



Micro Commercial Components

Micro Commercial Components  
20736 Marilla Street Chatsworth  
CA 91311  
Phone: (818) 701-4933  
Fax: (818) 701-4939

## ES1AE THRU ES1ME

### Features

- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Superfast Recovery Times For High Efficiency

### Maximum Ratings

- Operating Temperature: -50°C to +150°C
- Storage Temperature: -50°C to +150°C
- Maximum Thermal Resistance; 15°C/W Junction To Lead

| MCC Part Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|-----------------|----------------|----------------------------------------|---------------------|-----------------------------|
| ES1AE           | ES1A           | 50V                                    | 35V                 | 50V                         |
| ES1BE           | ES1B           | 100V                                   | 70V                 | 100V                        |
| ES1CE           | ES1C           | 150V                                   | 105V                | 150V                        |
| ES1DE           | ES1D           | 200V                                   | 140V                | 200V                        |
| ES1GE           | ES1G           | 400V                                   | 280V                | 400V                        |
| ES1JE           | ES1J           | 600V                                   | 420V                | 600V                        |
| ES1KE           | ES1K           | 800V                                   | 560V                | 800V                        |
| ES1ME           | ES1M           | 1000V                                  | 700V                | 1000V                       |

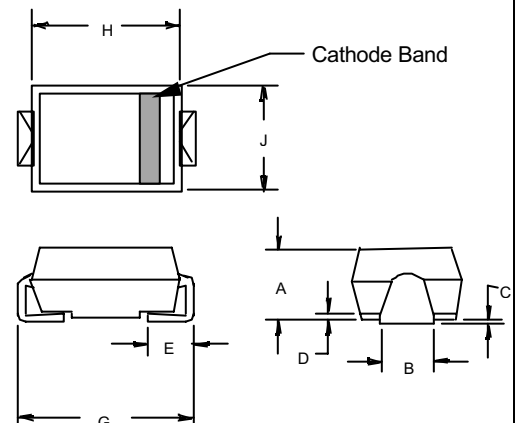
### Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                                                           |             |                                      |                                                       |
|---------------------------------------------------------------------------|-------------|--------------------------------------|-------------------------------------------------------|
| Average Forward Current                                                   | $I_{F(AV)}$ | 1.0A                                 | $T_J = 75^\circ\text{C}$                              |
| Peak Forward Surge Current                                                | $I_{FSM}$   | 30A                                  | 8.3ms, half sine                                      |
| Maximum Instantaneous Forward Voltage<br>ES1AE-DE<br>ES1GE-JE<br>ES1KE~ME | $V_F$       | .975V<br>1.35V<br>1.70V              | $I_{FM} = 1.0A$ ;<br>$T_J = 25^\circ\text{C}^*$       |
| Maximum DC Reverse Current At Rated DC Blocking Voltage                   | $I_R$       | 5 $\mu\text{A}$<br>100 $\mu\text{A}$ | $T_J = 25^\circ\text{C}$<br>$T_J = 100^\circ\text{C}$ |
| Maximum Reverse Recovery Time<br>ES1AE-DE<br>ES1GE-KE<br>ES1ME            | $T_{rr}$    | 50ns<br>75ns<br>100ns                | $I_F = 0.5A$ , $I_R = 1.0A$ ,<br>$I_{rr} = 0.25A$     |
| Typical Junction Capacitance                                              | $C_J$       | 45pF                                 | Measured at 1.0MHz, $V_R = 4.0V$                      |

\*Pulse test: Pulse width 200  $\mu\text{sec}$ , Duty cycle 2%

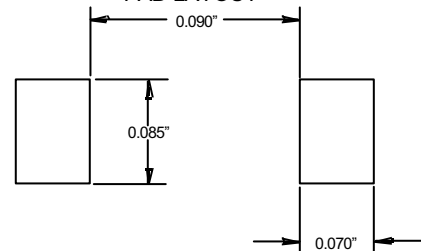
## 1 Amp Super Fast Recovery Silicon Rectifier 50 to 1000 Volts

### DO-214AC (SMAE)



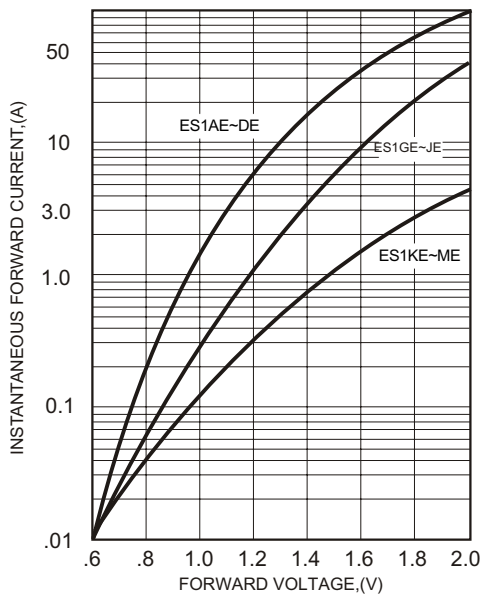
| DIMENSIONS |        |      |      |      |      |
|------------|--------|------|------|------|------|
| DIM        | INCHES |      | MM   |      | NOTE |
|            | MIN    | MAX  | MIN  | MAX  |      |
| A          | .079   | .096 | 2.01 | 2.44 |      |
| B          | .050   | .075 | 1.27 | 1.90 |      |
| C          | .002   | .008 | .05  | .20  |      |
| D          | —      | .02  | —    | .51  |      |
| E          | .030   | .060 | .76  | 1.52 |      |
| G          | .189   | .208 | 4.80 | 5.30 |      |
| H          | .157   | .180 | 4.00 | 4.57 |      |
| J          | .090   | .115 | 2.29 | 2.92 |      |

### SUGGESTED SOLDER PAD LAYOUT



# ES1AE thru ES1ME

Figure 1  
Typical Forward Characteristics



Instantaneous Forward Current - Amperes *versus*  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve

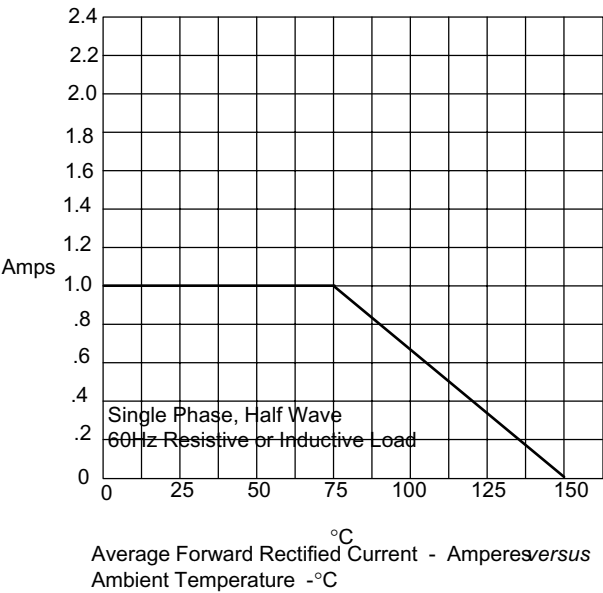
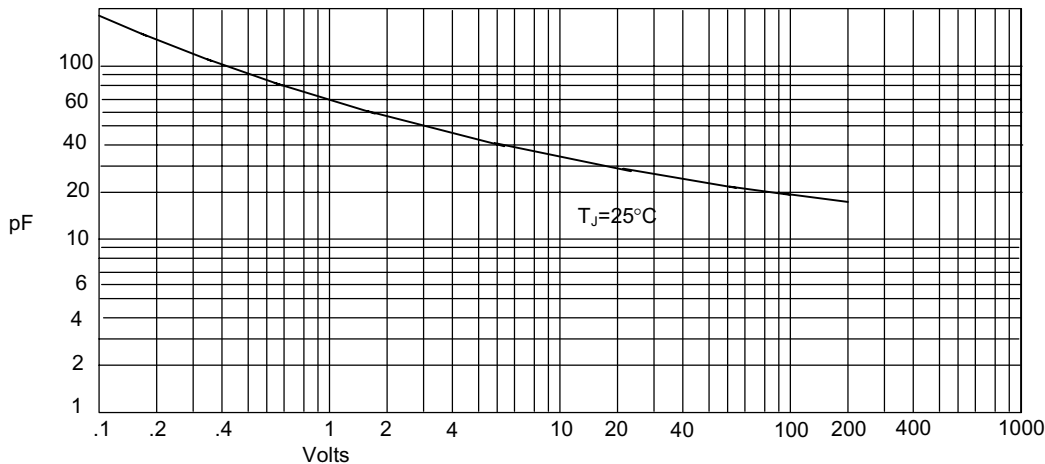
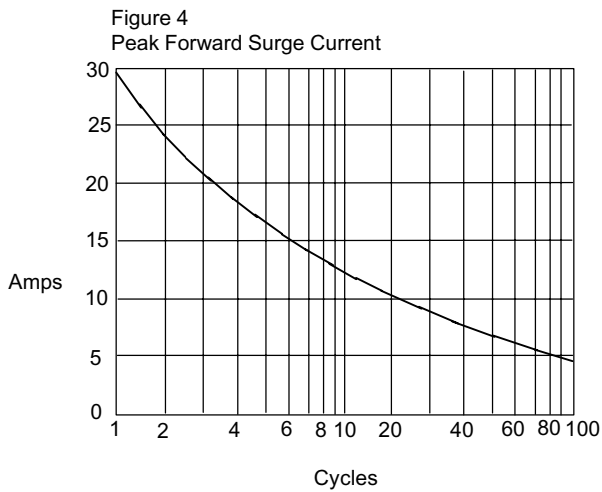


Figure 3  
Junction Capacitance



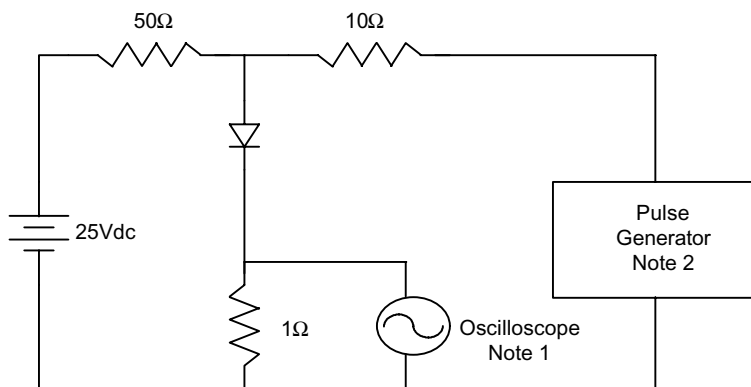
Junction Capacitance - pF *versus*  
Reverse Voltage - Volts

# ES1AE thru ES1ME



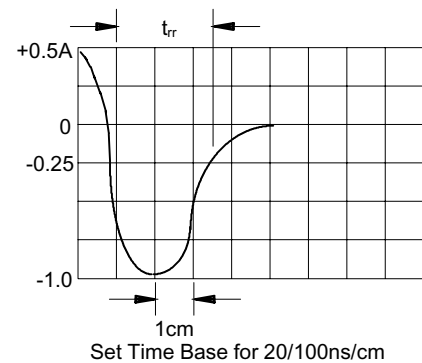
Peak Forward Surge Current - Amperes versus  
Number Of Cycles At 60Hz - Cycles

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



**\*\*\*IMPORTANT NOTICE\*\*\***

*Micro Commercial Components Corp.* reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes .  
*Micro Commercial Components Corp.* does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold *Micro Commercial Components Corp.* and all the companies whose products are represented on our website, harmless against all damages.

**\*\*\*APPLICATIONS DISCLAIMER\*\*\***

Products offer by *Micro Commercial Components Corp.* are not intended for use in Medical,  
Aerospace or Military Applications.