

# 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 0.375 (9.5mm) Lead Length at T <sub>A</sub> = 29°C (Note 1) T <sub>L</sub> = 109°C	I <sub>(AV)</sub>	1.2 3		A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I <sub>FSM</sub>	45		
Maximum Instantaneous Forward Voltage at 3A	V <sub>F</sub>	1.7		V
Maximum DC Reverse Current at T <sub>A</sub> = 25°C at Rated DC Blocking Voltage at T <sub>A</sub> = 125°C	I <sub>R</sub>	20 100		μA

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

# Diode Ultra Fast



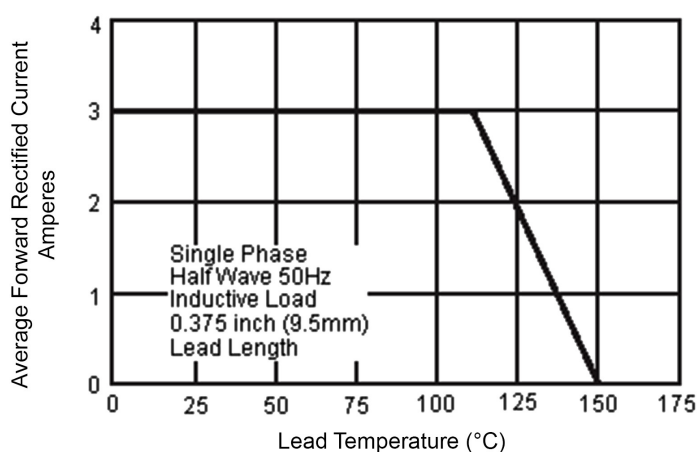
Type Number	Symbol	31DF4	31DF6	Units
Maximum Reverse Recovery Time (Note 3)	$T_{rr}$	35		nS
Typical Thermal Resistance ( Note 2 )	$R_{\theta JA}$	80		°C/W
Operating Temperature Range	$T_J$	-40 to +150		°C
Storage Temperature Range	$T_{STG}$			

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

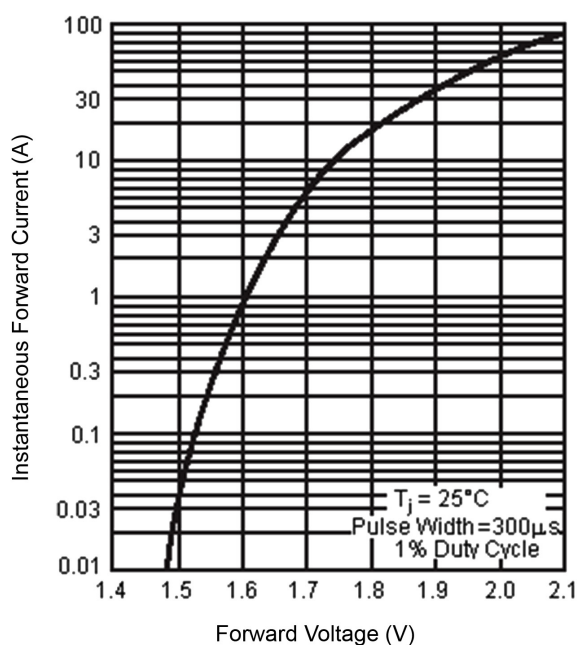
**Note 3.** Reverse recovery Test Condition:  $T_A = 25^\circ\text{C}$ ,  $I_{FM} = 3\text{A}$ ,  $di/dt = 50\text{A/}\mu\text{s}$ .

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

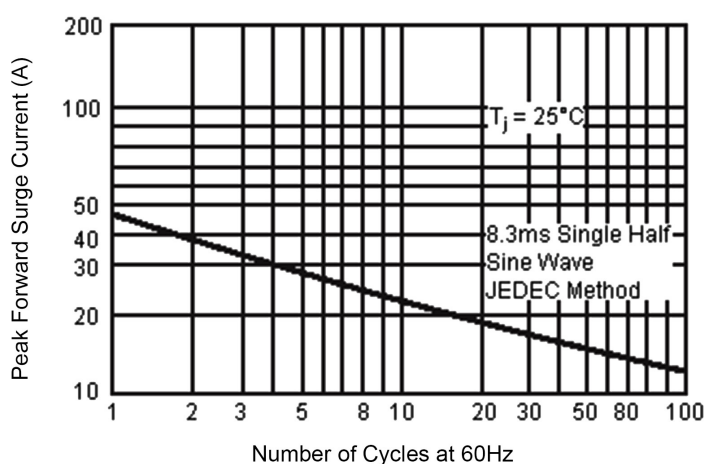
Maximum Forward Current Derating Curve



Typical Forward Characteristics



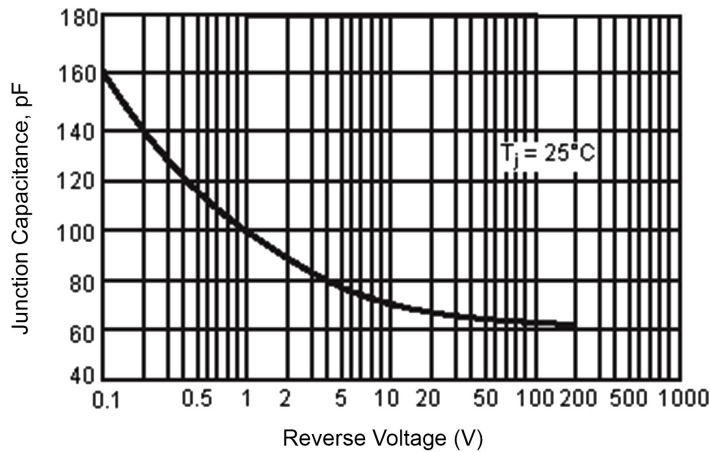
Maximum Non-Repetitive Forward Surge Current



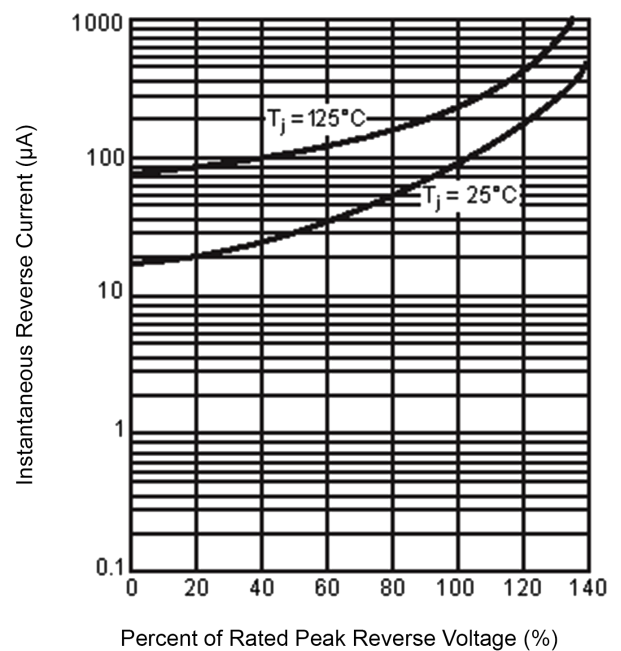
# Diode Ultra Fast



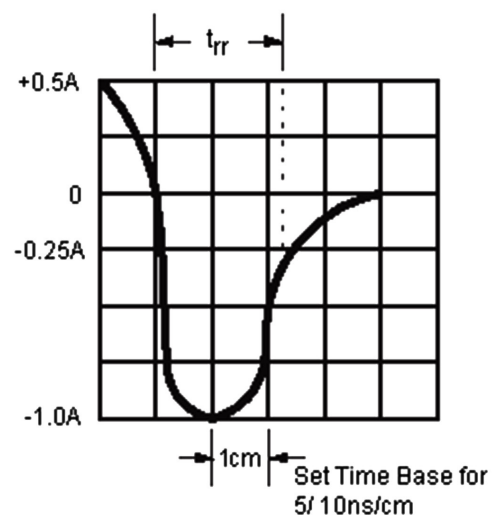
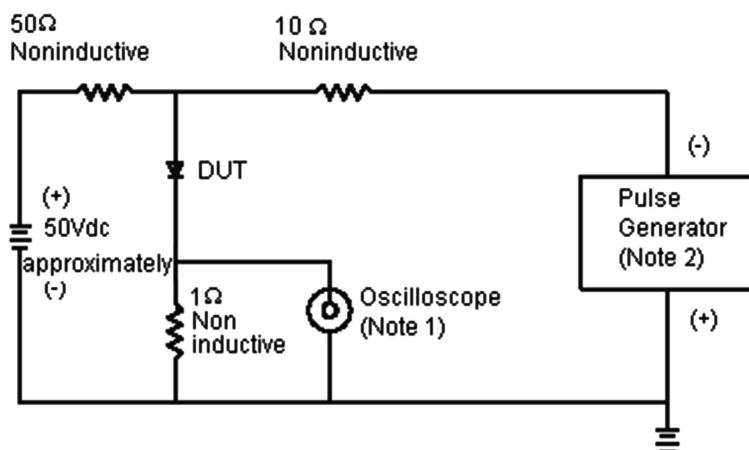
Typical Junction Capacitance



Typical Reverse Characteristics



Reverse Recovery Time Characteristic and Test Circuit Diagram



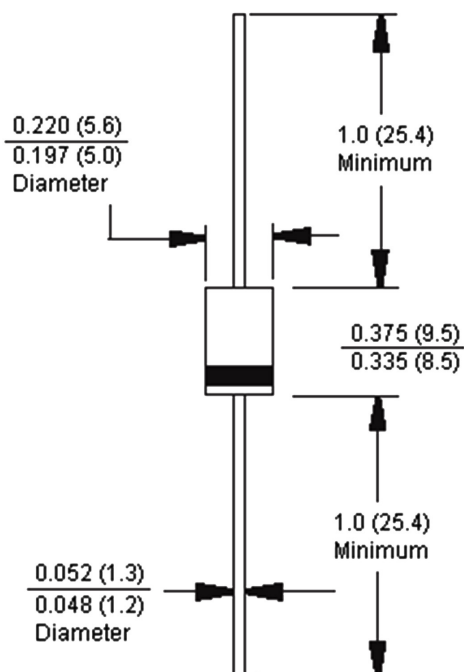
Note: 1. Rise Time = 7ns Maximum. Input Impedance =  $1\text{M}\Omega$  22pf

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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