



Micro Commercial Components



Micro Commercial Components  
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## FR3A THRU FR3M

### Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Easy Pick And Place
- High Temp Soldering: 260°C for 10 Seconds At Terminals
- Fast Recovery Times For High Efficiency
- Halogen free available upon request by adding suffix "-HF"

### Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C
- Maximum Thermal Resistance; 10°C/W Junction To Lead

| MCC Catalog Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|--------------------|----------------|----------------------------------------|---------------------|-----------------------------|
| FR3A               | FR3A           | 50V                                    | 35V                 | 50V                         |
| FR3B               | FR3B           | 100V                                   | 70V                 | 100V                        |
| FR3D               | FR3D           | 200V                                   | 140V                | 200V                        |
| FR3G               | FR3G           | 400V                                   | 280V                | 400V                        |
| FR3J               | FR3J           | 600V                                   | 420V                | 600V                        |
| FR3K               | FR3K           | 800V                                   | 560V                | 800V                        |
| FR3M               | FR3M           | 1000V                                  | 700V                | 1000V                       |

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

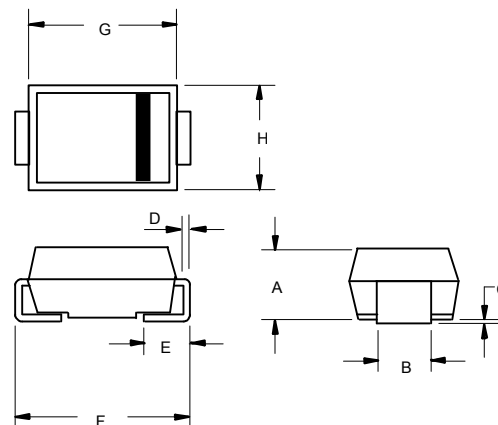
|                                                           |             |                                       |                                                       |
|-----------------------------------------------------------|-------------|---------------------------------------|-------------------------------------------------------|
| Average Forward Current                                   | $I_{F(AV)}$ | 3.0A                                  | $T_J = 120^\circ\text{C}$                             |
| Peak Forward Surge Current                                | $I_{FSM}$   | 100A                                  | 8.3ms, half sine                                      |
| Maximum Instantaneous Forward Voltage                     | $V_F$       | 1.30V                                 | $I_{FM} = 3.0A$ ;<br>$T_J = 25^\circ\text{C}^*$       |
| Maximum DC Reverse Current At Rated DC Blocking Voltage   | $I_R$       | 10 $\mu\text{A}$<br>250 $\mu\text{A}$ | $T_J = 25^\circ\text{C}$<br>$T_J = 100^\circ\text{C}$ |
| Maximum Reverse Recovery Time<br>FR3A-G<br>FR3J<br>FR3K-M | $T_{rr}$    | 150ns<br>250ns<br>500ns               | $I_F = 0.5A$ , $I_R = 1.0A$ ,<br>$I_{rr} = 0.25A$     |
| Typical Junction Capacitance                              | $C_J$       | 80pF                                  | Measured at<br>1.0MHz, $V_R = 4.0V$                   |

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

Note: 1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.

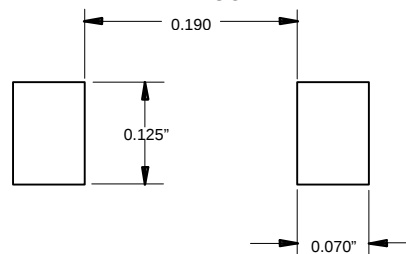
## 3 Amp Fast Recovery Silicon Rectifier 50 to 1000 Volts

### DO-214AB (SMC)(LEAD FRAME)



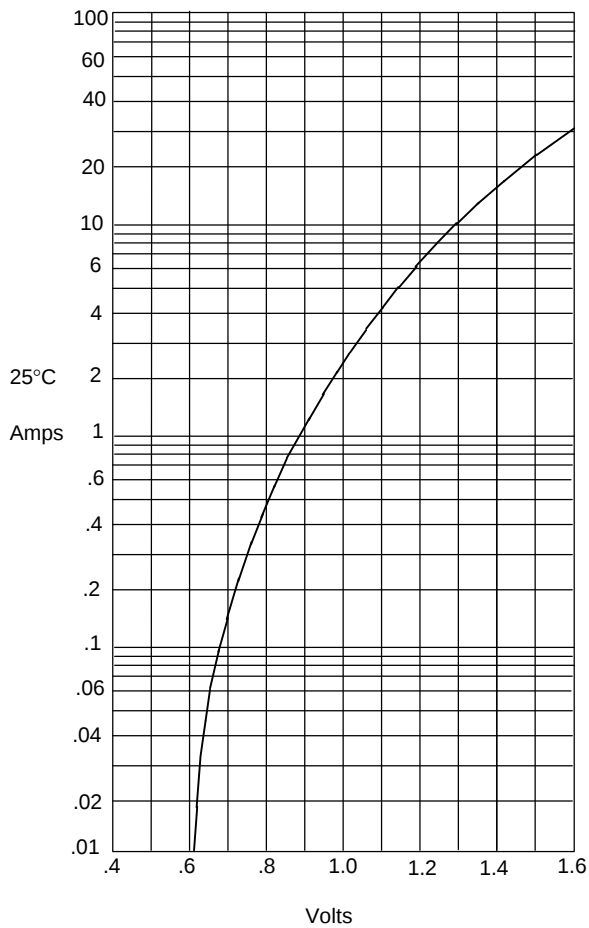
| DIM | INCHES |      | MM    |       | NOTE |
|-----|--------|------|-------|-------|------|
|     | MIN    | MAX  | MIN   | MAX   |      |
| A   | .079   | .103 | 2.00  | 2.62  |      |
| B   | .108   | .128 | 2.75  | 3.25  |      |
| C   | .002   | .008 | 0.051 | 0.203 |      |
| D   | .006   | .012 | 0.152 | 0.305 |      |
| E   | .030   | .060 | 0.76  | 1.27  |      |
| F   | .305   | .320 | 7.75  | 8.13  |      |
| G   | .260   | .280 | 6.60  | 7.11  |      |
| H   | .220   | .245 | 5.59  | 6.22  |      |

### SUGGESTED SOLDER PAD LAYOUT



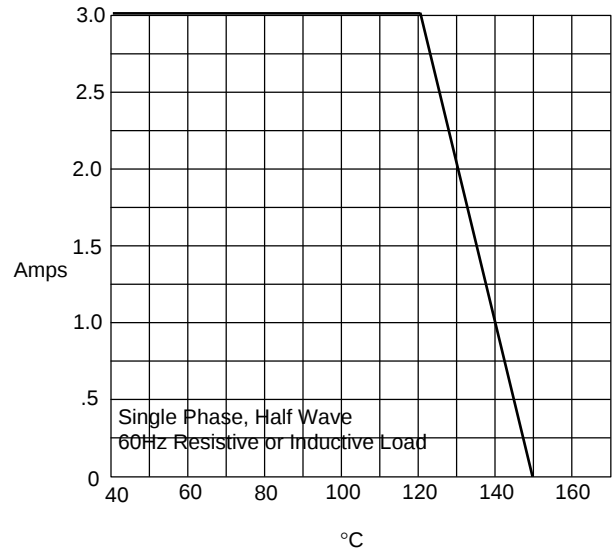
# FR3A thru FR3M

Figure 1  
Typical Forward Characteristics



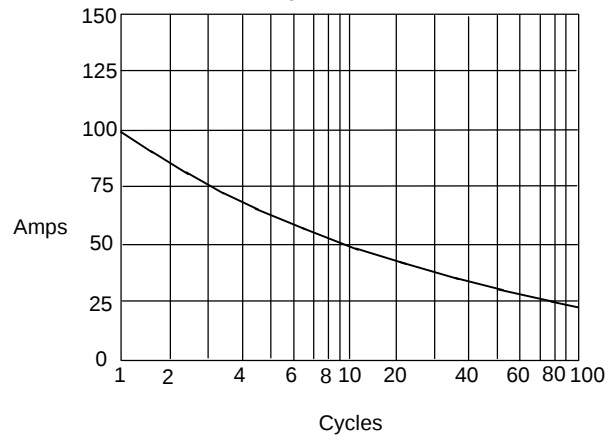
Instantaneous Forward Current - Amperes *versus*  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



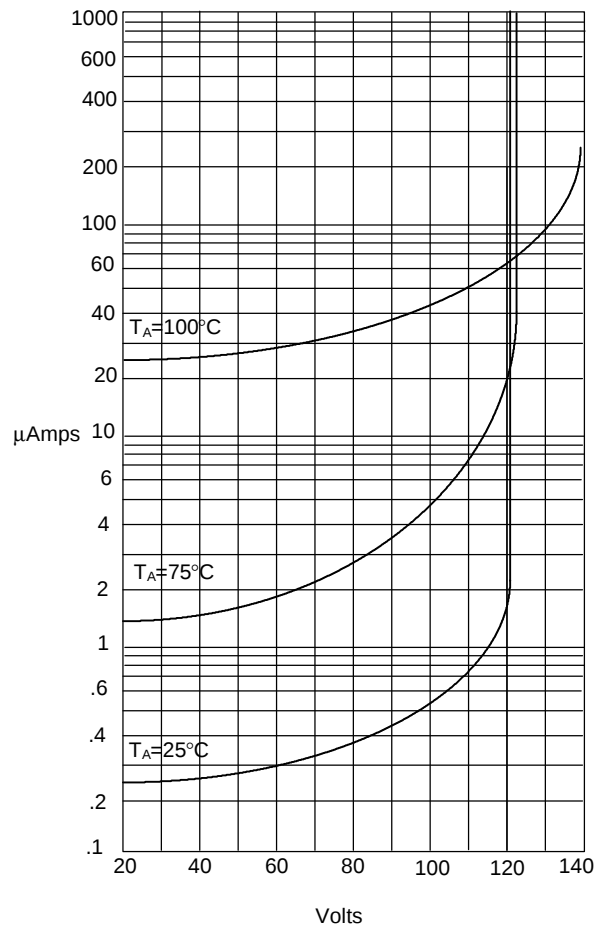
Average Forward Rectified Current - Amperes *versus*  
Ambient Temperature - °C

Figure 3  
Peak Forward Surge Current



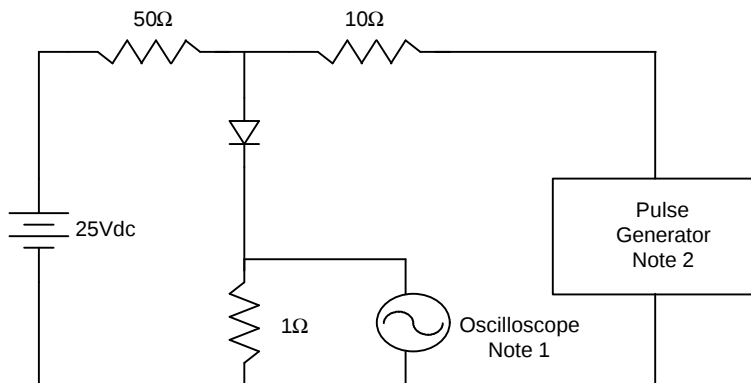
Peak Forward Surge Current - Amperes *versus*  
Number Of Cycles At 60Hz - Cycles

Figure 4  
Typical Reverse Characteristics



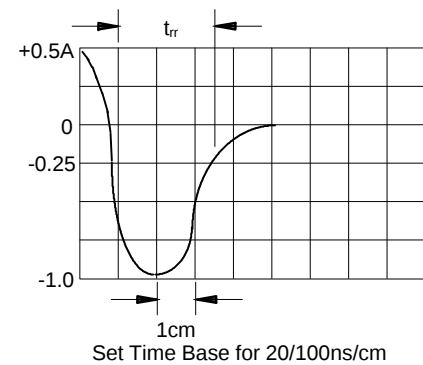
Instantaneous Reverse Leakage Current - MicroAmperes versus  
Percent Of Rated Peak Reverse Voltage - Volts

Figure 5  
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





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## Ordering Information :

| Device         | Packing               |
|----------------|-----------------------|
| Part Number-TP | Tape&Reel: 3Kpcs/Reel |

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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