

Dual Pair Anti-Parallel Non-Magnetic PIN Diode

Rev. V4

Features

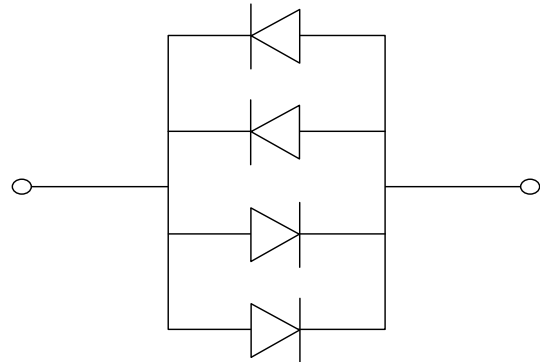
- Designed for MRI Applications
- Anti-Parallel Self Bias Arrangement
- Non-Magnetic Surface Mount Package
- SPC Process for Superior Parametric Repeatability
- RoHS* Compliant and 260°C Reflow Compatible

Description

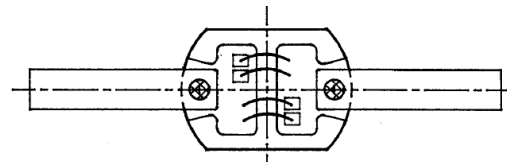
The MA44781 device acts as a passive switch using silicon PIN diodes in a surface mount package. There are two sets of two PIN diode pairs constructed in opposing configurations. The package is sealed with a non-conductive epoxy resin and is suitable for surface mount applications.

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.

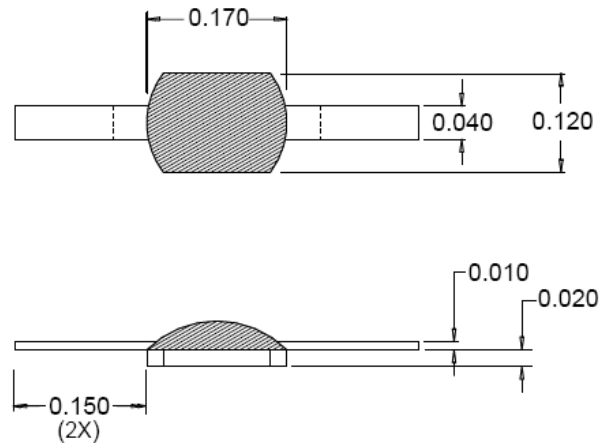
Schematic



Internal Construction



Case Style 1134



All Dimensions shown as inches

Ordering Information

Part Number	Package
MA44781	ODS-1134

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

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Electrical Specifications:

$T_A = +25^\circ\text{C}$, Breakdown Voltage @ $I_R = 10 \mu\text{A}$, $V_b = 60 \text{ V}$ Minimum

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Forward Voltage	$I_F = 20 \mu\text{A}$	V	0.500	—	0.780
Delta Forward Voltage	$I_F = 20 \mu\text{A}$ (between each diodes)	mV	—	+/- 30	—
Junction Capacitance (per diode)	$f = 1 \text{ MHz}$, $V_R = -6.0 \text{ V}$	pF	0.15	—	0.50
Total Capacitance	$V_R = 0 \text{ V}$	pF	1.5	—	3.5

Absolute Maximum Ratings¹

Parameter	Absolute Maximum
Reverse Voltage	60 V
Forward Current (Per Diode Pair) ²	2 A
Total Power Dissipation ³	2 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. Total current per diode = $I(\text{rms}) + I(\text{dc})$ @ +25°C
3. Please refer to application note M538 for surface mounting instructions.

Handling Procedures

Please observe the following precautions to avoid damage:

Static Sensitivity

These electronic devices are sensitive to electrostatic discharge (ESD) and can be damaged by static electricity. Proper ESD control techniques should be used when handling these devices.