

# Ultra Fast Diode



RoHS  
Compliant



## Features:

- Glass passivated chip junction
- High efficiency, low  $V_F$
- High current capability
- High reliability
- High surge current capability
- 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	: 0.34g

## 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	SF12	SF13	SF15	SF16	SF18	Units
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	100	150	300	400	600	V
Maximum RMS Voltage	$V_{RMS}$	70	105	210	280	420	
Maximum DC Blocking Voltage	$V_{DC}$	100	150	300	400	600	
Maximum Average Forward Rectified Current 0.375 inch (9.5mm) Lead Length at $T_A = 55^\circ\text{C}$	$I_{(AV)}$	1					A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method )	$I_{FSM}$	30					

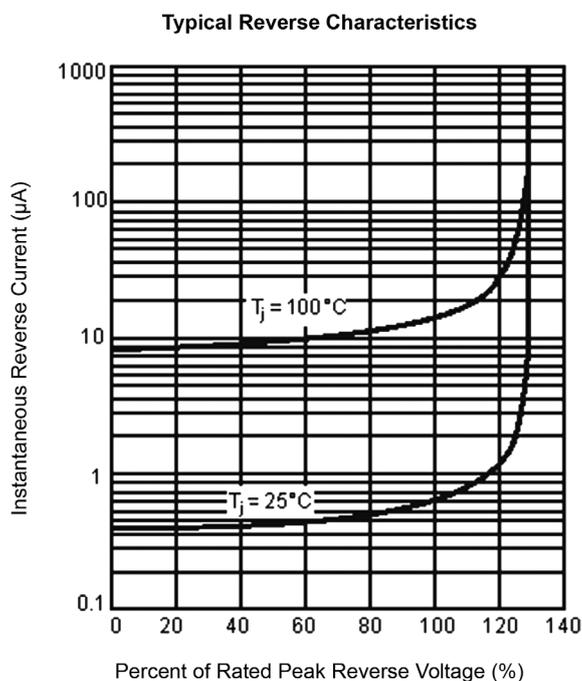
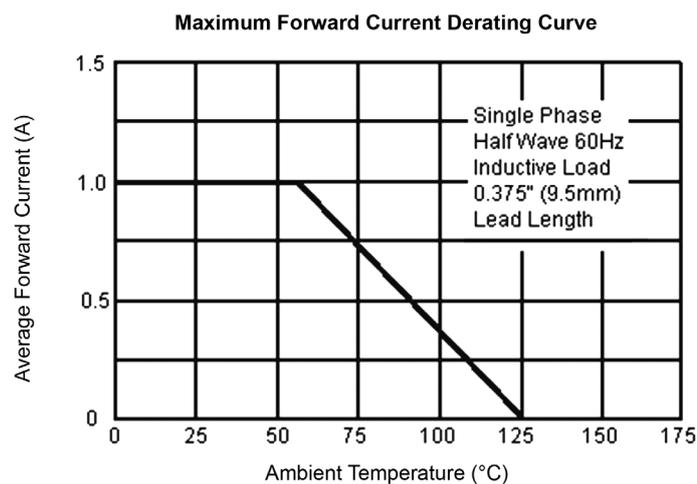


Parameters	Symbol	SF12	SF13	SF15	SF16	SF18	Units
Maximum Instantaneous Forward Voltage at 1A	$V_F$	0.95		1.3		1.7	V
Maximum DC Reverse Current at $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage at $T_A = 100^\circ\text{C}$	$I_R$	5 100					$\mu\text{A}$ $\mu\text{A}$
Maximum Reverse Recovery Time (Note 1)	$T_{rr}$	35					nS
Typical Junction Capacitance (Note 2)	$C_j$	30	15				pF
Typical Thermal Resistance	$R_{\theta JA}$	70					$^\circ\text{C}/\text{W}$
Operating Temperature Range	$T_J$	-65 to +125					$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to +150					

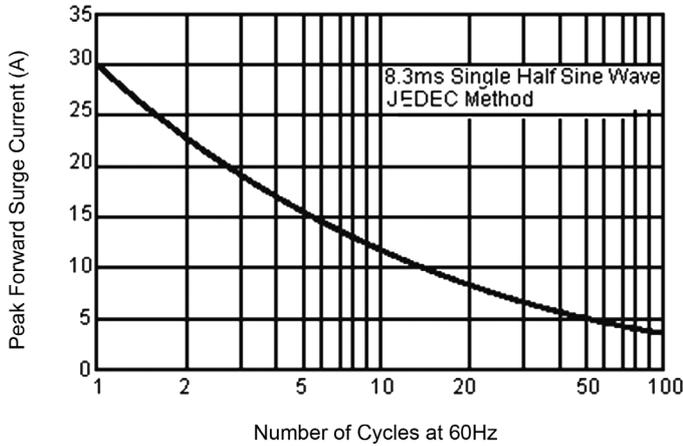
## Notes

- 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 5mm × 5mm on PCB.

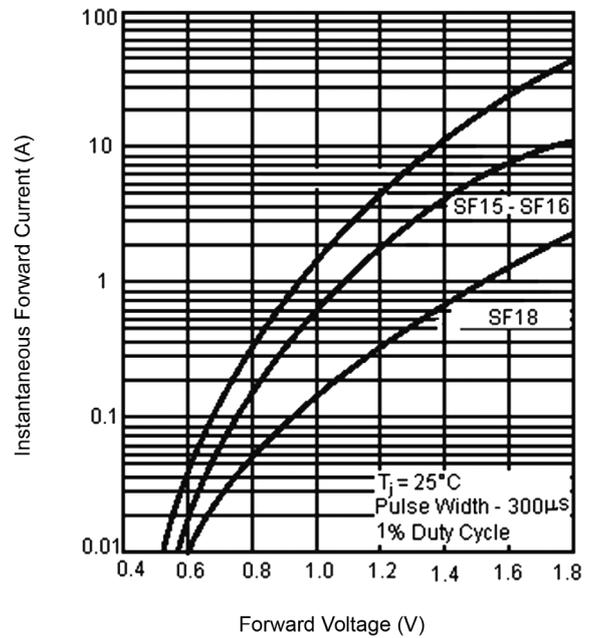
## Ratings and Characteristic Curves



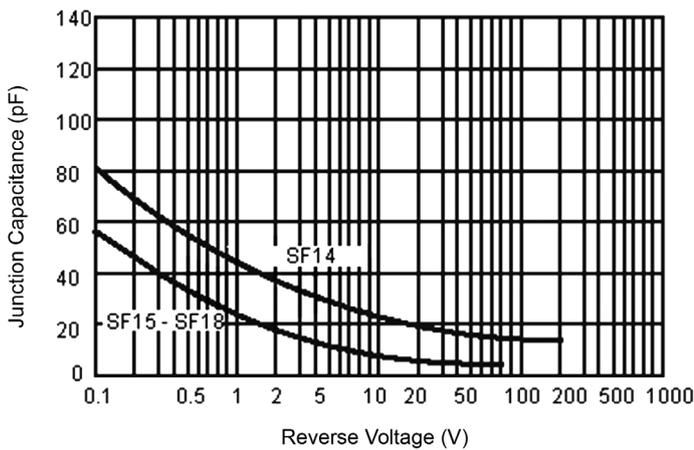
Maximum Non-Repetitive Forward Surge Current



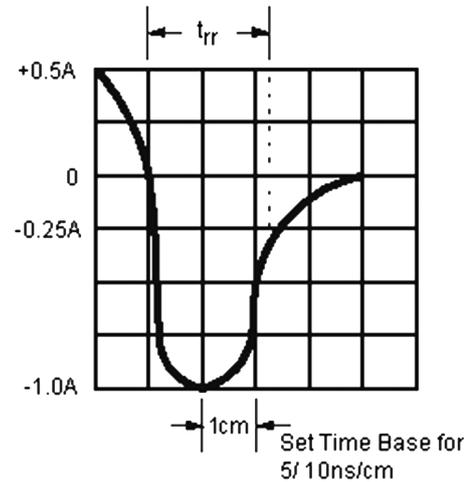
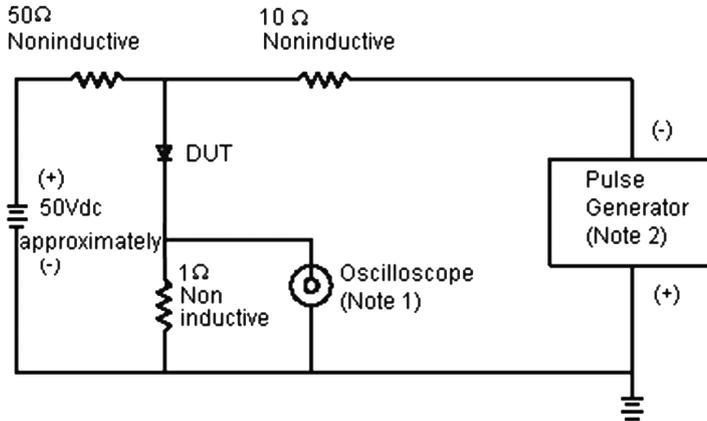
Typical Forward Characteristics



Typical Junction Capacitance



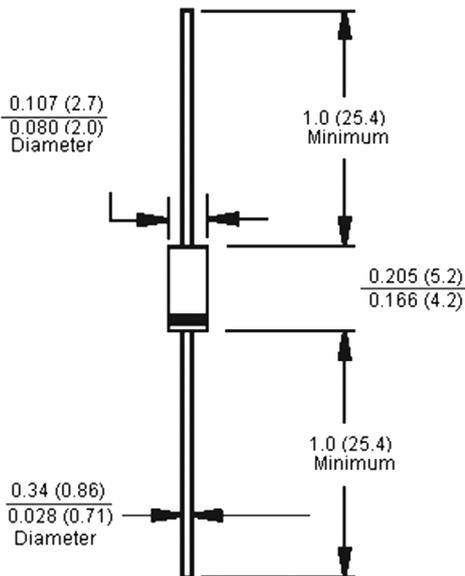
## Reverse Recovery Time Characteristic and Test Circuit Diagram



### Notes:

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

### DO-41



Dimensions : Inches (Millimetres)

### Part Number Table

Description	Part Number
Diode, Ultra-Fast, 1A, 100V	SF12
Diode, Ultra-Fast, 1A, 150V	SF13
Diode, Ultra-Fast, 1A, 300V	SF15
Diode, Ultra-Fast, 1A, 400V	SF16
Diode, Ultra-Fast, 1A, 600V	SF18

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