

# 1N5186-1N5190 RECTIFIERS 3 Amp, Fast Recovery

## ABSOLUTE MAXIMUM RATINGS

| Peak Inverse Voltage | Type   |
|----------------------|--------|
| 100V                 | 1N5186 |
| 200V                 | 1N5187 |
| 400V                 | 1N5188 |
| 600V                 | 1N5190 |

Maximum Average D.C. Output Current

①  $T_A = 25^\circ\text{C}$  ..... 3.0A  
②  $T_A = 150^\circ\text{C}$  ..... 0.7A

Non-Repetitive Sinusoidal

Surge Current (8.3ms) ..... 88A

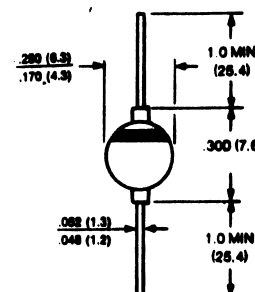
Operating Temperature Range .....  $-65^\circ\text{C}$  to  $+175^\circ\text{C}$

Storage Temperature Range .....  $-65^\circ\text{C}$  to  $+200^\circ\text{C}$

Thermal Resistance ..... See Lead Temperature Derating Curve

## MECHANICAL SPECIFICATIONS

|                                   |
|-----------------------------------|
| VOLTAGE RANGE<br>50 to 1000 Volts |
| CURRENT<br>3.0 Amperes            |



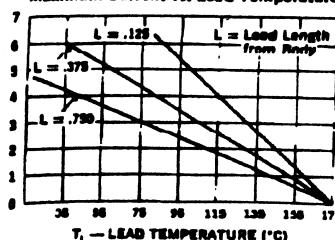
## ELECTRICAL SPECIFICATIONS (at $25^\circ\text{C}$ unless noted)

| Type   | Peak Inverse Voltage | Minimum Reverse Breakdown Voltage @ 100 $\mu\text{A}$ | Peak Forward Voltage        |      | Maximum Reverse D.C. Current @ PIV |                     |
|--------|----------------------|-------------------------------------------------------|-----------------------------|------|------------------------------------|---------------------|
|        |                      |                                                       | Min.                        | Max. | $25^\circ\text{C}$                 | $100^\circ\text{C}$ |
| 1N5186 | 100V                 | 120V                                                  | 0.9V<br>@ 9A(pk)<br>(8.3ms) | 1.5V | 2 $\mu\text{A}$                    | 100 $\mu\text{A}$   |
| 1N5187 | 200V                 | 240V                                                  |                             |      |                                    |                     |
| 1N5188 | 400V                 | 480V                                                  |                             |      |                                    |                     |
| 1N5190 | 600V                 | 660V                                                  |                             |      |                                    |                     |

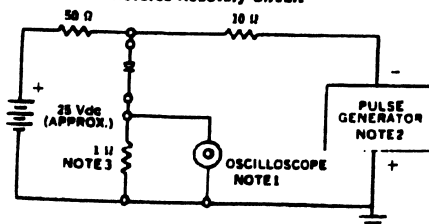
| Type   | Reverse Recovery Time* | Capacitance<br>@ $V_R = 0\text{V}$<br>$f = 1\text{MHz}$ | Capacitance<br>@ $V_R = 4\text{V}$<br>$f = 1\text{MHz}$ |
|--------|------------------------|---------------------------------------------------------|---------------------------------------------------------|
| 1N5186 | 150ns                  | 300pf                                                   | 200pf                                                   |
| 1N5187 | 200ns                  | 300pf                                                   | 170pf                                                   |
| 1N5188 | 250ns                  | 230pf                                                   | 120pf                                                   |
| 1N5190 | 400ns                  | 180pf                                                   | 90pf                                                    |

\*Recovery time measured from  $I_R = 0.5\text{A}$  to  $I_R = 1.0\text{A}$ ,  $I_{\text{ASC}} = 0.25\text{A}$

Maximum Current vs. Lead Temperature

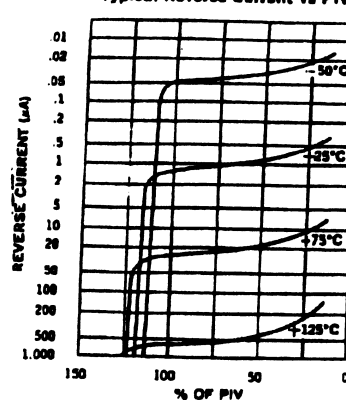


Reverse-Recovery Circuit

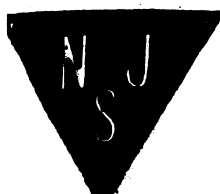
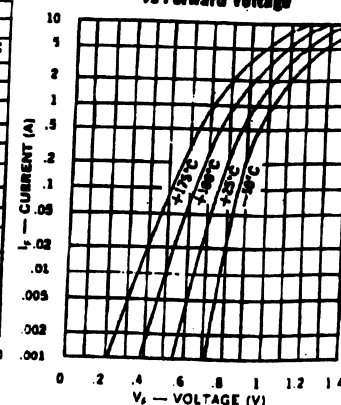


NOTES:  
1. Oscilloscope: Rise time  $\leq 3\text{ns}$ ; input impedance = 50 $\Omega$ .  
2. Pulse Generator: Rise time  $\leq 8\text{ns}$ ; source impedance 10 $\Omega$ .  
3. Current viewing resistor, non-inductive, coaxial recommended.

Typical Reverse Current vs PIV



Typical Forward Current vs Forward Voltage



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.