

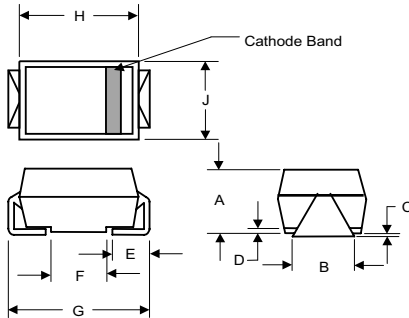


# ES2A THRU ES2M

## SURFACE MOUNT SUPER FAST RECTIFIER

Reverse Voltage - 50 to 1000 Volts Forward Current - 2.0 Amperes

### DO-214AA (HSMB) (Round Lead)



| DIM | INCHES |      | MM   |      | NOTE |
|-----|--------|------|------|------|------|
|     | MIN    | MAX  | MIN  | MAX  |      |
| A   | .078   | .116 | 1.98 | 2.95 |      |
| B   | .075   | .089 | 1.90 | 2.25 |      |
| C   | .002   | .008 | .05  | .20  |      |
| D   |        | .02  |      | .51  |      |
| E   | .035   | .055 | .90  | 1.40 |      |
| F   | .065   | .091 | 1.65 | 2.32 |      |
| G   | .205   | .224 | 5.21 | 5.69 |      |
| H   | .160   | .180 | 4.06 | 4.57 |      |
| J   | .130   | .155 | 3.30 | 3.94 |      |

### FEATURES

- ◆ Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- ◆ Case Material: Molded Plastic. UL Flammability
- ◆ Classification Rating 94V-0 and MSL rating 1
- ◆ Easy Pick And Place
- ◆ High Temp Soldering: 260°C for 10 Seconds At Terminals
- ◆ Ultrafast Recovery Times For High Efficiency

### MECHANICAL DATA

**Case:** JEDEC DO-214AA 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:** 0.005 ounce, 0.138 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%.

| TWGMC Catalog Number                                                                                        | SYMBOLS                         | ES2A         | ES2B | ES2C | ES2D | ES2E | ES2G | ES2J | ES2K | ES2M | UNITS |
|-------------------------------------------------------------------------------------------------------------|---------------------------------|--------------|------|------|------|------|------|------|------|------|-------|
| Maximum repetitive peak reverse voltage                                                                     | V <sub>RRM</sub>                | 50           | 100  | 150  | 200  | 300  | 400  | 600  | 800  | 1000 | VOLTS |
| Maximum RMS voltage                                                                                         | V <sub>RMS</sub>                | 35           | 70   | 105  | 140  | 210  | 280  | 420  | 560  | 700  | VOLTS |
| Maximum DC blocking voltage                                                                                 | V <sub>DC</sub>                 | 50           | 100  | 150  | 200  | 300  | 400  | 600  | 800  | 1000 | VOLTS |
| Maximum average forward rectified current at T <sub>L</sub> =55°C                                           | I <sub>(AV)</sub>               | 2.0          |      |      |      |      |      |      |      |      | Amps  |
| Peak forward surge current<br>8.3ms single half sine-wave superimposed on<br>rated load (JEDEC Method)      | I <sub>FSM</sub>                | 50.0         |      |      |      |      |      |      |      |      | Amps  |
| Maximum instantaneous forward voltage at 2.0A                                                               | V <sub>F</sub>                  | 0.975        |      |      |      | 1.35 |      |      | 1.7  |      | Volts |
| Maximum DC reverse current    T <sub>A</sub> =25°C<br>at rated DC blocking voltage    T <sub>A</sub> =100°C | I <sub>R</sub>                  | 5.0<br>150.0 |      |      |      |      |      |      |      |      | μA    |
| Maximum reverse recovery time    (NOTE 1)                                                                   | t <sub>rr</sub>                 | 50           |      |      |      | 60   |      |      | 100  |      | ns    |
| Typical junction capacitance (NOTE 2)                                                                       | C <sub>J</sub>                  | 25.0         |      |      |      |      |      |      |      |      | pF    |
| Typical thermal resistance (NOTE 3)                                                                         | R <sub>θJA</sub>                | 20.0         |      |      |      |      |      |      |      |      | °C/W  |
| Operating junction and storage temperature range                                                            | T <sub>J</sub> T <sub>STG</sub> | -50 to +150  |      |      |      |      |      |      |      |      | °C    |

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

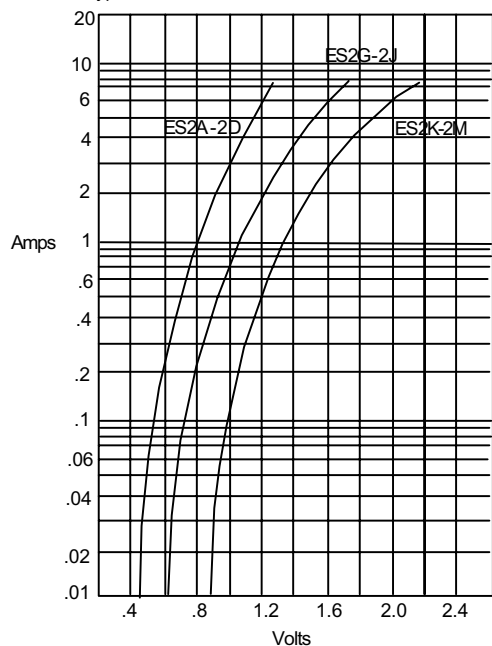
2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.

3.Pulse test: Pulse width 200 sec, Duty cycle 2%

4.High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

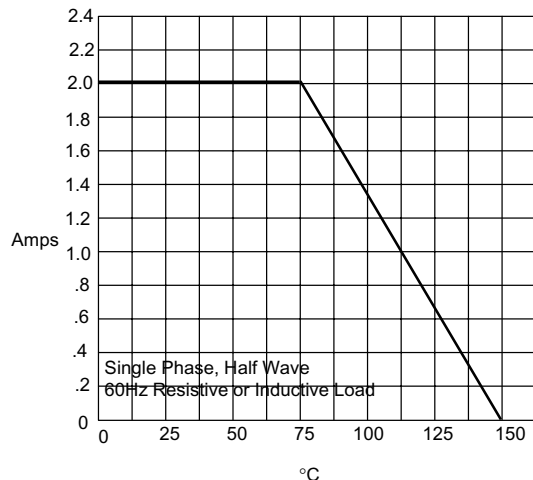
# RATINGS AND CHARACTERISTIC CURVES ES2A THRU ES2M

Figure 1  
Typical Forward Characteristics



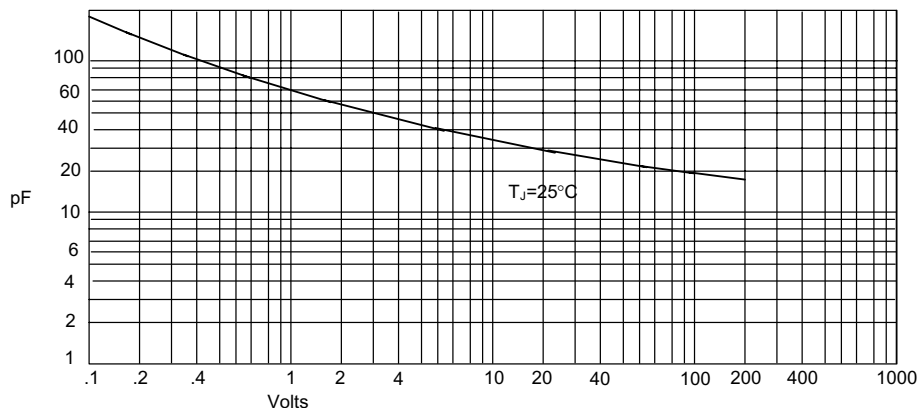
Instantaneous Forward Current - Amperes versus  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



Average Forward Rectified Current - Amperes versus  
Ambient Temperature - °C

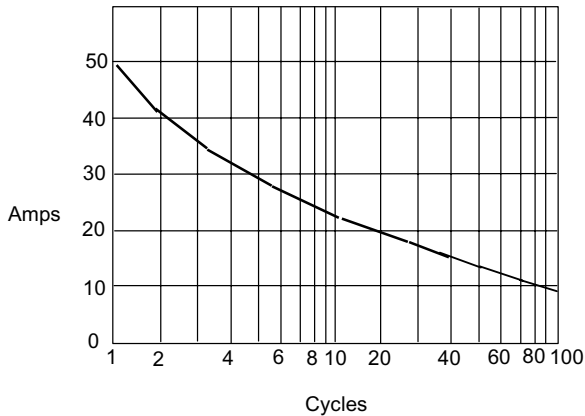
Figure 3  
Junction Capacitance



Junction Capacitance - pF versus  
Reverse Voltage - Volts

# RATINGS AND CHARACTERISTIC CURVES ES2A THRU ES2M

Figure 4  
Peak Forward Surge Current



Peak Forward Surge Current - Amperes *versus*  
Number Of Cycles At 60Hz - Cycles

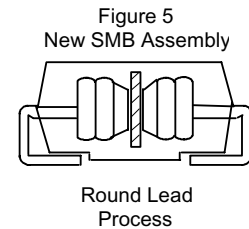
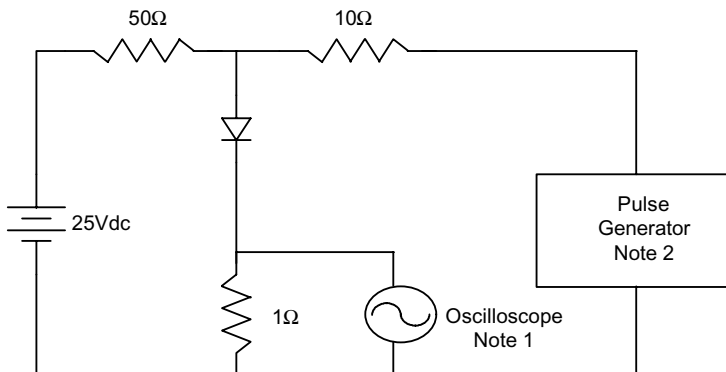


Figure 6  
Reverse Recovery Time Characteristic And Test Circuit Diagram



Notes:

1. Rise Time = 7ns max.  
Input impedance = 1 megohm, 22pF
2. Rise Time = 10ns max.  
Source impedance = 50 ohms
3. Resistors are non-inductive

