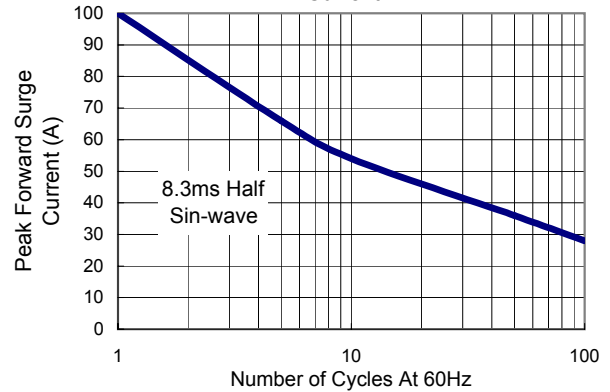


FIG 3 Typical Forward Characteristics

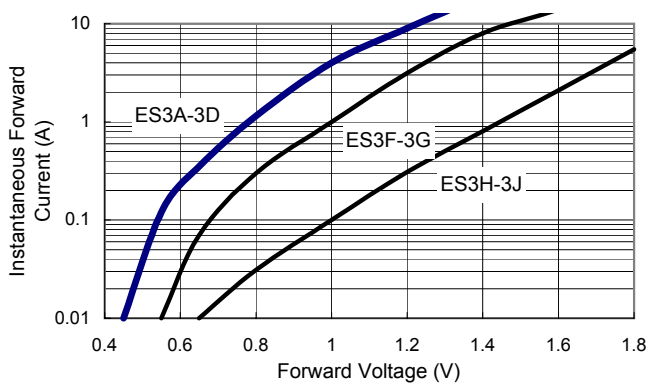


FIG 4 Typical Reverse Characteristics

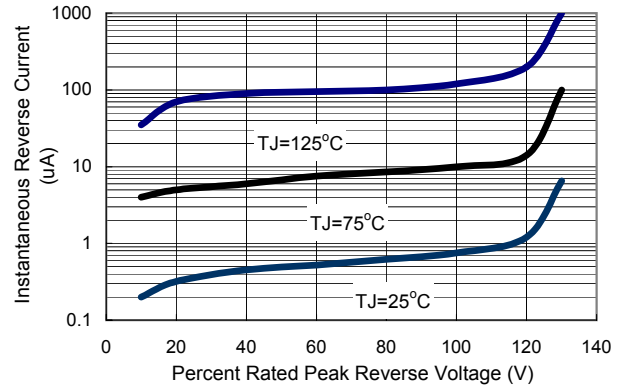


Fig 5 Typical Junction Capacitance

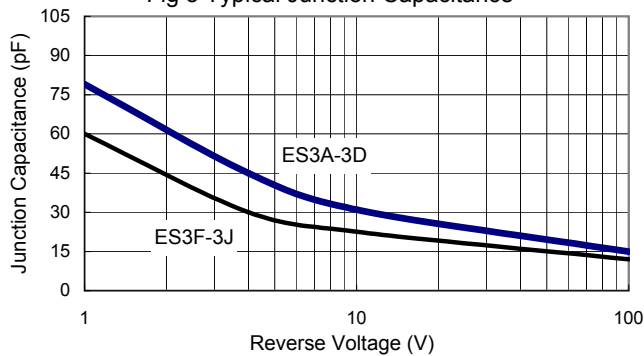


Fig.6 Typical Transient Thermal Impedance

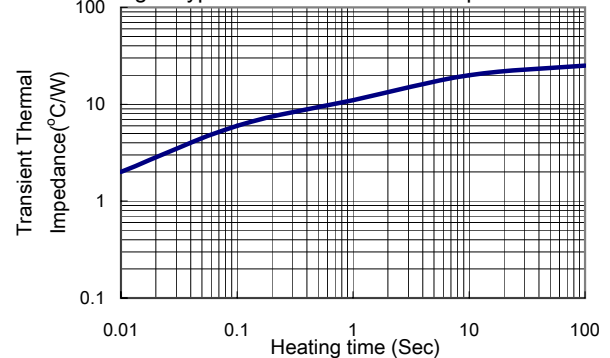


FIG.7- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

