



Micro Commercial Components  
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## FS1A THRU FS1M

### Features

- For Surface Mount Applications
- Extremely Low Thermal Resistance
- Easy Pick And Place
- High Temp Soldering: 250°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 Catalog Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|--------------------|----------------|----------------------------------------|---------------------|-----------------------------|
| FS1A               | FS1A           | 50V                                    | 35V                 | 50V                         |
| FS1B               | FS1B           | 100V                                   | 70V                 | 100V                        |
| FS1D               | FS1D           | 200V                                   | 140V                | 200V                        |
| FS1G               | FS1G           | 400V                                   | 280V                | 400V                        |
| FS1J               | FS1J           | 600V                                   | 420V                | 600V                        |
| FS1K               | FS1K           | 800V                                   | 560V                | 800V                        |
| FS1M               | FS1M           | 1000V                                  | 700V                | 1000V                       |

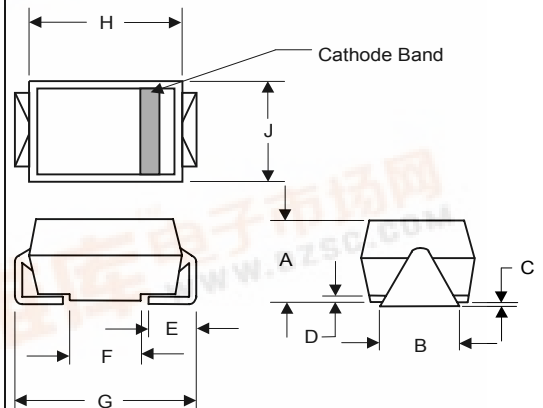
### Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                                         |             |                                      |                                                       |
|---------------------------------------------------------|-------------|--------------------------------------|-------------------------------------------------------|
| Average Forward current                                 | $I_{F(AV)}$ | 1.0A                                 | $T_J = 90^\circ\text{C}$                              |
| Peak Forward Surge Current                              | $I_{FSM}$   | 30A                                  | 8.3ms, half sine                                      |
| Maximum Instantaneous Forward Voltage                   | $V_F$       | 1.30V                                | $I_{FM} = 1.0A$ ;<br>$T_J = 25^\circ\text{C}^*$       |
| Maximum DC Reverse Current At Rated DC Blocking Voltage | $I_R$       | 5 $\mu\text{A}$<br>200 $\mu\text{A}$ | $T_J = 25^\circ\text{C}$<br>$T_J = 125^\circ\text{C}$ |
| Maximum Reverse Recovery Time                           | $T_{rr}$    | 150ns<br>250ns<br>500ns              | $I_F = 0.5A$ , $I_R = 1.0A$ ,<br>$I_{rr} = 0.25A$     |
| Typical Junction Capacitance                            | $C_J$       | 50pF                                 | Measured at<br>1.0MHz, $V_R = 4.0V$                   |

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

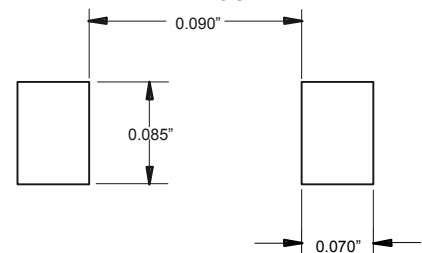
## 1 Amp Fast Recovery Silicon Rectifier 50 to 1000 Volts

### DO-214AC (SMAJ) (High Profile)



| DIM | INCHES |      | MM   |      | NOTE |
|-----|--------|------|------|------|------|
|     | MIN    | MAX  | MIN  | MAX  |      |
| A   | .078   | .116 | 1.98 | 2.95 |      |
| B   | .067   | .089 | 1.70 | 2.25 |      |
| C   | .002   | .008 | .05  | .20  |      |
| D   | ---    | .02  | ---  | .51  |      |
| E   | .035   | .055 | .89  | 1.40 |      |
| F   | .065   | .096 | 1.65 | 2.45 |      |
| G   | .205   | .224 | 5.21 | 5.69 |      |
| H   | .160   | .180 | 4.06 | 4.57 |      |
| J   | .100   | .112 | 2.57 | 2.84 |      |

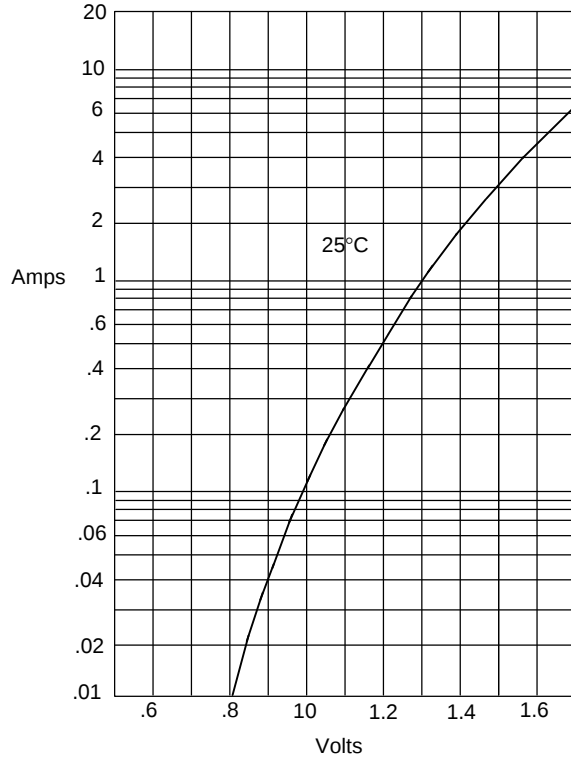
### SUGGESTED SOLDER PAD LAYOUT



# FS1A thru FS1M

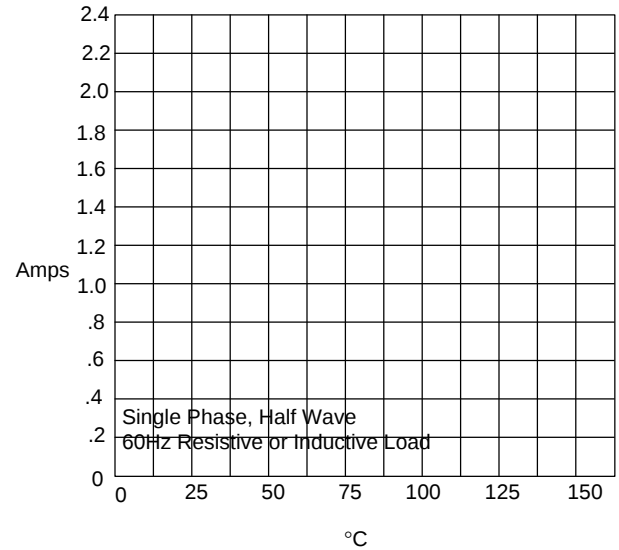


Figure 1  
Typical Forward Characteristics



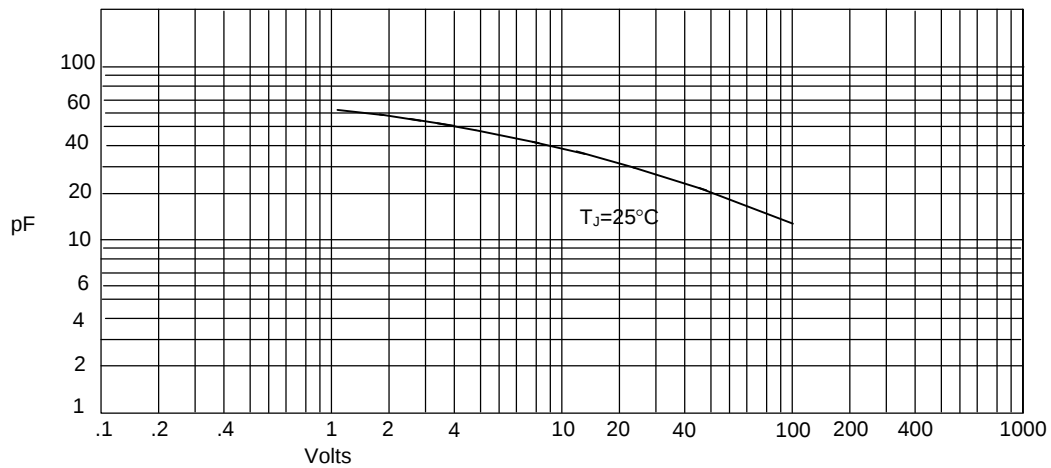
Instantaneous Forward Current - Amperes *versus*  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



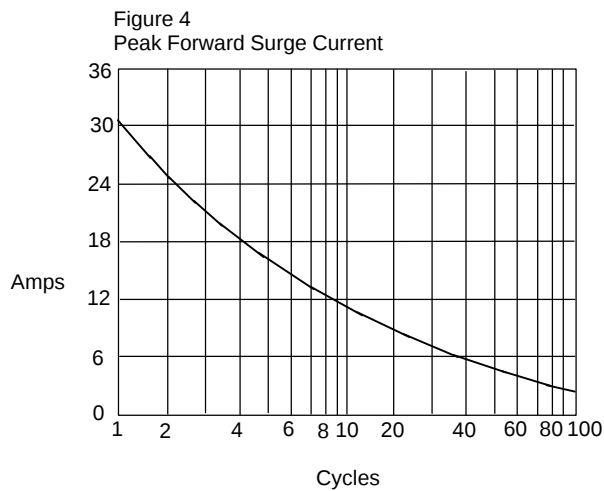
Average Forward Rectified Current - Amperes *versus*  
Ambient Temperature - °C

Figure 3  
Junction Capacitance



Junction Capacitance - pF *versus*  
Reverse Voltage - Volts

# FS1A thru FS1M



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

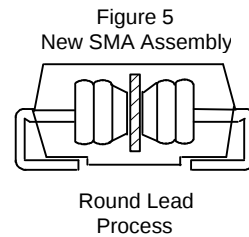
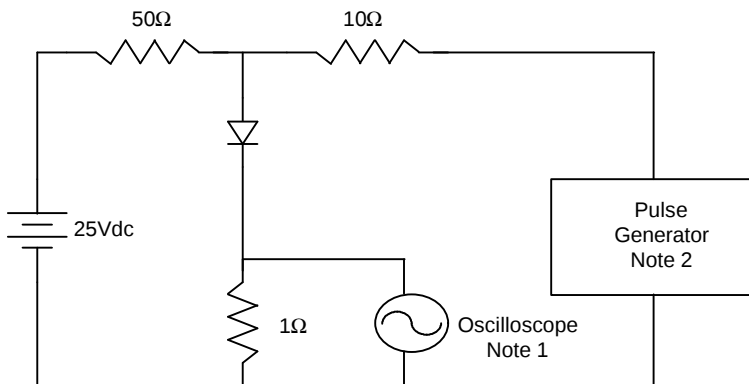


Figure 6  
Reverse Recovery Time Characteristic And Test Circuit Diagram



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

