Small Signal Schottky Diode

FEATURES
- Integrated protection ring against static discharge
- Very low forward voltage
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS
- Applications where a very low forward voltage is required

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>CIRCUIT CONFIGURATION</th>
<th>TYPE MARKING</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT85S</td>
<td>BAT85S-TR or BAT85S-TAP</td>
<td>Single</td>
<td>BAT85S</td>
<td>Tape and reel/ammopack</td>
</tr>
</tbody>
</table>

ABSOLUTE MAXIMUM RATINGS (T_amb = 25 °C, 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>Reverse voltage</td>
<td></td>
<td>V_R</td>
<td>30</td>
<td>V</td>
</tr>
<tr>
<td>Peak forward surge current</td>
<td>t_F ≤ 10 ms</td>
<td>I_FSM</td>
<td>5</td>
<td>A</td>
</tr>
<tr>
<td>Repetitive peak forward current</td>
<td>t_R &lt; 1 s</td>
<td>I_FRM</td>
<td>300</td>
<td>mA</td>
</tr>
<tr>
<td>Forward continuous current</td>
<td></td>
<td>I_F</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>Average forward current</td>
<td>PCB mounting, I = 4 mm; V_RWM = 25 V, T_amb = 50 °C</td>
<td>I_FAV</td>
<td>200</td>
<td>mA</td>
</tr>
</tbody>
</table>

THERMAL CHARACTERISTICS (T_amb = 25 °C, 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 mm, T_L = constant</td>
<td>R_{th,JA}</td>
<td>350</td>
<td>K/W</td>
</tr>
<tr>
<td>Junction temperature</td>
<td></td>
<td>T_J</td>
<td>125</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature range</td>
<td></td>
<td>T_stg</td>
<td>-65 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

ELECTRICAL CHARACTERISTICS (T_amb = 25 °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 = 0.1 mA</td>
<td>V_F</td>
<td>240</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 1 mA</td>
<td>V_F</td>
<td>320</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 10 mA</td>
<td>V_F</td>
<td>400</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 30 mA</td>
<td>V_F</td>
<td>500</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I_F = 100 mA</td>
<td>V_F</td>
<td>800</td>
<td>mV</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve current</td>
<td>V_R = 25 V</td>
<td>I_R</td>
<td>2</td>
<td>μA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diode capacitance</td>
<td>V_R = 1 V, f = 1 MHz</td>
<td>C_D</td>
<td>10</td>
<td>pF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reserve recovery time</td>
<td>I_F = 10 mA to</td>
<td>I_R = 10 mA to I_R = 1 mA</td>
<td>t_rr</td>
<td>5</td>
<td>ns</td>
<td></td>
</tr>
</tbody>
</table>
TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

**Fig. 1 - Maximum Reverse Power Dissipation vs. Junction Temperature**

- **PR** - Reverse Power Dissipation (mW)
- **T_j** - Junction Temperature (°C)
- **V_R** = 30 V
- **R_{JAT}** = 540 kW
- **P_R** - Limit at 100 % **V_R**
- **P_R** - Limit at 80 % **V_R**

**Fig. 2 - Reverse Current vs. Junction Temperature**

- **I_R** - Reverse Current (µA)
- **T_j** - Junction Temperature (°C)
- **V_R** = V_{RRM}

**Fig. 3 - Forward Current vs. Forward Voltage**

- **I_F** - Forward Current (mA)
- **V_F** - Forward Voltage (V)
- **I_F** - Limit at 100 % **V_F**
- **I_F** - Limit at 80 % **V_F**

**Fig. 4 - Diode Capacitance vs. Reverse Voltage**

- **C_D** - Diode Capacitance (pF)
- **f = 1 MHz**
- **V_R** - Reverse Voltage (V)

**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**

- Cathode Identification
- **Ø 0.6 max. [0.024]**
- **Ø 0.4 min. [0.015]**
- **26 min. [1.024]**
- **3.9 max. [0.154]**
- **3.1 min. [0.120]**
- **26 min. [1.024]**
- **1.7 [0.067]**
- **1.3 [0.050]**
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