Small Signal Fast Switching Diodes

FEATURES
- Silicon epitaxial planar diodes
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS
- Extreme fast switches

MECHANICAL DATA
Case: DO-35 (DO-204AH)
Weight: approx. 125 mg
Cathode band color: black
Packaging codes / options:
TR/10K per 13” reel (52 mm tape), 50K/box
TAP/10K per ammopack (52 mm tape), 50K/box

PARTS TABLE

<table>
<thead>
<tr>
<th>PART</th>
<th>ORDERING CODE</th>
<th>TYPE MARKING</th>
<th>CIRCUIT CONFIGURATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1N4448</td>
<td>1N4448TAP or 1N4448TR</td>
<td>V4448</td>
<td>Single</td>
<td>Tape and reel / ammopack</td>
</tr>
</tbody>
</table>

ABSOLUTE MAXIMUM RATINGS \( (T_{\text{amb}} = 25 \, ^\circ \text{C}, \text{unless otherwise specified})\)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITION</th>
<th>SYMBOL</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repetitive peak reverse voltage</td>
<td></td>
<td>( V_{\text{RRM}} )</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>Reverse voltage</td>
<td></td>
<td>( V_R )</td>
<td>75</td>
<td>V</td>
</tr>
<tr>
<td>Peak forward surge current</td>
<td>( t_p = 1 , \mu\text{s} )</td>
<td>( I_{\text{FSM}} )</td>
<td>2</td>
<td>A</td>
</tr>
<tr>
<td>Repetitive peak forward current</td>
<td></td>
<td>( I_{\text{FRM}} )</td>
<td>500</td>
<td>mA</td>
</tr>
<tr>
<td>Forward continuous current</td>
<td></td>
<td>( I_F )</td>
<td>300</td>
<td>mA</td>
</tr>
<tr>
<td>Average forward current</td>
<td>( V_R = 0 )</td>
<td>( I_{\text{F(AV)}} )</td>
<td>150</td>
<td>mA</td>
</tr>
<tr>
<td>Power dissipation</td>
<td>( I = 4 , \text{mm}, T_L = 45 , ^\circ \text{C} )</td>
<td>( P_{\text{tot}} )</td>
<td>440</td>
<td>mW</td>
</tr>
<tr>
<td></td>
<td>( I = 4 , \text{mm}, T_L \leq 25 , ^\circ \text{C} )</td>
<td>( P_{\text{tot}} )</td>
<td>500</td>
<td>mW</td>
</tr>
</tbody>
</table>

THERMAL CHARACTERISTICS \( (T_{\text{amb}} = 25 \, ^\circ \text{C}, \text{unless otherwise specified})\)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITION</th>
<th>SYMBOL</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermal resistance junction to ambient air</td>
<td>( I = 4 , \text{mm}, T_L = \text{constant} )</td>
<td>( R_{\text{ThJA}} )</td>
<td>350</td>
<td>K/W</td>
</tr>
<tr>
<td>Junction temperature</td>
<td>( T_j )</td>
<td></td>
<td>175</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>( T_{\text{stg}} )</td>
<td></td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>
**ELECTRICAL CHARACTERISTICS** (T_{amb} = 25 \, ^\circ C, unless otherwise specified)

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>TEST CONDITION</th>
<th>SYMBOL</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward voltage</td>
<td>I_F = 5 mA</td>
<td>V_F</td>
<td>0.620</td>
<td>0.720</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 100 mA</td>
<td>V_F</td>
<td></td>
<td>1</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>Reverse current</td>
<td>V_R = 20 V</td>
<td>I_R</td>
<td>25 nA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V_R = 20 V, T_j = 150 ^\circ C</td>
<td>I_R</td>
<td>50 μA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>V_R = 75 V</td>
<td>I_R</td>
<td>5 μA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Breakdown voltage</td>
<td>I_R = 100 μA, t_p/T = 0.01,</td>
<td>V_{(BR)}</td>
<td>100</td>
<td></td>
<td>V</td>
<td></td>
</tr>
<tr>
<td></td>
<td>t_p = 0.3 ms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diode capacitance</td>
<td>V_R = 0, f = 1 MHz, V_{HF} = 50 mV</td>
<td>C_D</td>
<td>4 pF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rectification efficiency</td>
<td>V_{HF} = 2 V, f = 100 MHz</td>
<td>η_r</td>
<td>45 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse recovery time</td>
<td>I_F = I_R = 10 mA, I_R = 1 mA</td>
<td>t_{rr}</td>
<td>8 ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 10 mA, V_R = 6 V, I_R = 0.1 x I_R, R_L = 100 Ω</td>
<td>t_{rr}</td>
<td>4 ns</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TYPICAL CHARACTERISTICS** (T_{amb} = 25 \, ^\circ C, unless otherwise specified)

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**Fig. 1** - Forward Voltage vs. Junction Temperature

**Fig. 2** - Forward Current vs. Forward Voltage

**Fig. 3** - Reverse Current vs. Reverse Voltage
**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**

![Diagram](image-url)

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