

# ES2A - ES2J

2.0 AMPS. Surface Mount Super Fast Rectifiers

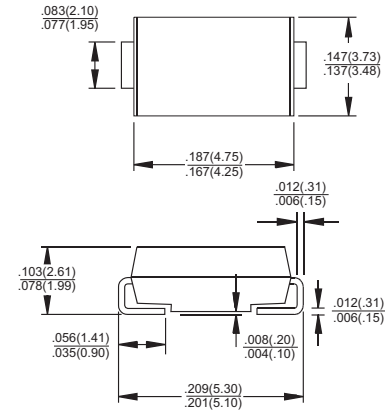


SM Technology Co., Limited

**SMB/DO-214AA**

## 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:  
260°C/10 seconds at terminals
- ✧ Plastic material used carries Underwriters  
Laboratory Classification 94V-0



## Mechanical Data

- ✧ Cases: Molded plastic
- ✧ Terminals: Pure tin plated, lead free.
- ✧ Polarity: Indicated by cathode band
- ✧ Packing: 12mm tape per EIA STD RS-481
- ✧ Weight: 0.093 gram

Dimensions in inches and (millimeters)

## 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>2A    | ES<br>2B | ES<br>2C | ES<br>2D | ES<br>2F  | ES<br>2G | ES<br>2H | ES<br>2J | Units    |
|---------------------------------------------------------------------------------------------------------|--------------------------------------|-------------|----------|----------|----------|-----------|----------|----------|----------|----------|
| Maximum Recurrent Peak Reverse Voltage                                                                  | V <sub>RRM</sub>                     | 50          | 100      | 150      | 200      | 300       | 400      | 500      | 600      | V        |
| Maximum RMS Voltage                                                                                     | V <sub>RMS</sub>                     | 35          | 70       | 105      | 140      | 210       | 280      | 350      | 420      | V        |
| Maximum DC Blocking Voltage                                                                             | V <sub>DC</sub>                      | 50          | 100      | 150      | 200      | 300       | 400      | 500      | 600      | V        |
| Maximum Average Forward Rectified Current See Fig. 1                                                    | I <sub>(AV)</sub>                    | 2.0         |          |          |          |           |          |          |          | A        |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method )     | I <sub>FSM</sub>                     | 50          |          |          |          |           |          |          |          | A        |
| Maximum Instantaneous Forward Voltage @ 2.0A                                                            | V <sub>F</sub>                       | 0.95        |          |          |          | 1.3       |          | 1.7      |          | V        |
| Maximum DC Reverse Current @ T <sub>A</sub> =25°C at Rated DC Blocking Voltage @ T <sub>A</sub> =100 °C | I <sub>R</sub>                       |             |          |          |          | 10<br>350 |          |          |          | uA<br>uA |
| Maximum Reverse Recovery Time ( Note 1 )                                                                | T <sub>rr</sub>                      |             |          |          |          | 35        |          |          |          | nS       |
| Typical Junction Capacitance ( Note 2 )                                                                 | C <sub>j</sub>                       | 25          |          |          |          |           |          | 20       |          | pF       |
| Maximum Thermal Resistance (Note 3)                                                                     | R <sub>θJA</sub><br>R <sub>θJL</sub> |             |          |          |          | 75<br>20  |          |          |          | °C /W    |
| Operating Temperature Range                                                                             | T <sub>J</sub>                       | -55 to +150 |          |          |          |           |          |          |          | °C       |
| Storage Temperature Range                                                                               | T <sub>STG</sub>                     | -55 to +150 |          |          |          |           |          |          |          | °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  $V_R = 4.0$  Volts
  3. Units Mounted on P.C.B. 0.4" x 0.4" (10mm x 10mm) Pad Areas



## RATINGS AND CHARACTERISTIC CURVES (ES2AES2J)HR

FIG.1- MAXIMUM FORWARD CURRENT DERATING CURVE

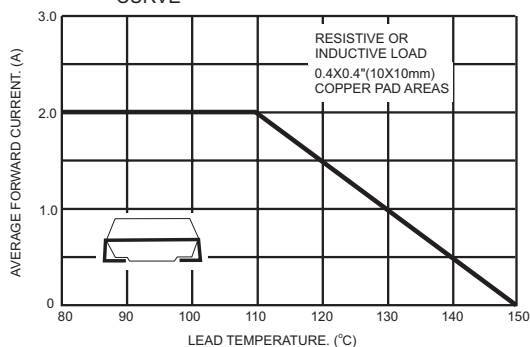


FIG.3- MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

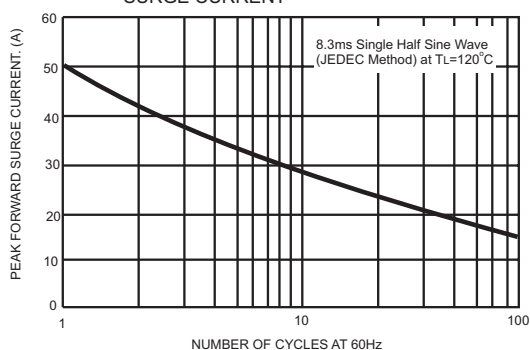


FIG.4- TYPICAL JUNCTION CAPACITANCE

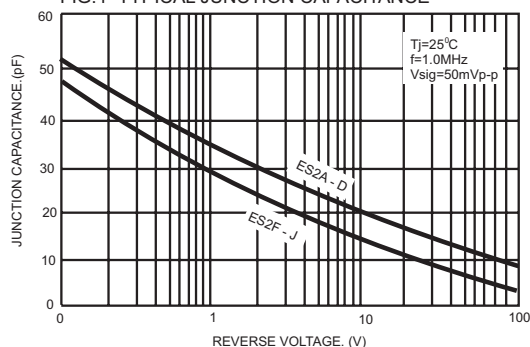


FIG.2- TYPICAL REVERSE CHARACTERISTICS

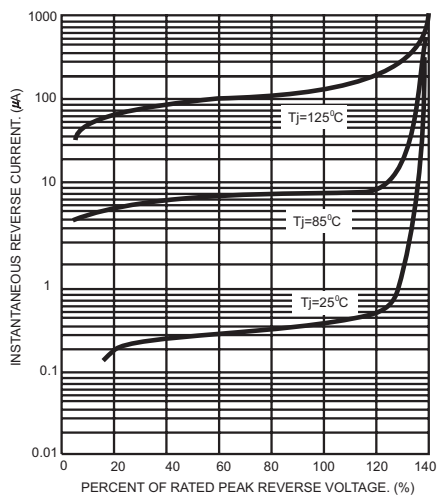


FIG.5- TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

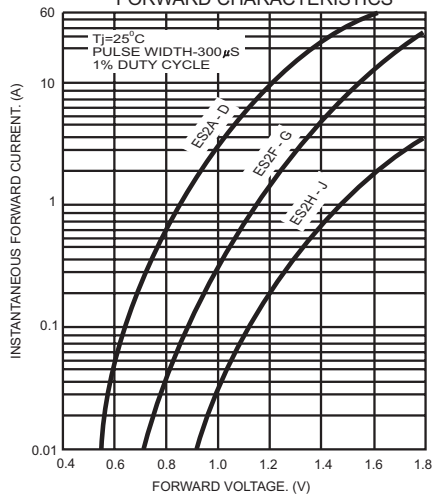


FIG.6- REVERSE RECOVERY TIME CHARACTERISTIC AND TEST CIRCUIT DIAGRAM

