Features
LOW TURN-ON VOLTAGE: AS LOW AS 0.34V AT 1mA
PICO-SECOND SWITCHING SPEED
HIGH BREAKDOWN VOLTAGE: UP TO 70V
MATCHED CHARACTERISTICS AVAILABLE

Description/Applications
The 1N5711, 1N5712, 5082-2800/10/11 are passivated Schottky barrier diodes which use a patented "guard ring" design to achieve a high breakdown voltage. Packaged in a low cost glass package, they are well suited for high level detecting, mixing, switching, gating, log or A-D converting, video detecting, frequency discriminating, sampling and wave shaping.

The 5082-2835 is a passivated Schottky diode in a low cost glass package. It is optimized for low turn-on voltage. The 5082-2835 is particularly well suited for the UHF mixing needs of the CATV marketplace.

The 5082-2300 and 2900 Series devices are unpassivated Schottky diodes in a glass package. These diodes have extremely low 1/f noise and are ideal for low noise mixing, and high sensitivity detecting. They are particularly well suited for use in Doppler or narrow band video receivers.

Application Note 942 describes applications in which these diodes are used for speed up of a transistor, clipping, clamping, and sampling.

Maximum Ratings
Junction Operating and Storage Temperature Range
5082-2301, 2302, 2303, 2900 .............. -60°C to +100°C
1N5711, 1N5712, 5082-2800/10/11, .... -65°C to +120°C
5082-2835 ................................ -60°C to +160°C

DC Power Dissipation (Measured in an infinite heat sink at Tcase = 25°C):
5082-2835 ................................ 100 mW
1N5711, 1N5712, 5082-2800/10/11 .......... 250 mW
5082-2835 ................................ 160 mW

Peak Inverse Voltage ......................... VBR

Package Characteristics
Outline 15

Lead Material: Durnet
Lead Finish: 95-5% Tin Lead
Temperature: 260°C for 6 sec.
Minimum Lead: 4 lb. Pull
Strength:

Typical Package Inductance:
1N5711, 1N5712: 2.0 nH

2800 Series: 2.0 nH
2300, 2900
Series: 3.0 nH

Typical Package Capacitance:
1N5711, 1N5712: 0.2 pF

2800 Series: 0.2 pF
2300, 2900
Series: 0.07 pF

The leads on the Outline 15 package should be restricted so that the bend starts at least 1/16 inch from the glass body.

Outline 15 diodes are available on tapes and reels.
The tape and reel specification is patterned after RS-256-D.
### Electrical Specifications at $T_A = 25^\circ C$

**GENERAL PURPOSE DIODES**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package Outline</th>
<th>Minimum Breakdown Voltage $V_{BR}$ (V)</th>
<th>Maximum Forward Voltage $V_F$ (mV)</th>
<th>$V_F = 1$ V Max at Forward Current $I_F$ (mA)</th>
<th>Maximum Reverse Leakage Current at $V_R$ (mA)</th>
<th>Maximum Capacitance $C_T$ (pF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2800</td>
<td>15</td>
<td>70</td>
<td>410</td>
<td>15</td>
<td>200</td>
<td>2.0</td>
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<tr>
<td>1N5711</td>
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<td>70</td>
<td>410</td>
<td>15</td>
<td>200</td>
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<tr>
<td>2810</td>
<td>15</td>
<td>20</td>
<td>410</td>
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<td>15</td>
<td>410</td>
<td>20</td>
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<td>1.2</td>
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<tr>
<td>2835</td>
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<td>8</td>
<td>340</td>
<td>10†</td>
<td>100</td>
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</table>

**Test Conditions**

- $I_R = 10 \mu A$
- $I_F = 1 mA$
- $V_R = 0 V$
- $f = 1.0$ MHz

*Note: Effective Carriers Lifetime ($\tau$) for all these diodes is 100 ps maximum measured with Krakauer method at 5 mA except for 5082-2835 which is measured at 20 mA.*

### LOW 1/f (FLICKER) NOISE DIODES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package Outline</th>
<th>Minimum Breakdown Voltage $V_{BR}$ (V)</th>
<th>Maximum Forward Voltage $V_F$ (mV)</th>
<th>$V_F = 1$ V Max at Forward Current $I_F$ (mA)</th>
<th>Maximum Reverse Leakage Current at $V_R$ (mA)</th>
<th>Maximum Capacitance $C_T$ (pF)</th>
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<tbody>
<tr>
<td>2301</td>
<td>15</td>
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<td>400</td>
<td>20</td>
<td>500</td>
<td>1.0</td>
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<td>2302</td>
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<td>30</td>
<td>400</td>
<td>35</td>
<td>500</td>
<td>1.2</td>
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<td>2303</td>
<td>15</td>
<td>20</td>
<td>400</td>
<td>35</td>
<td>500</td>
<td>1.2</td>
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<tr>
<td>2300</td>
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<td>10</td>
<td>400</td>
<td>20</td>
<td>100</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**Test Conditions**

- $I_R = 10 \mu A$
- $I_F = 1 mA$
- $V_R = 0 V$
- $f = 1.0$ MHz

*Note: Effective Carriers Lifetime ($\tau$) for all these diodes is 100 ps maximum measured with Krakauer method at 20 mA.*

### Matched Pairs and Quads

<table>
<thead>
<tr>
<th>Basic Part Number</th>
<th>Matched Pair Unconnected</th>
<th>Matched Quad Encapsulated G-1 Outline</th>
<th>Matched Bridge Quad Encapsulated G-2 Outline</th>
<th>Matched Encapsulated</th>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2301</td>
<td>5082-2309</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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<td>2303</td>
<td>5082-2360</td>
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<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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<td>5082-2370</td>
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<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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<td>5082-2804</td>
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<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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<td>5082-2815</td>
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<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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<td>5082-2835</td>
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<td>$\Delta V_F = 20$ mV $\Delta C_T = 0.2$ pF</td>
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</tbody>
</table>
Typical Parameters

Figure 1. I-V Curve Showing Typical Temperature Variation for 5082-2300 and 5082-2500 Series Schottky Diodes.

Figure 2. 5082-2300 Series Typical Reverse Current vs. Reverse Voltage at Various Temperatures.

Figure 3. 5082-2300 Series and 5082-2500 Series Typical Dynamic Resistance (R_d) vs. Forward Current (I_f).

Figure 4. 5082-2300 and 5082-2500 Series Typical Capacitance vs. Reverse Voltage.

Figure 5. I-V Curve Showing Typical Temperature Variation for 5082-2800 or 1N5711 Schottky Diodes.

Figure 6. 5082-2600 or 1N5711 Typical Variation of Reverse Current (I_r) vs. Reverse Voltage (V_r) at Various Temperatures.