

## FR3A~FR3M

### FAST RECOVERY PLASTIC RECTIFIER

**VOLTAGE** 50 to 1000 Volt **CURRENT** 3 Ampere

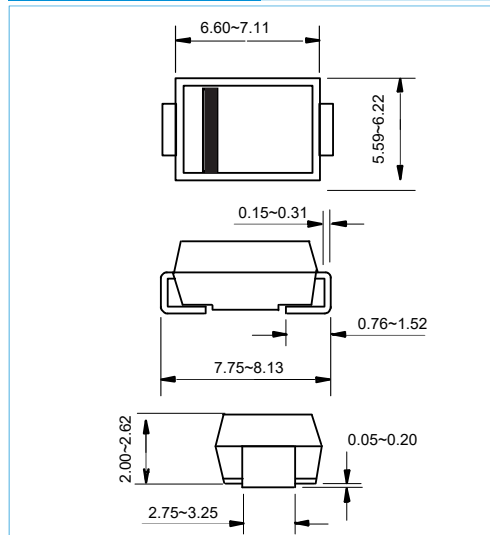
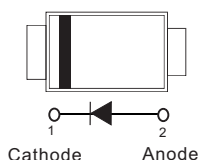
**SMC / DO-214AB** Unit:mm

#### FEATURES

- Low Forward Voltage Drop
- Glass Passivated Junction
- High Current Capability
- Moisture Sensitivity Level 1
- Lead free in compliance with EU RoHS 2.0

#### MECHANICAL DATA

- Case Material: Molded Plastic.
- UL Flammability Classification Rating 94V-0



### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| PARAMETER                                                                                                        | SYMBOL          | FR3A        | FR3B | FR3D | FR3G | FR3J | FR3K | FR3M | UNITS                         |
|------------------------------------------------------------------------------------------------------------------|-----------------|-------------|------|------|------|------|------|------|-------------------------------|
| Maximum Recurrent Peak Reverse Voltage                                                                           | $V_{RRM}$       | 50          | 100  | 200  | 400  | 600  | 800  | 1000 | V                             |
| Maximum RMS Voltage                                                                                              | $V_{RMS}$       | 35          | 70   | 140  | 280  | 420  | 560  | 700  | V                             |
| Maximum DC Blocking Voltage                                                                                      | $V_{DC}$        | 50          | 100  | 200  | 400  | 600  | 800  | 1000 | V                             |
| Maximum Average Forward Current (see FIG.1)                                                                      | $I_{F(AV)}$     | 3           |      |      |      |      |      |      | A                             |
| Peak Forward Surge Current : 8.3ms single half sine-wave superimposed on rated load                              | $I_{FSM}$       | 100         |      |      |      |      |      |      | A                             |
| Maximum Forward Voltage at 3 A                                                                                   | $V_F$           | 1.3         |      |      |      |      |      |      | V                             |
| Maximum DC Reverse Current at Rated DC Blocking Voltage<br>$T_J=25^{\circ}\text{C}$<br>$T_J=125^{\circ}\text{C}$ | $I_R$           | 5<br>250    |      |      |      |      |      |      | uA                            |
| Maximum Reverse Recovery Time(Note 1)                                                                            | $t_{rr}$        | 150         |      |      |      | 250  | 500  |      | ns                            |
| Thermal Resistance                                                                                               | $R_{\theta JC}$ | 11          |      |      |      |      |      |      | $^{\circ}\text{C} / \text{W}$ |
| Typical Junction Capacitance (Note2)                                                                             | $C_J$           | 50          |      |      |      |      |      |      | pF                            |
| Operating Junction Temperature Range                                                                             | $T_J$           | -55 to +150 |      |      |      |      |      |      | $^{\circ}\text{C}$            |
| Storage Temperature Range                                                                                        | $T_{STG}$       | -55 to +150 |      |      |      |      |      |      | $^{\circ}\text{C}$            |

#### 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 1.0MHz and applied reverse voltage of 4.0 volt

# FR3A~FR3M

## RATING AND CHARACTERISTIC CURVES

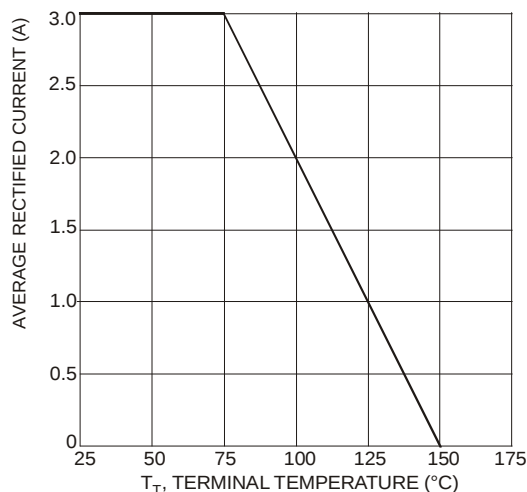


Fig. 1 Forward Current Derating Curve

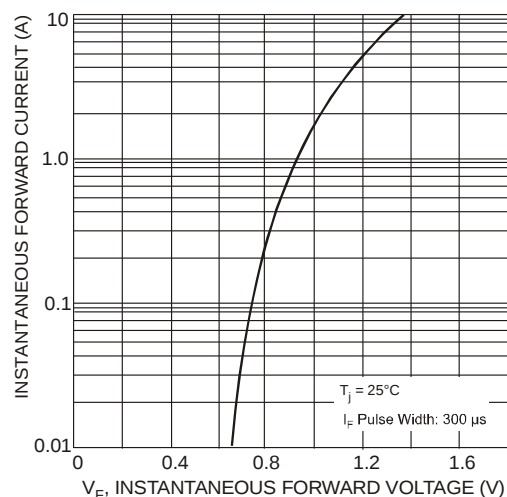


Fig. 2 Typical Forward Characteristics

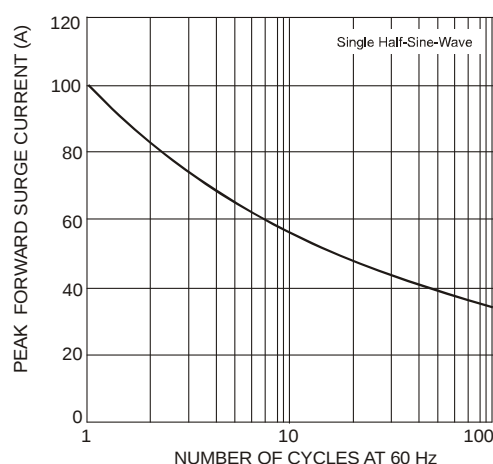


Fig. 3 Forward Surge Current Derating Curve

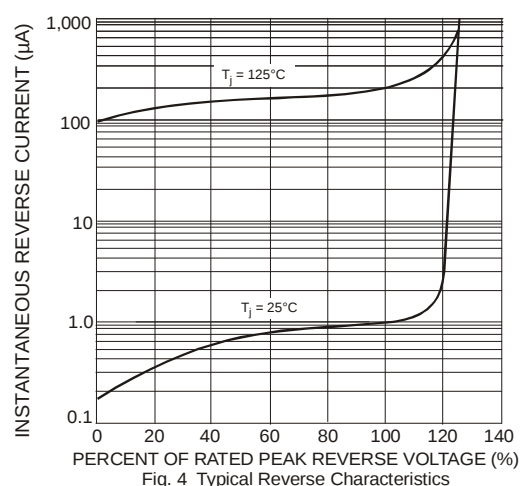
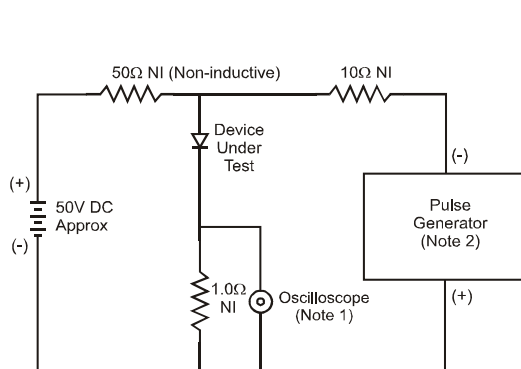
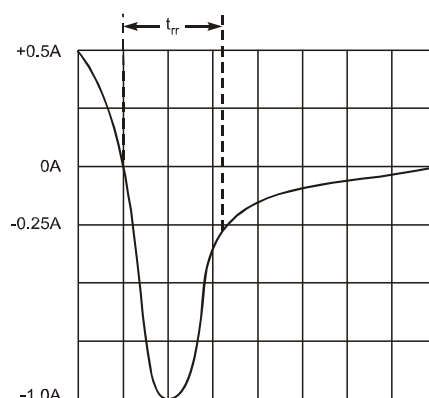


Fig. 4 Typical Reverse Characteristics



- Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0M $\Omega$ , 22pF.
  2. Rise Time = 10ns max. Input Impedance = 50 $\Omega$ .



Set time base for 50/100 ns/cm

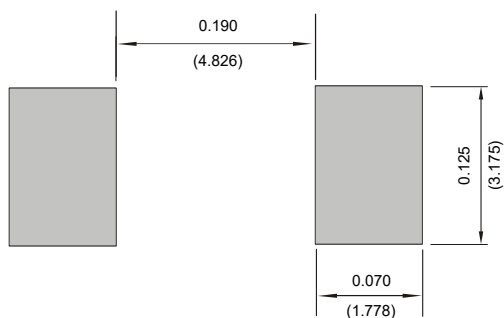
Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

## FR3A~FR3M

### MOUNTING PAD LAYOUT

**SMC / DO-214AB**

Unit:Inch(mm)



### ORDER INFORMATION

- Packing information

| Part Number | Case | Reel Size | QUANTITY |
|-------------|------|-----------|----------|
| FR3A~FR3M   | SMC  | 13 Inch   | 3000     |