

# 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	$V_{RRM}$	400	600	V
Maximum RMS Voltage	$V_{RMS}$	280	420	
Maximum DC Blocking Voltage	$V_{DC}$	400	600	
Maximum Average Forward Rectified Current 0.375 (9.5mm) Lead Length at $T_A = 29^\circ\text{C}$ (Note 1) $T_L = 109^\circ\text{C}$	$I_{(AV)}$	1.2 3		A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	45		
Maximum Instantaneous Forward Voltage at 3A	$V_F$	1.7		V
Maximum DC Reverse Current at $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage at $T_A = 125^\circ\text{C}$	$I_R$	20 100		$\mu\text{A}$

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



# Diode Ultra Fast



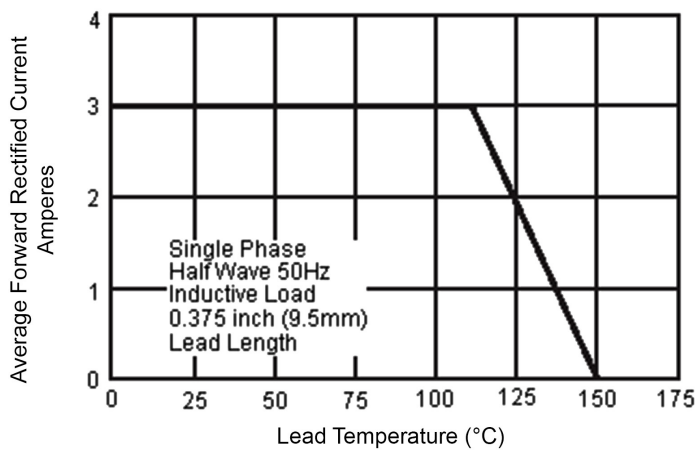
Type Number	Symbol	31DF4	31DF6	Units
Maximum Reverse Recovery Time (Note 3)	$T_{rr}$	35		nS
Typical Thermal Resistance ( Note 2 )	$R_{\theta JA}$	80		°C/W
Operating Temperature Range	$T_J$	-40 to +150		°C
Storage Temperature Range	$T_{STG}$			

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

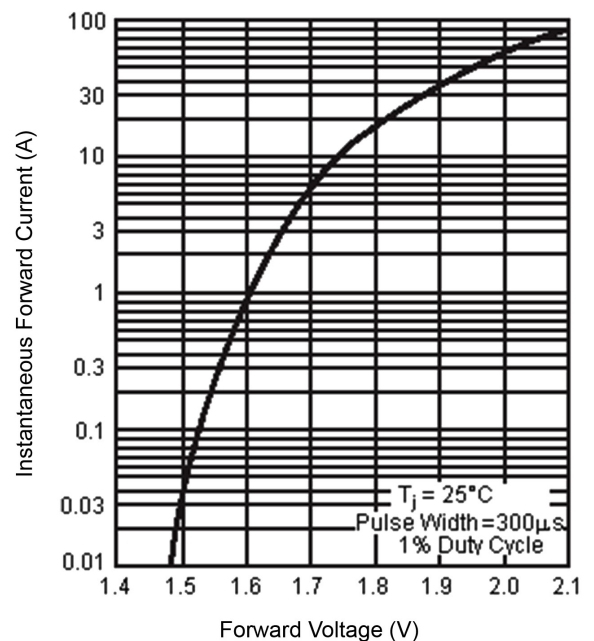
**Note 3.** Reverse recovery Test Condition:  $T_A = 25^\circ\text{C}$ ,  $I_{FM} = 3\text{A}$ ,  $di/dt = 50\text{A}/\mu\text{s}$ .

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

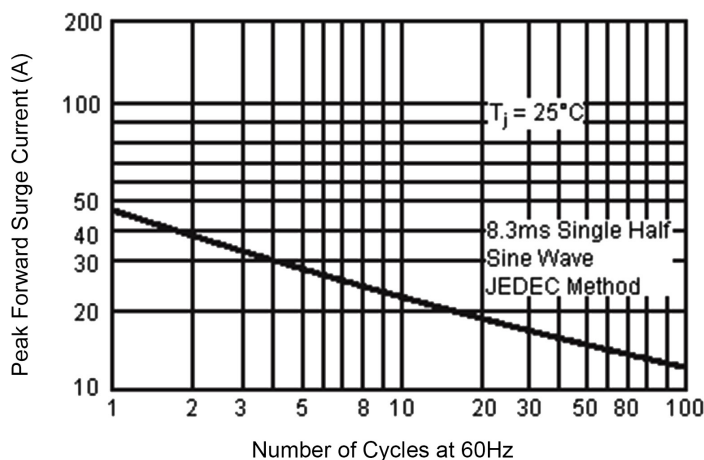
Maximum Forward Current Derating Curve



Typical Forward Characteristics



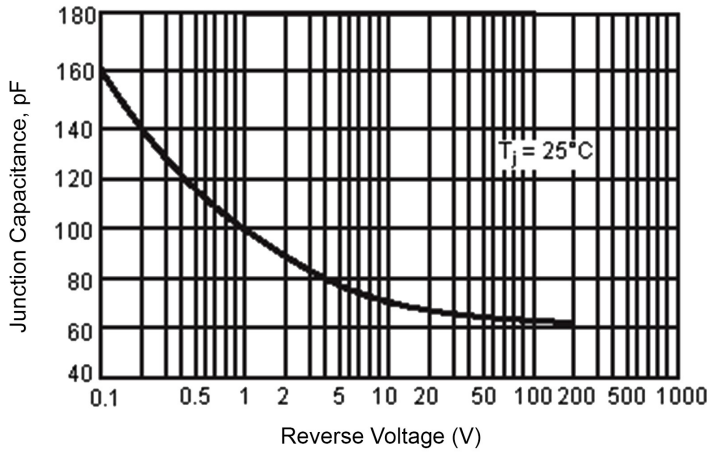
Maximum Non-Repetitive Forward Surge Current



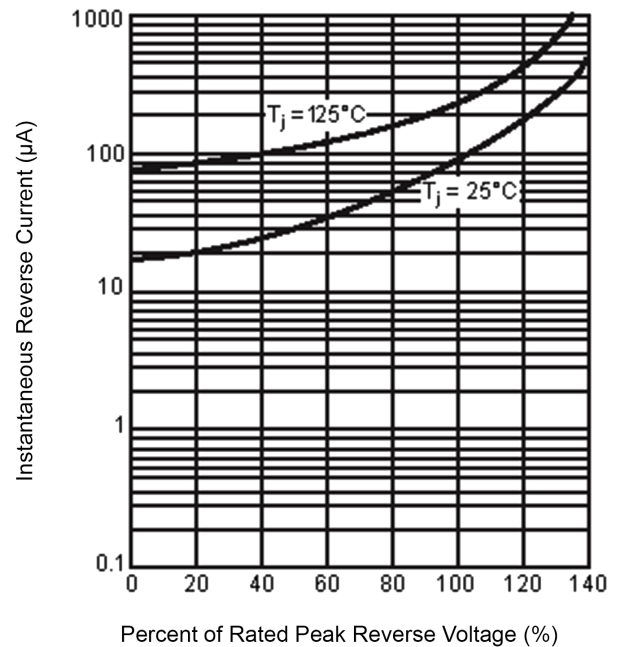
# Diode Ultra Fast



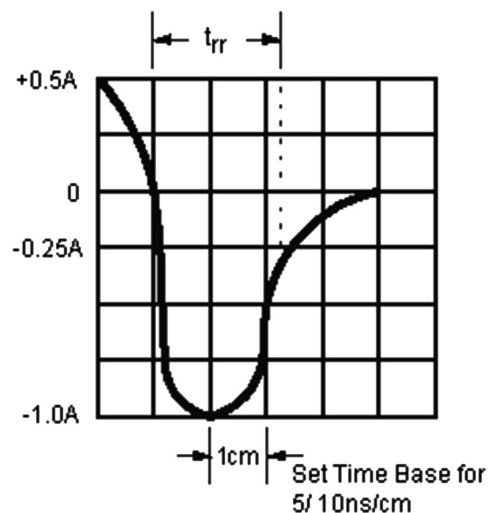
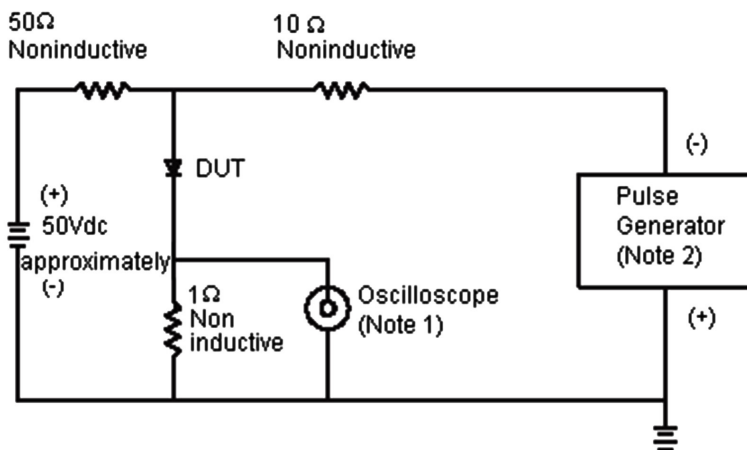
Typical Junction Capacitance



Typical Reverse Characteristics



Reverse Recovery Time Characteristic and Test Circuit Diagram



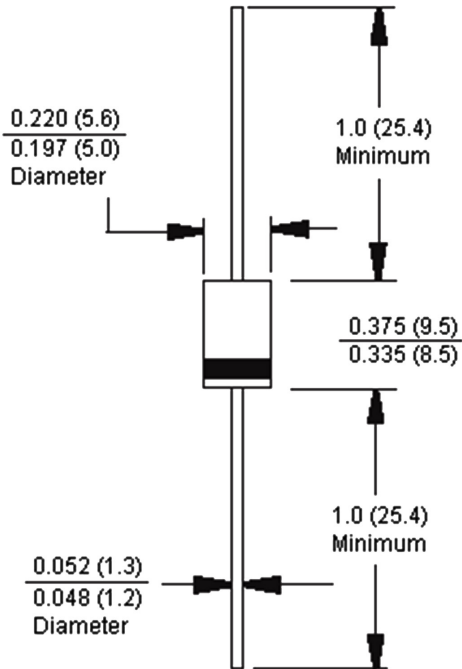
Note: 1. Rise Time = 7ns Maximum. Input Impedance = 1MΩ 22pf  
 Note: 2. Rise Time = 10ns Maximum Source Impedance = 50Ω



# 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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