



Micro Commercial Components



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# FR301 THRU FR307

## Features

- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Low Forward Voltage Drop and High Current Capability
- Fast Switching Speed For High Efficiency
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)

## 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 |
|--------------------|----------------|--|---------------------|-----------------------------|
| FR301              | FR301          | 50V                                    | 35V                 | 50V                         |
| FR302              | FR302          | 100V                                   | 70V                 | 100V                        |
| FR303              | FR303          | 200V                                   | 140V                | 200V                        |
| FR304              | FR304          | 400V                                   | 280V                | 400V                        |
| FR305              | FR305          | 600V                                   | 420V                | 600V                        |
| FR306              | FR306          | 800V                                   | 560V                | 800V                        |
| FR307              | FR307          | 1000V                                  | 700V                | 1000V                       |

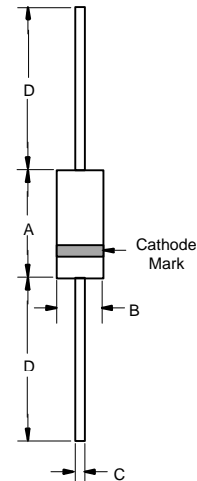
## Electrical Characteristics @ 25°C Unless Otherwise Specified

|  |             |                           |  |
|--|-------------|---------------------------|--|
| Average Forward Current  | $I_{F(AV)}$ | 3 A                       | $T_A = 55^\circ\text{C}$                             |
| Peak Forward Surge Current                                       | $I_{FSM}$   | 150A                      | 8.3ms, half sine                                     |
| Maximum Instantaneous Forward Voltage                            | $V_F$       | 1.3V                      | $I_{FM} = 3.0A$ ;<br>$T_A = 25^\circ\text{C}$        |
| Maximum DC Reverse Current At Rated DC Blocking Voltage          | $I_R$       | 10 $\mu$ A<br>150 $\mu$ A | $T_A = 25^\circ\text{C}$<br>$T_A = 55^\circ\text{C}$ |
| Maximum Reverse Recovery Time<br>FR301-304<br>FR305<br>FR306-307 | $T_{rr}$    | 150ns<br>250ns<br>500ns   | $I_F=0.5A, I_R=1.0A,$<br>$I_{rr}=0.25A$              |
| Typical Junction Capacitance                                     | $C_J$       | 65pF                      | Measured at<br>1.0MHz, $V_R=4.0V$                    |

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.

## 3 Amp Fast Recovery Rectifier 50 to 1000 Volts

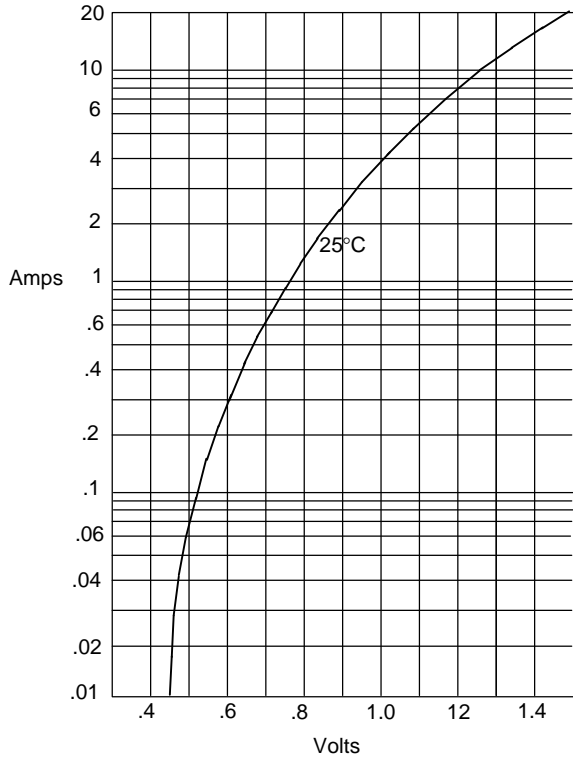
### DO-201AD



| DIM | INCHES |      | MM    |      | NOTE |
|-----|--------|------|-------|------|------|
|     | MIN    | MAX  | MIN   | MAX  |      |
| A   | .287   | .374 | 7.30  | 9.50 |      |
| B   | .189   | .208 | 4.80  | 5.30 |      |
| C   | .048   | .052 | 1.20  | 1.30 |      |
| D   | 1.000  | ---  | 25.40 | ---  |      |

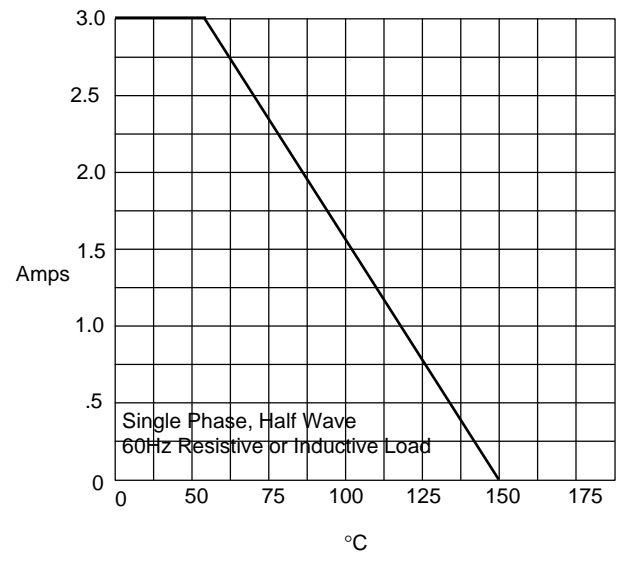
# FR301 thru FR307

Figure 1  
Typical Forward Characteristics



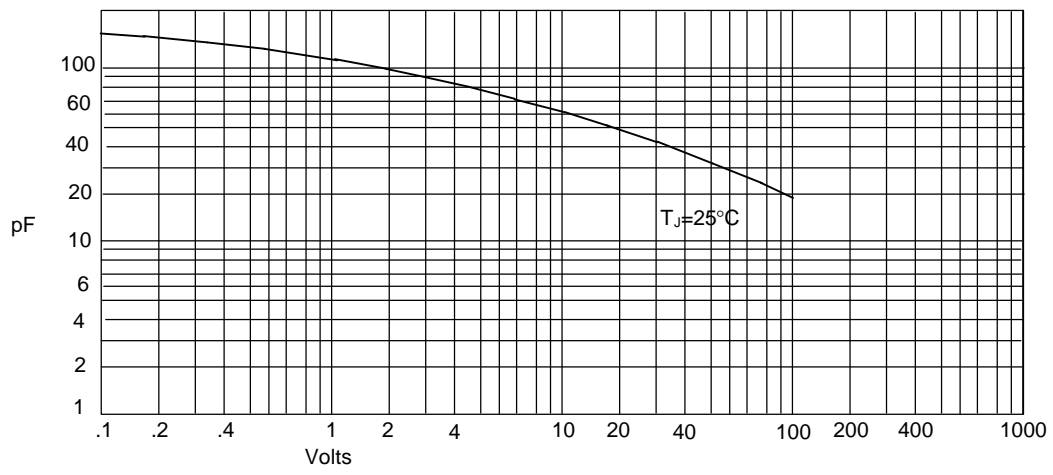
Instantaneous Forward Current - Amperes *versus*  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve

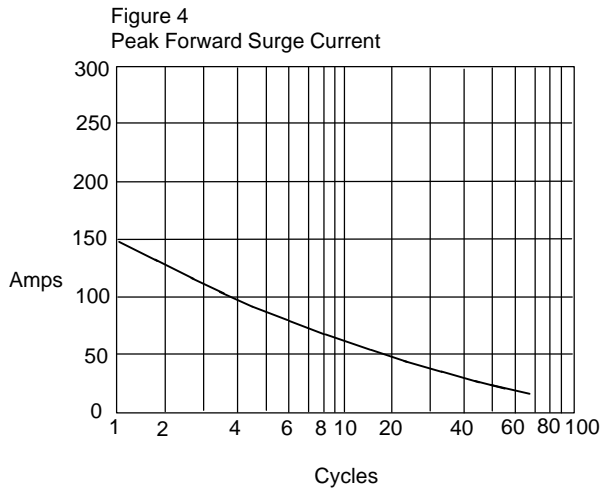


Average Forward Rectified Current - Amperes *versus*  
Ambient Temperature - °C

Figure 3  
Junction Capacitance

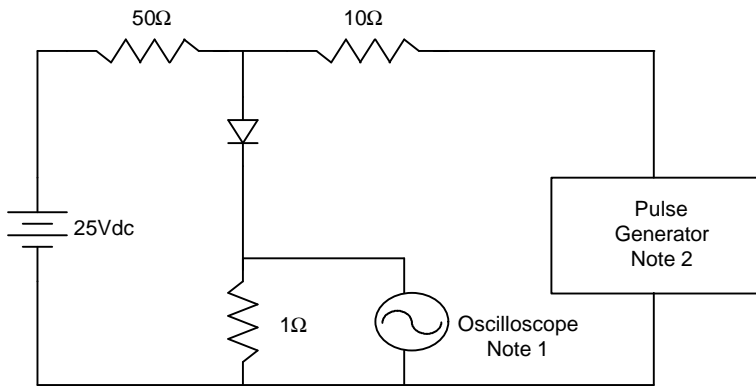


Junction Capacitance - pF *versus*  
Reverse Voltage - Volts

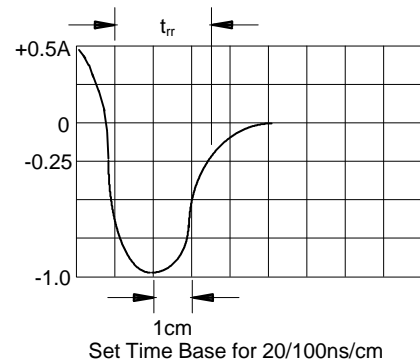


Peak Forward Surge Current - Amperes versus  
Number Of Cycles At 60Hz - Cycles

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





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### Ordering Information :

| Device         | Packing                        |
|----------------|--------------------------------|
| Part Number-TP | Tape&Reel: 1.2Kpcs/Reel        |
| Part Number-AP | Ammo Packing: 1.2Kpcs/Ammo Box |
| Part Number-BP | Bulk: 12Kpcs/Carton            |

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

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