Small Signal Diode

**Absolute Maximum Ratings**

*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.\[T_a = 25^\circ\text{C} \text{ unless otherwise noted}\]

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{RRM}$</td>
<td>Maximum Repetitive Reverse Voltage</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>$I_{AV}$</td>
<td>Average Rectified Forward Current</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>Non-repetitive Peak Forward Surge Current</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Pulse Width = 1.0 second</td>
<td>4.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Pulse Width = 1.0 microsecond</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$T_{Stg}$</td>
<td>Storage Temperature Range</td>
<td>-65 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>$T_J$</td>
<td>Operating Junction Temperature</td>
<td>175</td>
<td>°C</td>
</tr>
</tbody>
</table>

**NOTES:**

1) These ratings are based on a maximum junction temperature of 200 degrees C.
2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

**Thermal Characteristics**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Characteristic</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_D$</td>
<td>Power Dissipation</td>
<td>500</td>
<td>mW</td>
</tr>
<tr>
<td>$R_{JA}$</td>
<td>Thermal Resistance, Junction to Ambient</td>
<td>300</td>
<td>°C/W</td>
</tr>
</tbody>
</table>
### Small Signal Diode

**Electrical Characteristics**  \( T_a = 25^\circ C \) unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>( V_R )</td>
<td>Breakdown Voltage</td>
<td>( I_R = 100 \mu A ) ( I_R = 5.0 \mu A )</td>
<td>100</td>
<td>75</td>
<td>V</td>
</tr>
<tr>
<td>( V_F )</td>
<td>Forward Voltage</td>
<td>\begin{tabular}{l} ( I_F = 5.0 , mA ) ( I_F = 5.0 , mA ) \ ( I_F = 10 , mA ) ( I_F = 10 , mA ) \ ( I_F = 20 , mA ) ( I_F = 20 , mA ) \ ( I_F = 100 , mA ) ( I_F = 100 , mA ) \end{tabular}</td>
<td>620</td>
<td>720</td>
<td>mV</td>
</tr>
<tr>
<td>( I_R )</td>
<td>Reverse Current</td>
<td>\begin{tabular}{l} ( V_R = 20 , V ) ( V_R = 20 , V, , T_a = 150^\circ C ) \ ( V_R = 75 , V ) \end{tabular}</td>
<td>25</td>
<td>50</td>
<td>nA</td>
</tr>
<tr>
<td>( C_T )</td>
<td>Total Capacitance</td>
<td>\begin{tabular}{l} ( V_R = 0, , f = 1.0 , MHz ) \ ( V_R = 0, , f = 1.0 , MHz ) \end{tabular}</td>
<td>2.0</td>
<td>4.0</td>
<td>pF</td>
</tr>
<tr>
<td>( t_{rr} )</td>
<td>Reverse Recovery Time</td>
<td>\begin{tabular}{l} ( I_F = 10 , mA, , V_R = 6.0 , V (60 , mA), , I_R = 1.0 , mA, , R_L = 100 \Omega ) \end{tabular}</td>
<td>4.0</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>

### Typical Characteristics

**Figure 1.** Reverse Voltage vs Reverse Current

**Figure 2.** Reverse Current vs Reverse Voltage

**Figure 3.** Forward Voltage vs Forward Current

**Figure 4.** Forward Voltage vs Forward Current

*GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature*
Typical Characteristics (continued)

**Figure 5.** Forward Voltage vs Forward Current
VF - 10 to 800 mA

**Figure 6.** Forward Voltage vs Ambient Temperature
VF - 0.01 - 20 mA (-40 to +65 Deg C)

**Figure 7.** Total Capacitance

**Figure 8.** Reverse Recovery Time vs Reverse Recovery Current

**Figure 9.** Average Rectified Current ($I_{AV}$) versus Ambient Temperature ($T_A$)

**Figure 10.** Power Derating Curve
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