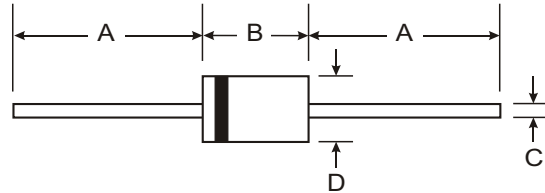# UF3001 - UF3007

3.0A ULTRA-FAST RECTIFIER

Features

- Diffused Junction
- Ultra-Fast Switching for High Efficiency
- High Current Capability and Low Forward Voltage Drop
- Surge Overload Rating to 150A Peak
- Low Reverse Leakage Current
- Plastic Material: UL Flammability Classification Rating 94V-0

Mechanical Data

- Case: Molded Plastic
- Terminals: Plated Leads Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band
- Marking: Type Number
- Weight: 1.1 grams (approx.)
- Mounting Position: Any

DO-201AD		
Dim	**Min**	**Max**
A	25.40	—
B	7.20	9.50
C	1.20	1.30
D	4.80	5.30
All Dimensions in mm		

Maximum Ratings and Electrical Characteristics @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	UF 3001	UF 3002	UF 3003	UF 3004	UF 3005	UF 3006	UF 3007	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current (Note 1) @ T_A = 55°C	I_O	3.0							A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	150							A
Forward Voltage @ I_F = 3.0A	V_{FM}	1.0			1.3		1.7		V
Peak Reverse Current @ T_A = 25°C at Rated DC Blocking Voltage @ T_A = 100°C	I_{RM}	5.0 100							μA
Reverse Recovery Time (Note 3)	t_{rr}	50				75			ns
Typical Junction Capacitance (Note 2)	C_j	75				50			pF
Typical Thermal Resistance Junction to Ambient	$R_{\theta JA}$	35							K/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150							°C

Notes: 1. Valid provided that leads are maintained at ambient temperature at a distance of 9.5mm from the case.
2. Measured at 1.0MHz and Applied Reverse Voltage of 4.0V DC.
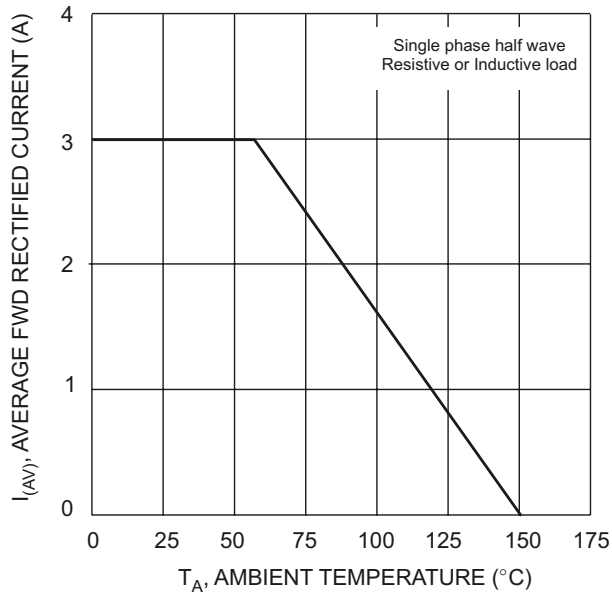3. Measured with I_F = 0.5A, I_R = 1.0A, I_{rr} = 0.25A. See Figure 5.

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Fig. 1 Forward Current Derating Curve

Single phase half wave
Resistive or Inductive load
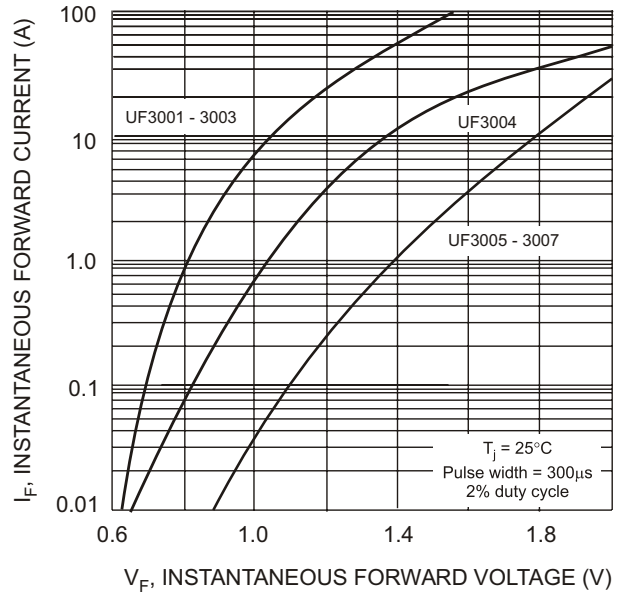
Fig. 2 Typical Forward Characteristics

UF3001 - 3003

UF3004

UF3005 - 3007

$T_j = 25°C$
Pulse width = $300\mu s$
2% duty cycle

Fig. 3 Peak Forward Surge Current

8.3ms single half
sine-wave

Fig. 4 Typical Junction Capacitance

UF3001 - 3004

UF3005 - 3007

50Ω NI (Non-inductive) 10Ω NI

Device
Under
Test

(-)

(+)

50V DC
Approx

(-)

Pulse
Generator
(Note 2)

1.0Ω
NI

Oscilloscope
(Note 1)

(+)
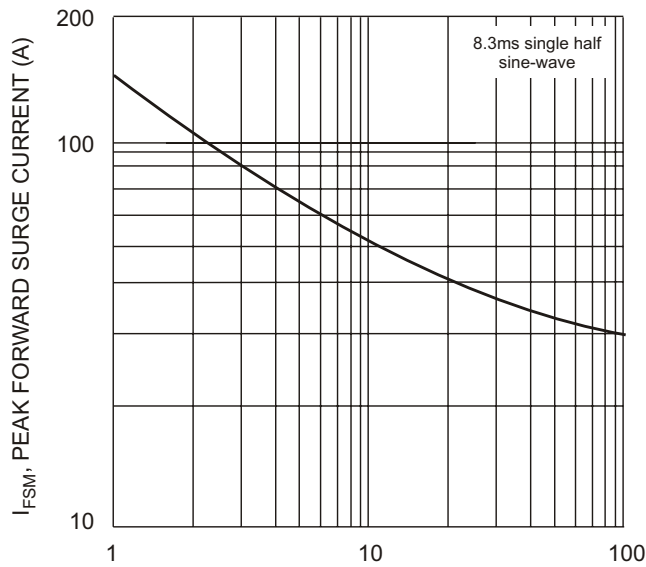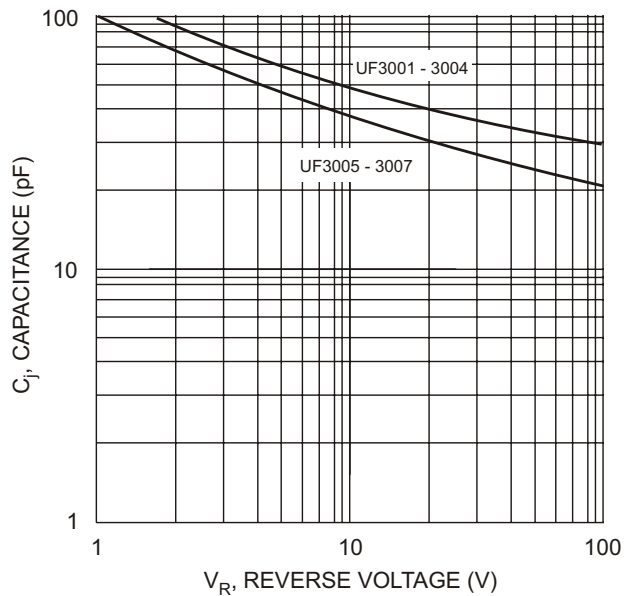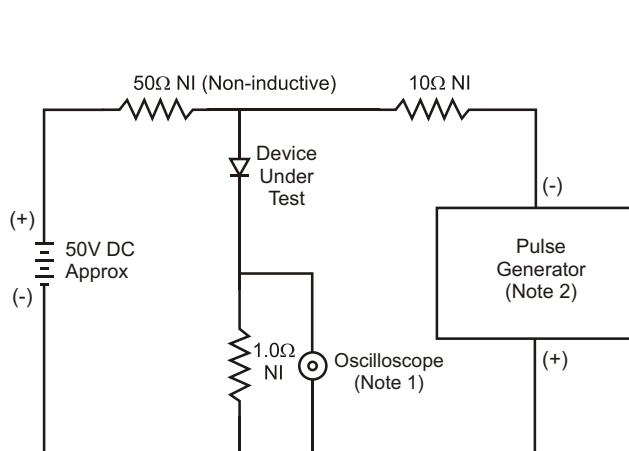
Notes:
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.
2. Rise Time = 10ns max. Input Impedance = 50Ω.

t_{rr}

+0.5A

0A

-0.25A

-1.0A
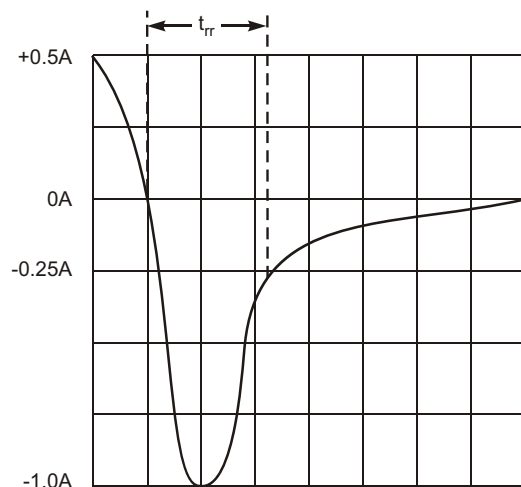
Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit