



Micro Commercial Components  
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## FR1012GP THRU FR1020GP

### Features

- Low Cost
- Low Leakage
- Low Forward Voltage Drop
- High Current Capability
- Fast Switching Speed For High Efficiency
- Glass Passivated Junction

### Maximum Ratings

- Operating Temperature: -55°C to +150°C
- Storage Temperature: -55°C to +150°C

| MCC Catalog Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|--------------------|----------------|----------------------------------------|---------------------|-----------------------------|
| FR1012GP           | ---            | 1200V                                  | 840V                | 1200V                       |
| FR1014GP           | ----           | 1400V                                  | 980V                | 1400V                       |
| FR1016GP           | ---            | 1600V                                  | 1120V               | 1600V                       |
| FR1018GP           | ---            | 1800V                                  | 1260V               | 1800V                       |
| FR1020GP           | ---            | 2000V                                  | 1400V               | 2000V                       |

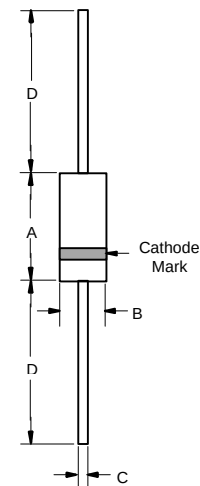
### Electrical Characteristics @ 25°C Unless Otherwise Specified

|                                                             |             |                                        |                                                              |
|-------------------------------------------------------------|-------------|----------------------------------------|--------------------------------------------------------------|
| Average Forward Current                                     | $I_{F(AV)}$ | 1 A                                    | $T_A = 55^\circ\text{C}$                                     |
| Peak Forward Surge Current                                  | $I_{FSM}$   | 30A                                    | 8.3ms, half sine                                             |
| Maximum Instantaneous Forward Voltage <sub>18-20</sub>      | $V_F$       | 1.35V<br>1.50V                         | $I_{FM} = 1.0\text{A};$<br>$T_A = 25^\circ\text{C}$          |
| Maximum DC Reverse Current At Rated DC Blocking Voltage     | $I_R$       | 5.0 $\mu\text{A}$<br>100 $\mu\text{A}$ | $T_A = 25^\circ\text{C}$<br>$T_A = 100^\circ\text{C}$        |
| Maximum Reverse Recovery Time<br>FR1012-1016<br>FR1018-1020 | $T_{rr}$    | 300ns<br>500ns                         | $I_F=0.5\text{A}, I_R=1.0\text{A},$<br>$I_{rr}=0.25\text{A}$ |
| Typical Junction Capacitance                                | $C_J$       | 15pF                                   | Measured at<br>1.0MHz, $V_R=4.0\text{V}$                     |

\*Pulse Test: Pulse Width 300 $\mu\text{sec}$ , Duty Cycle 1%

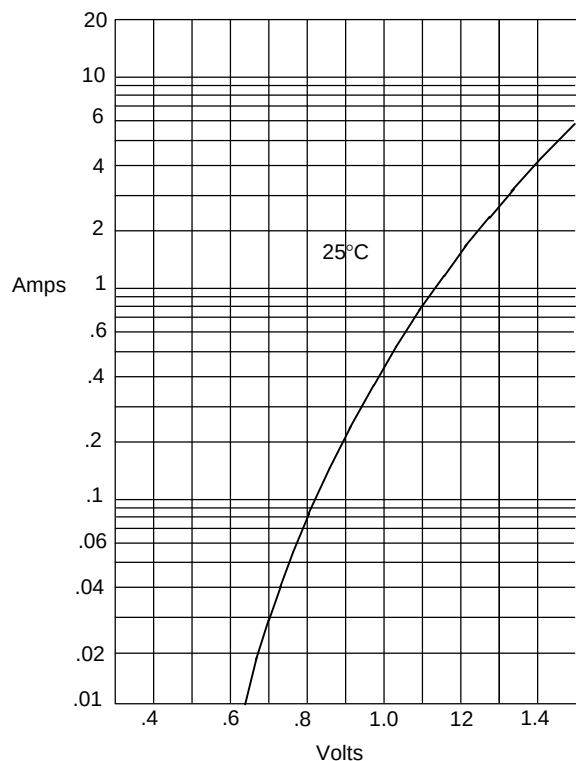
## 1 Amp Glass Passivated Rectifier 1200 to 2000 Volts

### DO-41



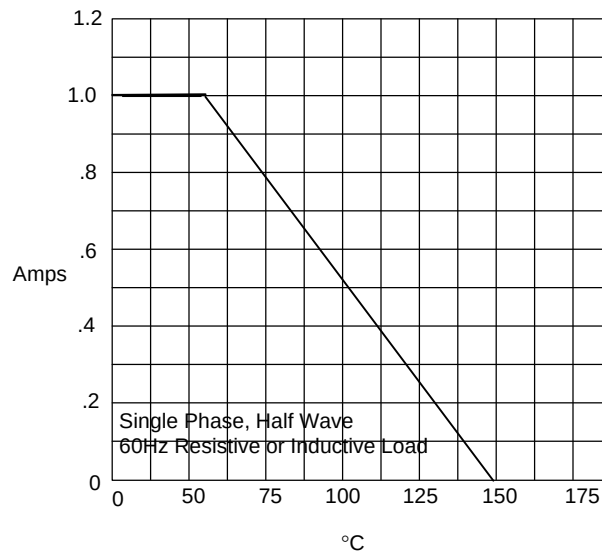
| DIMENSIONS |        |      |       |      |      |
|------------|--------|------|-------|------|------|
| DIM        | INCHES |      | MM    |      | NOTE |
|            | MIN    | MAX  | MIN   | MAX  |      |
| A          | .166   | .205 | 4.10  | 5.20 |      |
| B          | .080   | .107 | 2.00  | 2.70 |      |
| C          | .028   | .034 | .70   | .90  |      |
| D          | 1.000  | ---  | 25.40 | ---  |      |

Figure 1  
Typical Forward Characteristics



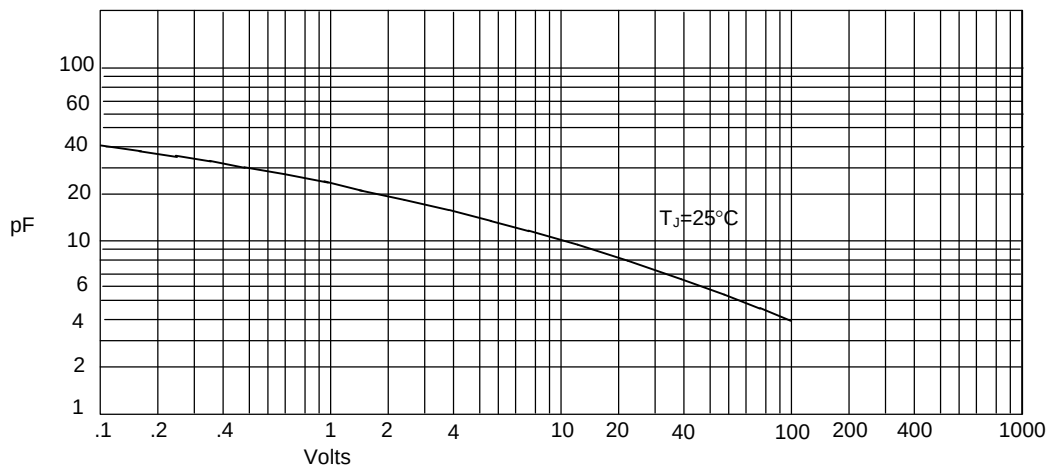
Instantaneous Forward Current - Amperes versus  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



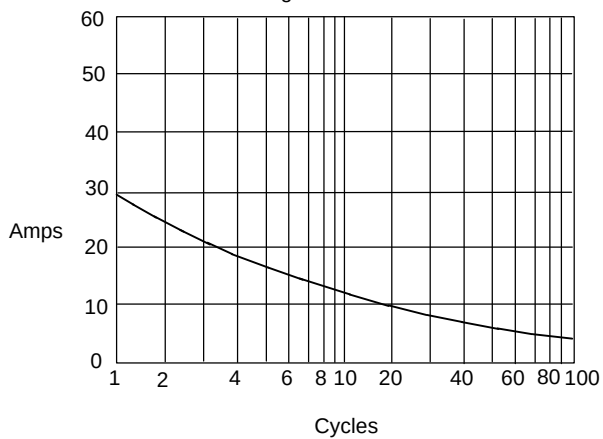
Average Forward Rectified Current - Amperes versus  
Ambient Temperature - °C

Figure 3  
Junction Capacitance



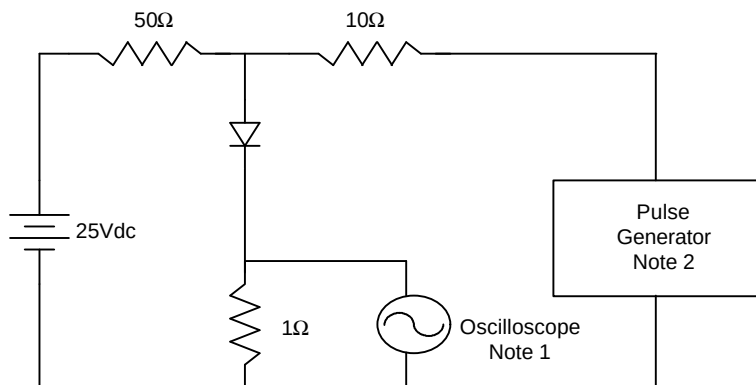
Junction Capacitance - pF versus  
Reverse Voltage - Volts

Figure 4  
Peak Forward Surge Current



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

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

