MA45471

Dual Anti-Parallel Non-Magnetic PIN Diode
RoHS Compliant

Features
- Designed for MRI applications
- Anti-Parallel Self Bias Arrangement
- Non-Magnetic Surface Mount Package
- SPC Process for Superior Parametric Repeatability
- RoHS Compliant with 260°C reflow compatibility

Description
The MA45471 device acts as a passive switch using silicon PIN diodes in a surface mount non-magnetic package. The PIN diode pair are arranged in an anti-parallel configuration and encapsulated with a non-conductive epoxy resin.

Applications
The MA45471 is well suited for MRI Passive switching applications. The PIN diodes become a high Q, R-C network under small signal and behave as an effective passive rectifier or short circuit under high RF Signal to tune and de-tune the resonant MRI tank circuit. The anti-parallel arrangement provides for more efficient RF power handling.

Absolute Maximum Ratings @ TA=+25 °C
(Unless Otherwise Noted) ¹

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Absolute Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Voltage</td>
<td>75V</td>
</tr>
<tr>
<td>Forward Current</td>
<td>2A</td>
</tr>
<tr>
<td>Power Dissipation (per diode)</td>
<td>1.7 W</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-55 °C to +125 °C</td>
</tr>
<tr>
<td>Storage Temperature</td>
<td>-55 °C to +125 °C</td>
</tr>
<tr>
<td>Junction Temperature</td>
<td>+175 °C</td>
</tr>
</tbody>
</table>

1. Operation of this device above any one of these parameters may cause permanent damage.
2. Please refer to application note M538 for surface mounting instructions
3. Total current per diode= I (rms) + I (dc) @ +25C

Schematic

Internal Construction
## MA45471

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**RoHS Compliant**

### Electrical Performance @ $T_A=+25 \, ^\circ C$

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Junction Capacitance</th>
<th>Total Capacitance</th>
<th>Breakdown Voltage</th>
<th>Forward Voltage</th>
<th>$\Delta$ Forward Voltage</th>
<th>Carrier Lifetime</th>
</tr>
</thead>
</table>
| MA45471     | $f = 1\text{MHz}$  
$V_r = 0\text{V}$ | $f = 1\text{MHz}$  
$V_r = 0\text{V}$ | $I_r = 10\mu\text{A}$ | $I_f = 20\mu\text{A}$ | $I_f = 20\mu\text{A}$  
(between each diode) | $I_f = 10\text{mA}$  
$I_r = 6\text{mA}$ |
|             | $(\text{pF})$        | $(\text{pF})$     | $(\text{V})$      | $(\text{V})$   | $(\text{mV})$           | $(\text{nS})$   |

#### Case Style 1134

**INCHES**  | **MILLIMETERS**
---|---
A | 0.162 - 0.178 | 4.12 - 4.52
B | 0.112 - 0.128 | 2.84 - 3.25
C | - - 0.055 | - 1.40
D | 0.017 - 0.023 | 0.43 - 0.58
E | 0.036 - 0.044 | 0.91 - 1.12
F | 0.150 - | 3.81 -
G | 0.008 - 0.12 | 0.20 - 0.30