

Dual Pair Anti-Parallel Non-Magnetic PIN Diode RoHS Compliant

Rev. V3

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 MA44781 device acts as a Passive Switch using silicon PIN diodes in surface mount package. There are two sets of two PIN diode pairs constructed in opposing configurations. The package is sealed with a non-conductive epoxy resin and is suitable for surface mount applications.

Applications

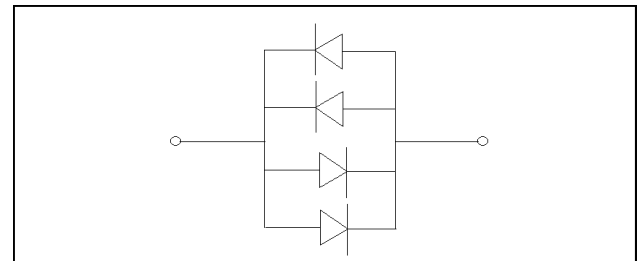
The MA44781 Device is well suited for MRI Passive switching applications. The PIN Diodes become a high Q, R-C network under small signal and behave as an effective passive rectifier or short circuit under high RF Signal to tune and de-tune the resonant MRI tank circuit. The anti-parallel doublet arrangement provides for more efficient RF power handling.

Absolute Maximum Ratings @ $T_A = +25\text{ }^\circ\text{C}$ (Unless Otherwise Noted)¹

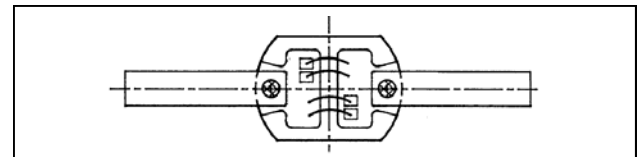
Parameter	Absolute Maximum
Reverse Voltage	60V
Forward Current (per diode pair) ³	2A
Power Dissipation (per diode) ²	1.7 W
Operating Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Junction Temperature	+175 °C

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



Electrical Specifications @ $T_A = +25\text{ }^\circ\text{C}$

Breakdown Voltage @ $I_R = 10\text{ }\mu\text{A}$, $V_b = 60\text{V}$ Minimum

Part Number	Junction Capacitance (per diode)	Forward Voltage	Delta Forward Voltage	Total Capacitance
	$f=1\text{MHz}$ $V_r=-6.0\text{V}$	$I_f = 20\text{ }\mu\text{A}$	$I_f=20\text{ }\mu\text{A}$ (between each diodes)	$V_r=0\text{V}$
	(pF)	(V)	(mV)	(pF)
MA44781	0.15 - 0.50pF	0.500 - 0.780	+/-30 mV	1.5 - 3.5

1

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 / Fax: 978.366.2266

• **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300

• **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc. and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

Case Style 1134

