

*New Jersey Semi-Conductor Products, Inc.*

20 STERN AVE.  
 SPRINGFIELD, NEW JERSEY 07081  
 U.S.A.

TELEPHONE: (201) 376-2922  
 (212) 227-6005  
 TELFX: 13-8720

**1N3062 • 1N3063 • 1N3064 • 1N4305 • 1N4454**  
**ULTRA FAST LOW CAPACITANCE**  
 DIFFUSED SILICON PLANAR\* DIODES

- C ... 2.0 pF @  $V_R = 0$ ,  $f = 1.0$  MHz
- $t_{rr}$  ... 4.0 ns @  $I_f = 10$  mA,  $R_f = 10$  mA,  $V_f = 1.0$  V
- BV ... 75 V (MIN)

**ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ\text{C}$ ) (Note 1)**

| Maximum Temperatures                     | 1N3062<br>1N3063 | 1N3064          | 1N4454          | 1N4305          |
|--|------------------|-----------------|-----------------|-----------------|
| Storage Temperature                      | -65°C to +200°C  | -65°C to +175°C | -65°C to +175°C | -65°C to +200°C |
| Operating Temperature                    | -65°C to +175°C  | -65°C to +150°C | -65°C to +150°C |                 |
| <b>Maximum Power Dissipation</b>         |                  |                 |                 |                 |
| Total Dissipation                        | 250 mW           | 250 mW          | 500 mW          | 500 mW          |
| Linear Derating Factor                   | 1.67 mW/°C       | 2.0 mW/°C       | 4.0 mW/°C       | 2.85 mW/°C      |
| <b>Maximum Voltages and Currents</b>     |                  |                 |                 |                 |
| WIV Working Inverse Voltage              | 50 V             | 50 V            | 40 V            | 75 V            |
| $I_O$ Average Rectified Current          | 75 mA            | 75 mA           | 200 mA          |                 |
| $I_F$ Forward Current Steady State dc    | 115 mA           | 115 mA          | 400 mA          |                 |
| $i_f$ Recurrent Peak Forward Current     | 225 mA           | 225 mA          | 600 mA          |                 |
| $i_f$ (surge) Peak Forward Surge Current |                  |                 |                 |                 |
| Pulse Width = 1.0 s                      | 500 mA           | 500 mA          | 1.0 A           |                 |
| Pulse Width = 1.0 $\mu$ s                | 2.0 A            | 2.0 A           | 4.0 A           |                 |

**ELECTRICAL CHARACTERISTICS ( $25^\circ\text{C}$  Ambient Temperature unless otherwise noted)**

| SYMBOL                      | CHARACTERISTIC                          | MIN.                       | MAX.        | UNITS            | TEST CONDITIONS                         |  |                                      |     |               |                            |  |                           |                            |     |       |
|-----------------------------|---|----------------------------|-------------|------------------|---|--|--------------------------------------|-----|---------------|----------------------------|--|---------------------------|----------------------------|-----|-------|
| $V_F$                       | Forward Voltage                         | 1N3062<br>1N3063<br>1N4305 | 0.700       | 1.0              | V                                       | $I_F = 20$ mA                                      |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   |                            |             | 0.850            | V                                       | $I_F = 10$ mA                                      |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   |                            |             | 0.610            | V                                       | $I_F = 2.0$ mA                                     |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   | 1N3064<br>1N4454           | 0.550       | 0.650            | V                                       | $I_F = 1.0$ mA                                     |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   |                            |             | 0.505            | V                                       | $I_F = 250$ $\mu$ A                                |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   |                            |             | 1.0              | V                                       | $I_F = 10$ mA                                      |                                      |     |               |                            |  |                           |                            |     |       |
| $I_R$                       | Reverse Current                         |                            | 0.1         | $\mu$ A          | $V_R = 50$ V                            |  |                                      |     |               |                            |  |                           |                            |     |       |
| $I_R$                       | Reverse Current                         |                            | 100         | $\mu$ A          | $V_R = 50$ V, $T_A = 150^\circ\text{C}$ |  |                                      |     |               |                            |  |                           |                            |     |       |
| BV                          | Breakdown Voltage                       | 75                         |             | V                | $I_R = 5.0$ $\mu$ A                     |  |                                      |     |               |                            |  |                           |                            |     |       |
| $t_{rr}$                    | Reverse Recovery Time                   | 1N4305<br>1N3062           | 2.0         | ns               |   | $I_f = 10$ mA, $V_f = 6.0$ V, $R_L = 100$ $\Omega$ |                                      |     |               |                            |  |                           |                            |     |       |
|                             |   |                            |             |                  |   |  | 1N3063<br>1N3064<br>1N4454<br>1N4305 | 4.0 | ns            |                            | $I_f = I_r = 10$ mA, $R_L = 100$ $\Omega$ ,<br>$V_f = 1.0$ V |                           |                            |     |       |
|                             |   | C                          | Capacitance | 1N3062<br>1N3063 | 1.0                                     | pF   |                                      |     |               |                            |  | $V_R = 0$ , $f = 1.0$ MHz |                            |     |       |
|                             |   |                            |             |                  |   |  |                                      |     |               |                            |  |                           | 1N3064<br>1N4454<br>1N4305 | 2.0 | pF    |
|                             |   |                            |             | RE               | Rectification Efficiency                | 45   |                                      | %   | $f = 1.0$ MHz |                            |  |                           |                            |     |       |
| $\Delta V_F/^\circ\text{C}$ | Forward Voltage Temperature Coefficient |                            |             |                  |   |  |                                      |     |               | 1N3062<br>1N3063<br>1N3064 | 1.8  |                           | mV/°C                      |     |       |
|                             |   | 1N4454<br>1N4305           | 3.0         |                  |   |  |                                      |     |               |                            |  |                           |                            |     | mV/°C |