

# 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 inverter, 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 $T_A = 55^\circ\text{C}$ | $I_{(AV)}$ | 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     |



# Ultra Fast Diode

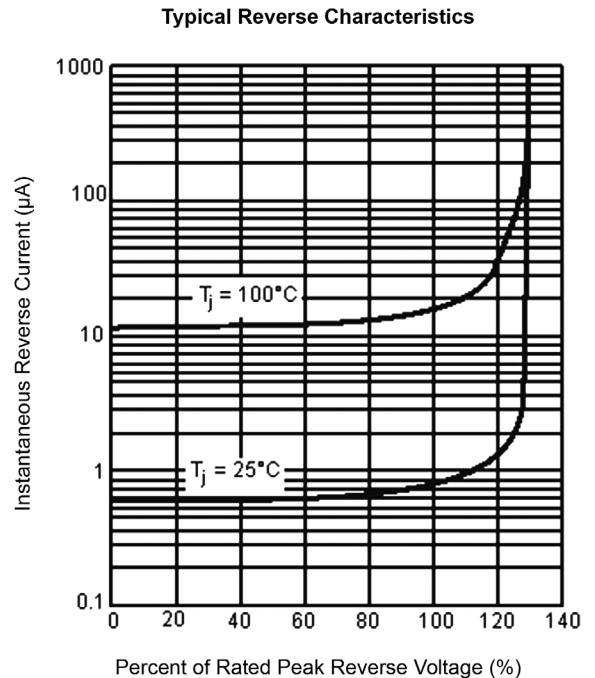
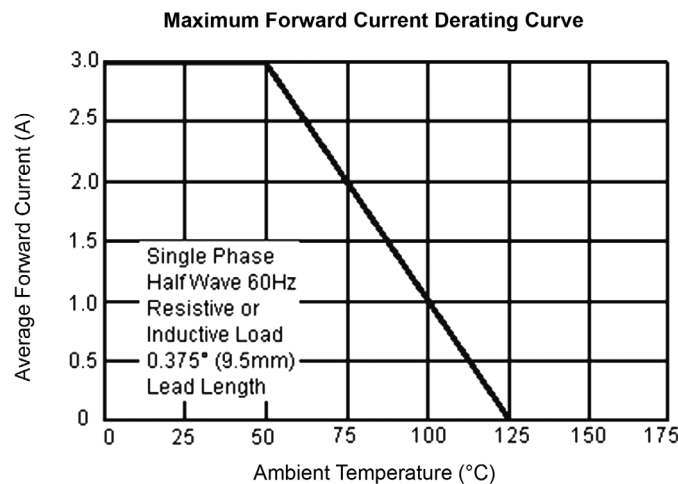


| Parameters  | Symbol          | SF32 | SF34 | SF36        | SF37 | SF38 | Units                          |
|---|-----------------|------|------|-------------|------|------|--------------------------------|
| Maximum DC Reverse Current at $T_A = 25^\circ\text{C}$<br>at Rated DC Blocking Voltage at $T_A = 100^\circ\text{C}$ | $I_R$           |      |      | 5<br>100    |      |      | $\mu\text{A}$<br>$\mu\text{A}$ |
| 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          |      |      | $^\circ\text{C}/\text{W}$      |
| Operating Temperature Range   | $T_J$           |      |      | -65 to +125 |      |      | $^\circ\text{C}$               |
| Storage Temperature Range   | $T_{STG}$       |      |      | -65 to +150 |      |      |                                |

## Notes

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

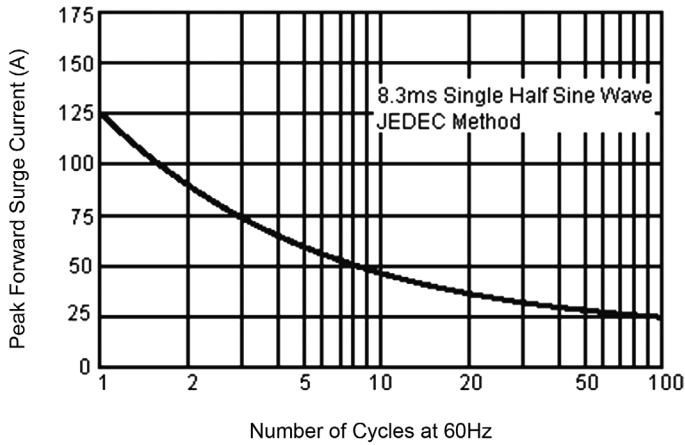
## Ratings and Characteristic Curves



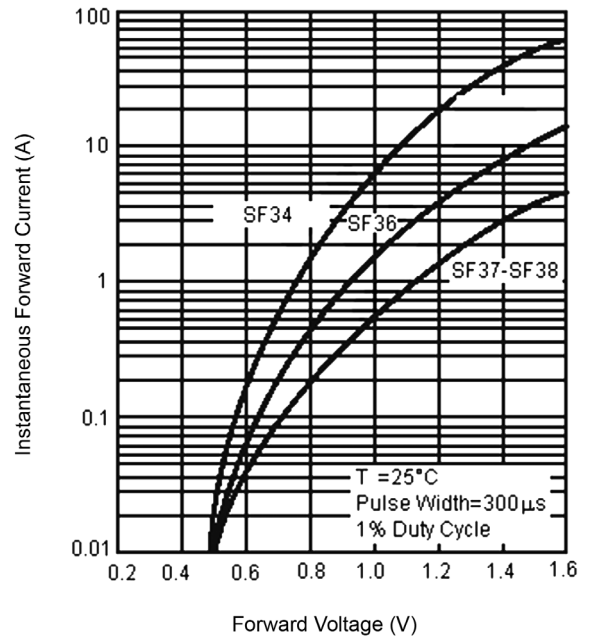
# Ultra Fast Diode



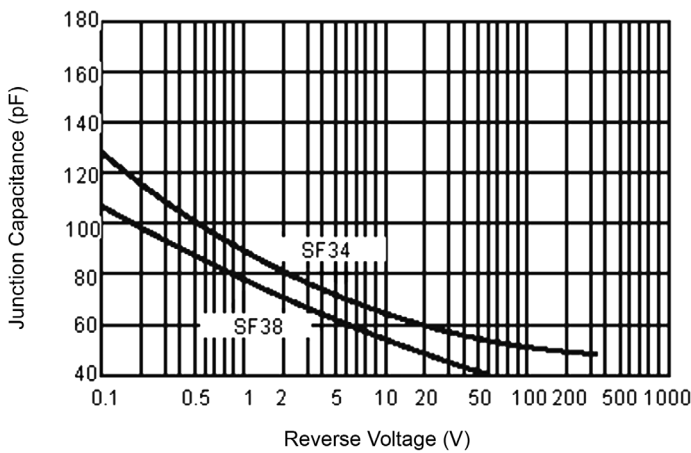
Maximum Non-Repetitive Forward Surge Current



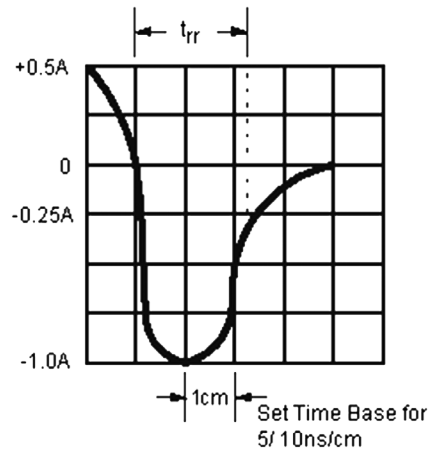
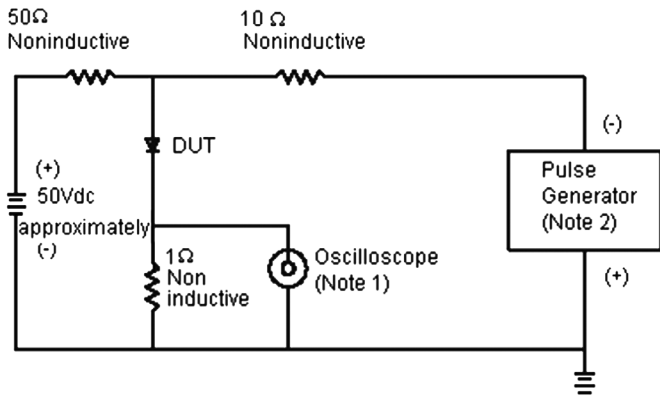
Typical Forward Characteristics



Typical Junction Capacitance



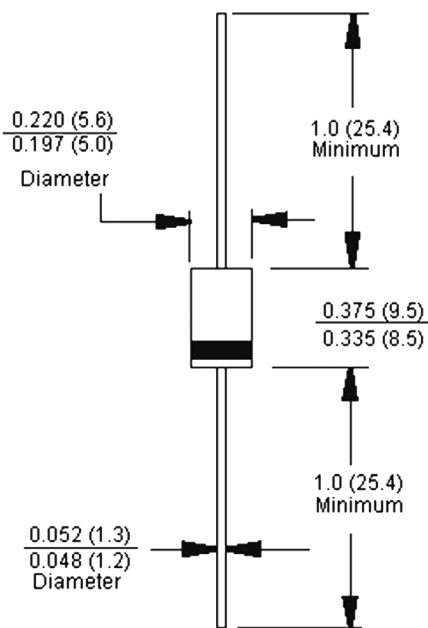
## Reverse Recovery Time Characteristic and Test Circuit Diagram



### 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        |

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