

# Diode

## Ultra Fast



RoHS  
Compliant



### Features:

- High efficiency, low  $V_F$
- High current capability
- High reliability
- High surge current capability
- Low power loss

### Specifications:

#### Mechanical Data:

|                                       |                                                                                 |
|---------------------------------------|---------------------------------------------------------------------------------|
| Cases                                 | : Moulded plastic                                                               |
| Lead                                  | : Pure tin plated, lead free, solderable per MIL-STD-202, Method 208 guaranteed |
| Polarity                              | : Colour band denotes cathode end                                               |
| High temperature soldering guaranteed | : 260°C/10 seconds/0.375", (9.5mm) lead lengths at 5lbs., (2.3kg) tension       |
| Weight                                | : 1.2g                                                                          |

### Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

| Type Number                                                                                                                        | Symbol            | 31DF4     | 31DF6 | Units |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------|-------|-------|
| Maximum Recurrent Peak Reverse Voltage                                                                                             | V <sub>RRM</sub>  | 400       | 600   | V     |
| Maximum RMS Voltage                                                                                                                | V <sub>RMS</sub>  | 280       | 420   |       |
| Maximum DC Blocking Voltage                                                                                                        | V <sub>DC</sub>   | 400       | 600   |       |
| Maximum Average Forward Rectified Current<br>0.375 (9.5mm) Lead Length at T <sub>A</sub> = 29°C<br>(Note 1) T <sub>L</sub> = 109°C | I <sub>(AV)</sub> | 1.2<br>3  |       | A     |
| Peak Forward Surge Current, 8.3ms Single<br>Half Sine-wave Superimposed on Rated<br>Load (JEDEC method)                            | I <sub>FSM</sub>  | 45        |       |       |
| Maximum Instantaneous Forward Voltage<br>at 3A                                                                                     | V <sub>F</sub>    | 1.7       |       | V     |
| Maximum DC Reverse Current at T <sub>A</sub> = 25°C<br>at Rated DC Blocking Voltage at T <sub>A</sub> = 125°C                      | I <sub>R</sub>    | 20<br>100 |       | μA    |

**Note 1.** Without Fin or PC Board.

# Diode Ultra Fast

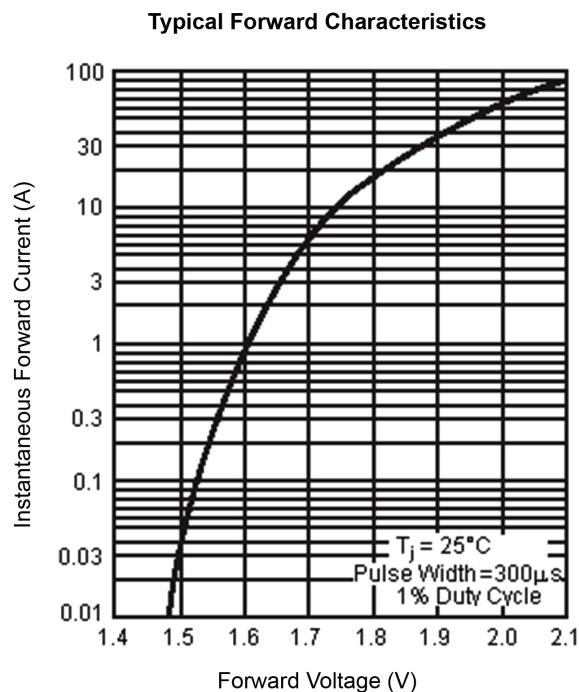
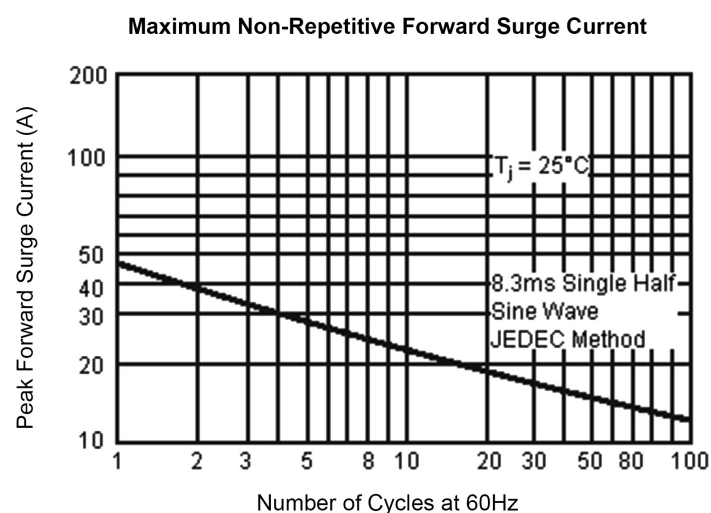
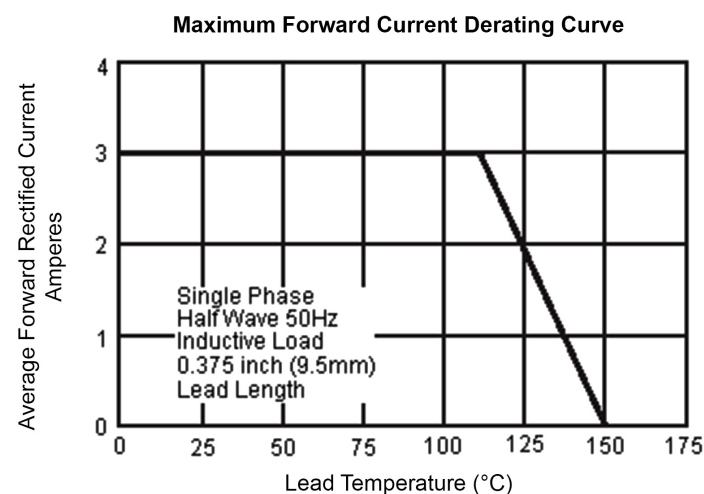


| Type Number                            | Symbol          | 31DF4       | 31DF6 | Units |
|----------------------------------------|-----------------|-------------|-------|-------|
| Maximum Reverse Recovery Time (Note 3) | $T_{rr}$        | 35          |       | nS    |
| Typical Thermal Resistance ( Note 2 )  | $R_{\theta JA}$ | 80          |       | °C/W  |
| Operating Temperature Range            | $T_J$           | -40 to +150 |       | °C    |
| Storage Temperature Range              | $T_{STG}$       |             |       |       |

**Note 2.** Thermal Resistance from Junction to Ambient 0.375" (9.5mm) Lead Length.

**Note 3.** Reverse recovery Test Condition:  $T_A = 25^\circ\text{C}$ ,  $I_{FM} = 3\text{A}$ ,  $di/dt = 50\text{A/}\mu\text{s}$ .

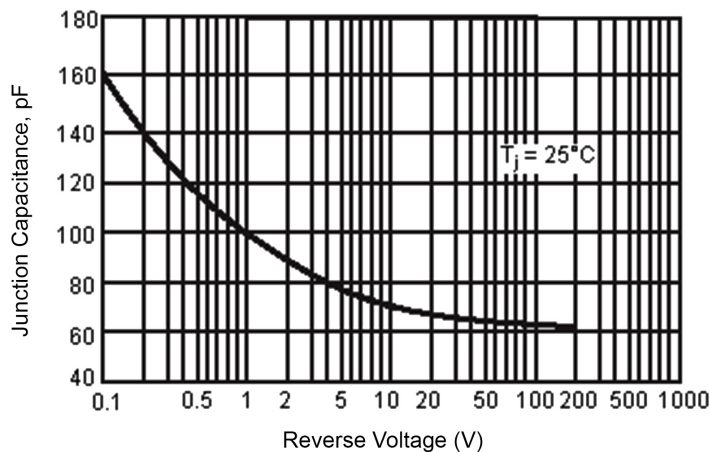
## Ratings and Characteristic Curves (31DF4, 31DF6)



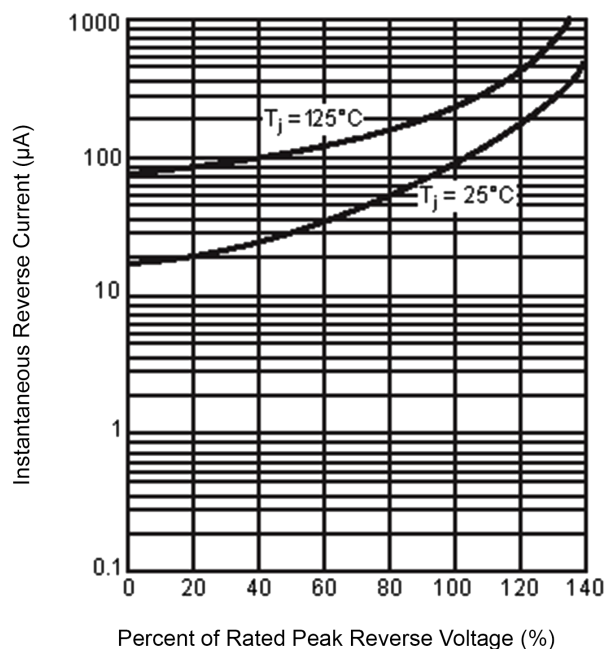
# Diode Ultra Fast



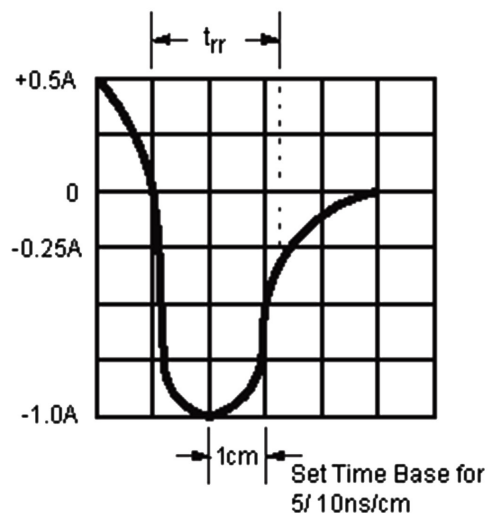
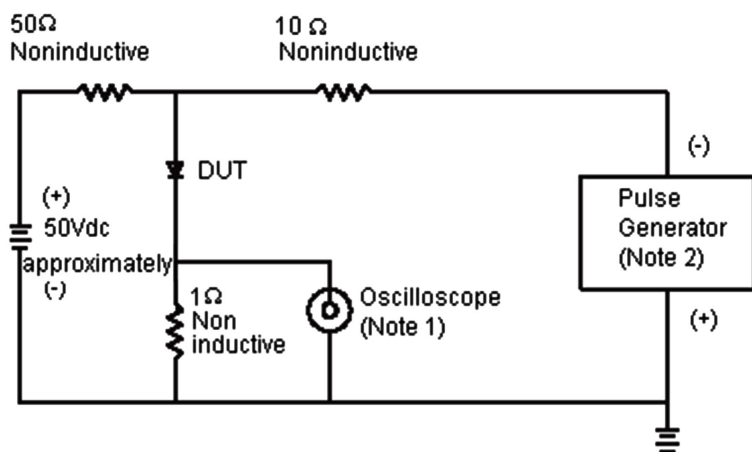
Typical Junction Capacitance



Typical Reverse Characteristics



Reverse Recovery Time Characteristic and Test Circuit Diagram



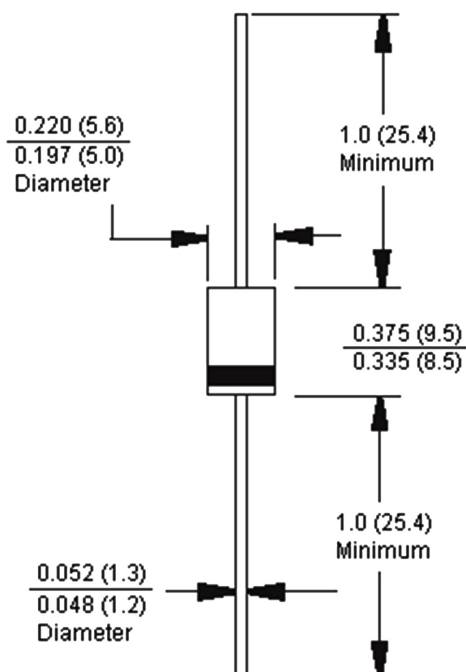
Note: 1. Rise Time = 7ns Maximum. Input Impedance =  $1\text{M}\Omega$  22pf

Note: 2. Rise Time = 10ns Maximum Source Impedance =  $50\Omega$

# Diode Ultra Fast



## DO-201AD



Dimensions : Inches (Millimetres)

## Part Number Table

| Description                 | Part Number |
|-----------------------------|-------------|
| Diode, Ultra-Fast, 3A, 400V | 31DF4       |
| Diode, Ultra-Fast, 3A, 600V | 31DF6       |

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