Surface Mount Plastic PIN Diodes

Features
- Surface Mount Packages
- Low Loss, High Isolation Switching Diodes
- Tape and Reel Packaging
- RoHS* Compliant and 260°C Reflow Compatible

Description
The MADP-010630, MADP-010631 and the MADP-010633 are silicon PIN diodes in a low cost, surface mount plastic package for use as a switch or attenuator. These diodes are offered with 100% matte Sn plating and are RoHS compliant devices.

These PIN diodes feature optimized I-region lengths which results in a low resistance, low capacitance device for various microwave control circuit applications.

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>MADP-010630-13920T</td>
<td>tape and reel</td>
</tr>
<tr>
<td>MADP-010631-13920T</td>
<td>tape and reel</td>
</tr>
<tr>
<td>MADP-010633-13920T</td>
<td>tape and reel</td>
</tr>
</tbody>
</table>

Electrical Specifications @ $T_{\text{AMBIENT}} = 25^\circ\text{C}$

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Maximum $^5$ Incident Power (W)</th>
<th>Reverse Voltage $^1$ (V)</th>
<th>Maximum Total Capacitance $^2$ (pF)</th>
<th>Maximum $^3$ $R_s$ (Ohms)</th>
<th>Nominal Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Carrier Lifetime $^4$ (µs)</td>
</tr>
<tr>
<td>MADP-010630</td>
<td>25</td>
<td>100</td>
<td>0.35 @ 20 V</td>
<td>1.5 @ 10 mA</td>
<td>0.2</td>
</tr>
<tr>
<td>MADP-010631</td>
<td>40</td>
<td>100</td>
<td>1.00 @ 20 V</td>
<td>0.5 @ 10 mA</td>
<td>0.2</td>
</tr>
<tr>
<td>MADP-010633</td>
<td>100</td>
<td>500</td>
<td>0.4 @ 50 V</td>
<td>0.6 @ 100 mA</td>
<td>1.0</td>
</tr>
</tbody>
</table>

1. The reverse current will not exceed 10 µA at the reverse voltage rating.
2. Total capacitance is measured at 1 MHz at the indicated voltage.
3. Series resistance is measured at 100 MHz.
4. Nominal minority carrier lifetime is measured at $I_r = 10$ mA, $I_e = 6$ mA, 90% recovery.
5. Incident power measured at $I_r = 50$ mA, $F = 1$GHz
6. Device located on an infinite heatsink

Surface Mount Plastic PIN Diodes

Absolute Maximum Ratings: $T_{\text{AMB}} = 25^\circ\text{C}$ (unless otherwise specified)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-65°C to +125°C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-65°C to +150°C</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>+175°C</td>
</tr>
<tr>
<td>Mounting Temperature</td>
<td>+260°C for 30 secs.</td>
</tr>
</tbody>
</table>

Handling Procedures
Please observe the following precautions to avoid damage:

Static Sensitivity
Silicon Integrated Circuits are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.

Package Style 1392

Mounting Pad Configuration

All dimensions are in mils / millimeters
Surface Mount Plastic PIN Diodes

Rs vs. I MADP-010630-13920T

Insertion Loss
MADP-010630-13920T

Isolation
MADP-010630-13920T
Surface Mount Plastic PIN Diodes

Rs vs. I
MADP-010631-13920T

Isolation
MADP-010631-13920T

Insertion Loss
MADP-010631-13920T

Isolation
MADP-010631-13920T
Typical Performance Curves MDP-010633

Series Resistance vs. Frequency

Insertion Loss vs. Frequency

Isolation vs. Frequency
Surface Mount Plastic PIN Diodes

M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppels or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.