# Ultra Fast Diode

RoHS Compliant

## Features:

- High efficiency, low VF
- High current capability
- High reliability
- High surge current capability
- Low power loss
- For use in low voltage, high frequency inventor, free wheeling, and polarity protection application

## 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 inch, (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%.

| Parameters | Symbol | SF32 | SF34 | SF36 | SF37 | SF38 | Units |
|---|---|---|---|---|---|---|---|
| Maximum Recurrent Peak Reverse Voltage | $V_{RRM}$ | 100 | 200 | 400 | 500 | 600 | V |
| Maximum RMS Voltage | $V_{RMS}$ | 70 | 140 | 280 | 350 | 420 | |
| Maximum DC Blocking Voltage | $V_{DC}$ | 100 | 200 | 400 | 500 | 600 | |
| Maximum Average Forward Rectified Current 0.375 inch (9.5mm) Lead Length at $T_A$ = 55°C | $I_{(AV)}$ | 3 | | | | | A |
| Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method ) | $I_{FSM}$ | 125 | | | | | |
| Maximum Instantaneous Forward Voltage at 3A | $V_F$ | 0.95 | | 1.3 | | 1.7 | V |

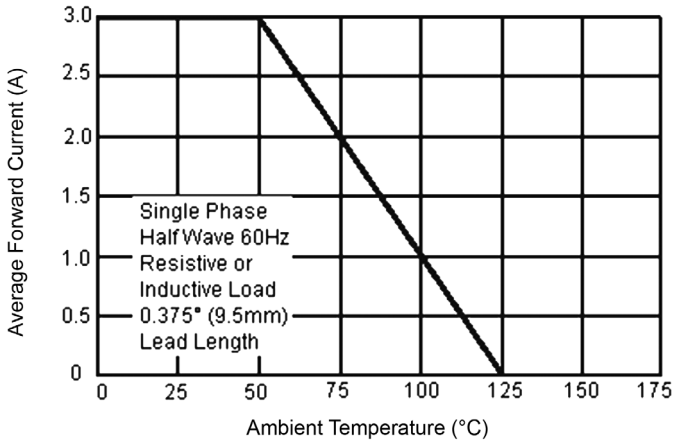
| Parameters | Symbol | SF32 | SF34 | SF36 | SF37 | SF38 | Units |
|---|---|---|---|---|---|---|---|
| Maximum DC Reverse Current at $T_A$ = 25°C<br>at Rated DC Blocking Voltage at $T_A$ = 100°C | $I_R$ | 5<br>100 | | | | | µA<br>µA |
| Maximum Reverse Recovery Time (Note 1) | $T_{rr}$ | 35 | | | | | nS |
| Typical Junction Capacitance (Note 2) | $C_j$ | 80 | | 70 | | | pF |
| Typical Thermal Resistance | $R_{\theta JA}$ | 35 | | | | | °C/W |
| Operating Temperature Range | $T_J$ | -65 to +125 | | | | | °C |
| Storage Temperature Range | $T_{STG}$ | -65 to +150 | | | | | |

**Notes**

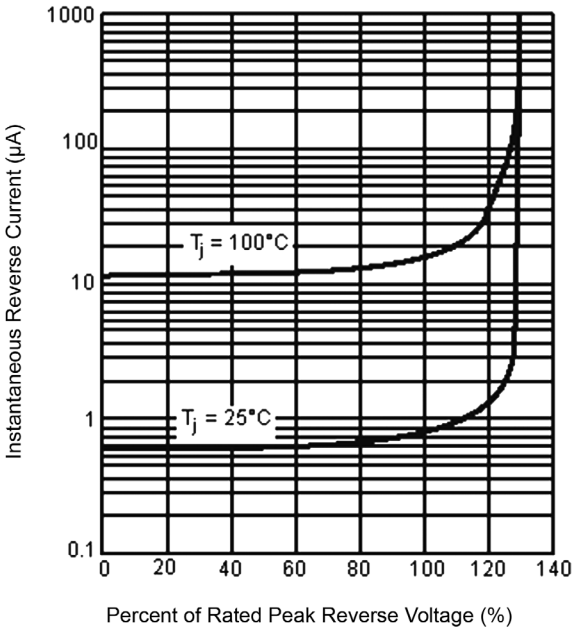
1. Reverse Recovery Test Conditions: $I_F$ = 0.5A, $I_R$ = 1A, $I_{RR}$ = 0.25A.
2. Measured at 1MHz and Applied Reverse Voltage of 4V DC.
3. Mount on Cu-Pad Size 16mm × 16mm on PCB.

## Ratings and Characteristic Curves

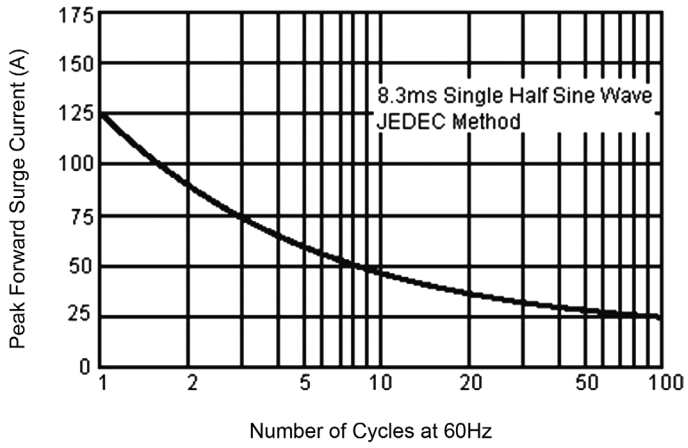
**Maximum Forward Current Derating Curve**



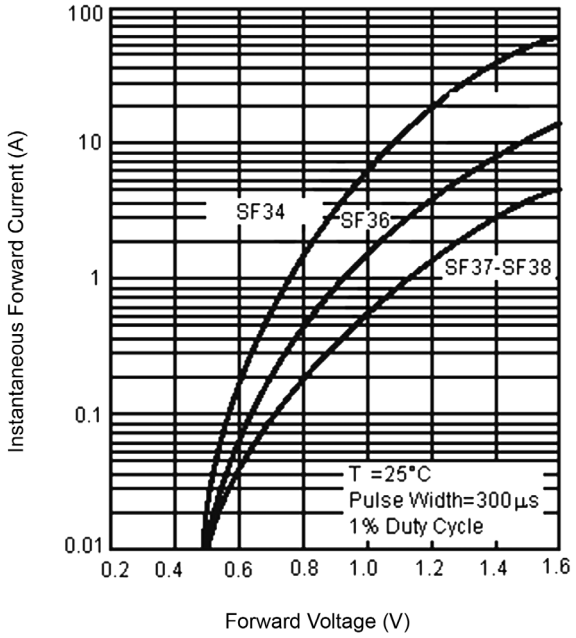

**Typical Reverse Characteristics**



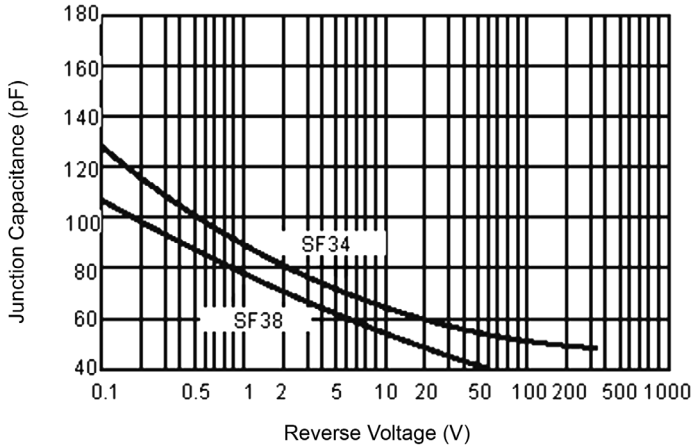
**Maximum Non-Repetitive Forward Surge Current**



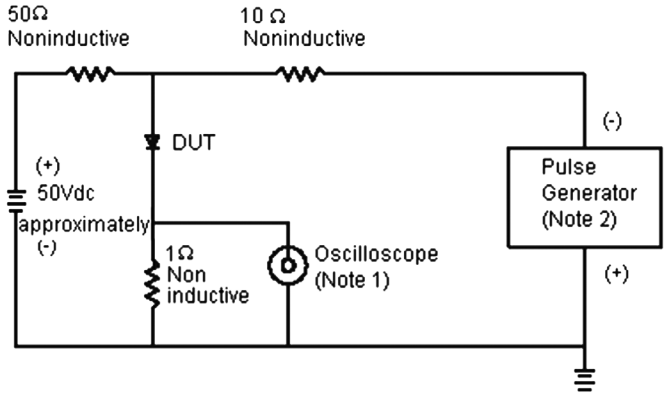

**Typical Forward Characteristics**

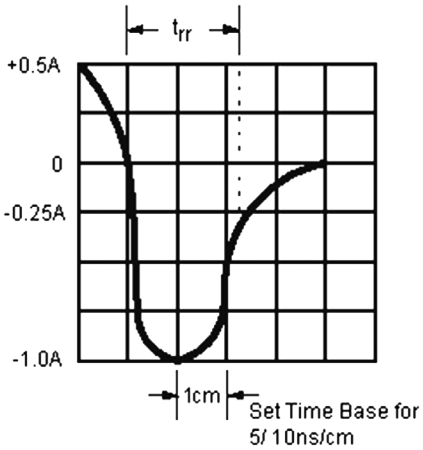



**Typical Junction Capacitance**



### Reverse Recovery Time Characteristic and Test Circuit Diagram

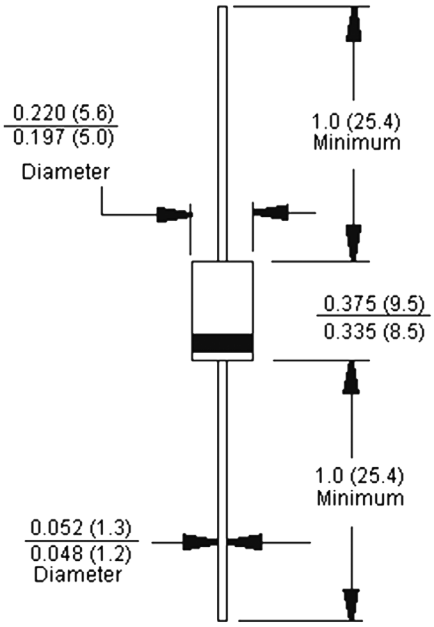



**Notes:**

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

### DO-201AD




Dimensions : Inches (Millimetres)

### Part Number Table

| Description | Part Number |
|---|---|
| Diode, Ultra-Fast, 3A, 100V | SF32 |
| Diode, Ultra-Fast, 3A, 200V | SF34 |
| Diode, Ultra-Fast, 3A, 400V | SF36 |
| Diode, Ultra-Fast, 3A, 500V | SF37 |
| Diode, Ultra-Fast, 3A, 600V | SF38 |