Silicon NIP Diode

Features
- Rugged Construction
- Fully Passivated
- Low Leakage
- Available in Both Chip and Package Styles
- Screening per MIL-PRF-19500 and MIL-PRF-38534 Available

Description
The MNP0014 Series are silicon NIP diodes that feature a fully passivated mesa construction for low leakage and reliability.

Electrical Specifications: \( T_C = +25^\circ C \)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Units</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Breakdown</td>
<td>( I_R = 10 \mu A )</td>
<td>V</td>
<td>500</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Junction Capacitance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DIE Package (C22p)</td>
<td>( V_R = 50 , V ), 1 MHz</td>
<td>pF</td>
<td>—</td>
<td>0.12</td>
<td>0.18</td>
</tr>
<tr>
<td>Total Capacitance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Package Style:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ET47p</td>
<td>( V_R = 50 , V ), 1 MHz</td>
<td>pF</td>
<td>—</td>
<td>0.52</td>
<td>0.58</td>
</tr>
<tr>
<td>T54p</td>
<td>—</td>
<td>pF</td>
<td>—</td>
<td>0.32</td>
<td>0.38</td>
</tr>
<tr>
<td>T55p</td>
<td>—</td>
<td>pF</td>
<td>—</td>
<td>0.25</td>
<td>0.31</td>
</tr>
<tr>
<td>T89p</td>
<td>—</td>
<td>pF</td>
<td>—</td>
<td>0.37</td>
<td>0.43</td>
</tr>
<tr>
<td>Series Resistance</td>
<td>( I_F = 100 , mA ), 500 MHz</td>
<td>Ω</td>
<td>—</td>
<td>1.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Lifetime</td>
<td>( I_F = 10 , mA ), ( I_R = 6 , mA ), 50%</td>
<td>ns</td>
<td>—</td>
<td>750</td>
<td>—</td>
</tr>
<tr>
<td>I Layer</td>
<td></td>
<td>µm</td>
<td>—</td>
<td>80</td>
<td>—</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings\(^1,2\)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Voltage</td>
<td>500 V</td>
</tr>
<tr>
<td>Thermal Resistance</td>
<td>+10°C/C( W )</td>
</tr>
<tr>
<td>Operating &amp; Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
</tbody>
</table>

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.
Outline Drawings

**C22**

- ANODE (C22)
- CATHODE (C22P)
- ø0.002 (0.050) MINIMUM
- CATHODE (C22)
- ANODE (C22P)

**ET47**

- ANODE (ET47)
- CATHODE (ET47P)
- ø0.002 (0.050)
- ø0.005 (0.013)

Dimensions in mils [mm]
Outline Drawings

**T54 / T54p**

- 86 [2.184] Dia.
- 78 [1.981] 
- 12 [0.395] 
- 10 [0.254] 
- Ceramic Body 
- 44 [1.118] 
- 34 [0.864] 
- Cathode (T54) 
- Anode (T54p) 
- 48 [1.219] 

**T55 / T55p**

- Ø .045 [1.397] 
- .055 [1.143] 

**T89 / T89p**

- 124 [3.150] 
- 110 [3.023] diameter 
- 80 [2.032] dia. nom. 
- 27 [0.886] max. 
- 11 [0.279] max. 
- 212 [5.385] 
- 138 [3.525] 
- 128 [3.200] 
- 3–48 UNC–2A 

Quoted dimensions are in inches (mm) unless subscripted by 'm' for mils.
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DC-0015366