



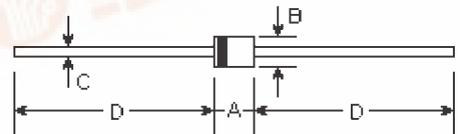
# FR251 THRU FR257

**FAST RECOVERY RECTIFIER**  
**Reverse Voltage - 50 to 1000 Volts**  
**Forward Current - 2.5 Amperes**

## Features

- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Fast switching for high efficiency
- Construction utilizes void-free molded plastic technique
- 2.5 ampere operation at  $T_A=85^\circ\text{C}$  with no thermal runaway
- High temperature soldering guaranteed:  $250^\circ\text{C}/10$  seconds, 0.375" (9.5mm) lead length, 5 lbs. (2.3kg) tension

## R-3



## Mechanical Data

- **Case:** R-3 molded plastic body
- **Terminals:** Plated axial leads, solderable per MIL-STD-750, method 2026
- **Polarity:** Color band denotes cathode end
- **Mounting Position:** Any
- **Weight:** 0.021 ounce, 0.60 gram

DIM	DIMENSIONS				Note
	inches		mm		
	Min.	Max.	Min.	Max.	
A	0.138	0.161	3.50	4.10	
B	0.138	0.161	3.50	4.10	φ
C	0.040	0.043	1.00	1.10	φ
D	1.000	-	25.40	-	

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

	Symbols	FR251	FR252	FR253	FR254	FR255	FR256	FR257	FR257-STR	Units
Maximum repetitive peak reverse voltage	$V_{RRM}$	50	100	200	400	600	800	1000	1000	Volts
Maximum RMS voltage	$V_{RMS}$	35	70	140	280	420	560	700	700	Volts
Maximum DC blocking voltage	$V_{DC}$	50	100	200	400	600	800	1000	1000	Volts
Average forward rectified current at $T_A=85^\circ\text{C}$	$I_{(AV)}$	2.5								Amps
Peak forward surge current 8.3ms single half sine-wave (MIL-STD-750D 4066 method)	$I_{FSM}$	150.0								Amps
Maximum instantaneous forward voltage at $I_{FM}=2.5\text{A}$ , $T_A=25^\circ\text{C}$ (Note 3)	$V_F$	1.3								Volts
Maximum DC reverse current at rated DC blocking voltage $T_A=25^\circ\text{C}$ $T_A=55^\circ\text{C}$	$I_R$	10.0 150.0								μA
Maximum reverse recovery time (Note 1)	$T_{rr}$	150			250	500	250			nS
Typical junction capacitance (Note 2)	$C_J$	65.0								pF
Operating and storage temperature range	$T_J, T_{STG}$	-65 to +150								°C

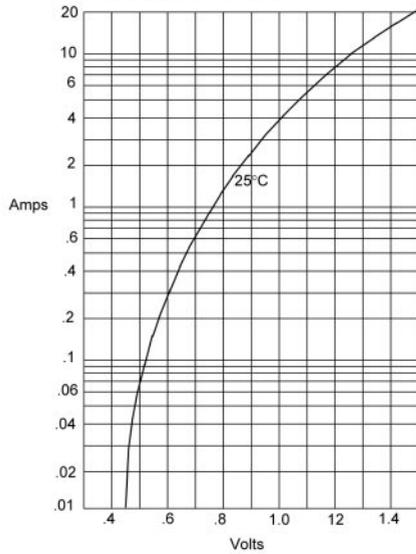
### Notes:

- (1) Reverse recovery test conditions:  $I_F=0.5\text{A}$ ,  $I_R=1.0\text{A}$ ,  $I_{rr}=0.25\text{A}$
- (2) Measured at 1.0MHz and applied reverse voltage of 4.0 volts
- (3) Pulse test: pulse width 300uSec, Duty cycle 1%



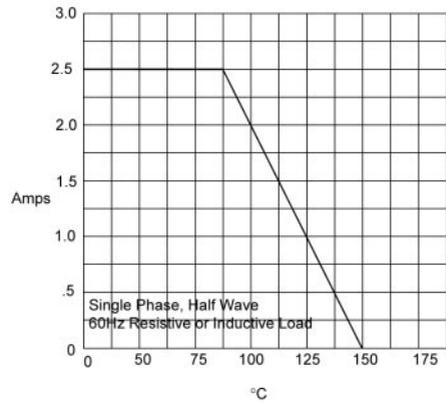
# RATINGS AND CHARACTERISTIC CURVES

Figure 1  
Typical Forward Characteristics



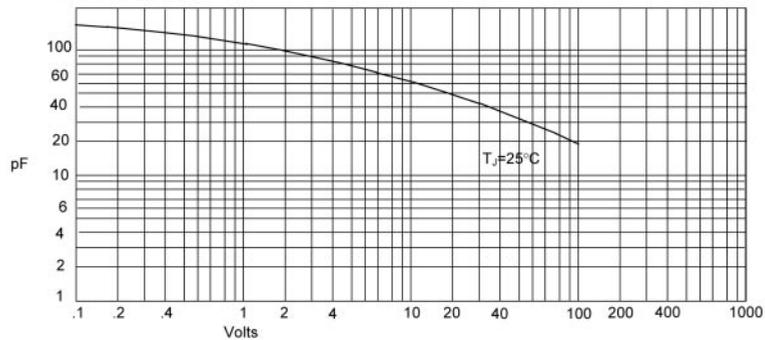
Instantaneous Forward Current - Amperes *versus*  
Instantaneous Forward Voltage - Volts

Figure 2  
Forward Derating Curve



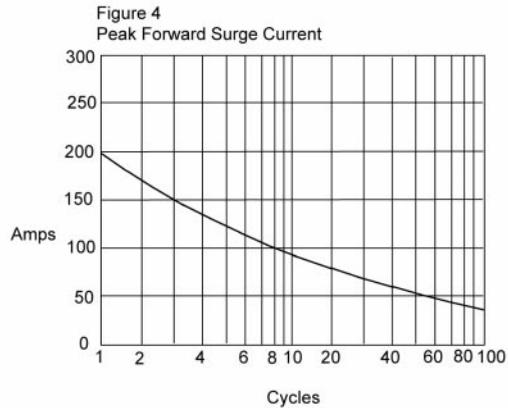
Average Forward Rectified Current - Amperes *versus*  
Ambient Temperature - °C

Figure 3  
Junction Capacitance



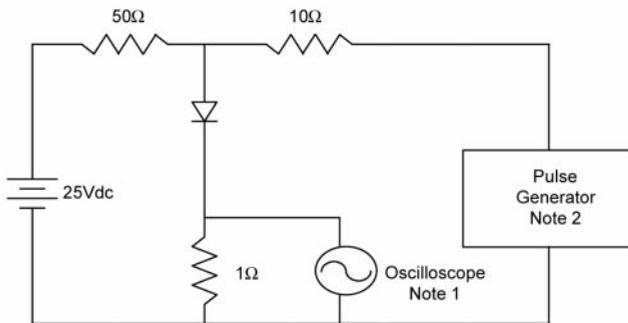
Junction Capacitance - pF *versus*  
Reverse Voltage - Volts

## RATINGS AND CHARACTERISTIC CURVES



Peak Forward Surge Current - Amperes versus  
Number Of Cycles At 60Hz - Cycles

Figure 5  
Reverse Recovery Time Characteristic And Test Circuit Diagram



- Notes:
1. Rise Time = 7ns max.  
Input impedance = 1 megohm, 22pF
  2. Rise Time = 10ns max.  
Source impedance = 50 ohms
  3. Resistors are non-inductive

