Small Signal Fast Switching Diodes

FEATURES
- Silicon epitaxial planar diode
- Electrically equivalent diodes: 1N4148 - 1N914
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS
- Extreme fast switches

DESIGN SUPPORT TOOLS click logo to get started

3D Models Available

MECHANICAL DATA
Case: DO-35 (DO-204AH)
Weight: approx. 105 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>1N4148</td>
<td>1N4148-TAP or 1N4148TR</td>
<td>V4148</td>
<td>Single</td>
<td>Tape and reel / ammopack</td>
</tr>
</tbody>
</table>

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

THERMAL CHARACTERISTICS \((T_{amb} = 25 \, ^\circ C, \) 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_{thJA})</td>
<td>350</td>
<td>K/W</td>
</tr>
<tr>
<td>Junction temperature</td>
<td>(T_J)</td>
<td>175</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>Storage temperature range</td>
<td>(T_{stg})</td>
<td>-65 to +150</td>
<td>°C</td>
<td></td>
</tr>
</tbody>
</table>
**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

- **Forward voltage**
  - IF = 10 mA
  - Symbol: V<sub>F</sub>
  - MIN.: 1 V
  - TYP.: 1 V
  - MAX.: 1 V

- **Reverse current**
  - VR = 20 V
  - Symbol: I<sub>R</sub>
  - MIN.: 50 nA
  - TYP.: 50 nA
  - MAX.: 50 nA
  - VR = 20 V, TJ = 150 °C
  - Symbol: I<sub>R</sub>
  - MIN.: 5 μA
  - TYP.: 5 μA
  - MAX.: 5 μA

- **Breakdown voltage**
  - Symbol: V(BR)
  - IF = 100 μA, IF/T = 0.01, t<sub>p</sub> = 0.3 ms
  - MIN.: 100 V
  - TYP.: 100 V

- **Diode capacitance**
  - Symbol: C<sub>D</sub>
  - VR = 2 V, f = 100 MHz
  - MIN.: 4 pF
  - TYP.: 4 pF
  - MAX.: 4 pF

- **Rectification efficiency**
  - Symbol: η<sub>r</sub>
  - VR = 2 V, f = 100 MHz
  - MIN.: 45%
  - TYP.: 45%
  - MAX.: 45%

- **Reverse recovery time**
  - IF = IR = 10 mA, i<sub>R</sub> = 1 mA
  - Symbol: t<sub>rr</sub>
  - MIN.: 8 ns
  - TYP.: 8 ns
  - MAX.: 8 ns
  - IF = 10 mA, VR = 6 V, i<sub>R</sub> = 0.1 x IR, RL = 100 Ω
  - Symbol: t<sub>rr</sub>
  - MIN.: 4 ns
  - TYP.: 4 ns
  - MAX.: 4 ns
**PACKAGE DIMENSIONS** in millimeters (inches): **DO-35 (DO-204AH)**

![Diode Package Dimensions Diagram]

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