SMT Dual Anti-Parallel Non-Magnetic PIN Diode

MAVR-045471-1437B0

Rev. V2

Features

- Leadless Surface Mount Design
- Designed for MRI applications
- Anti-Parallel Self Bias Arrangement
- Non-Magnetic Package
- SPC Process for Superior Parametric Repeatability
- RoHS* Compliant

Applications

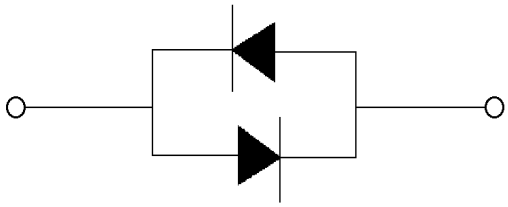
- MRI Passive Switching

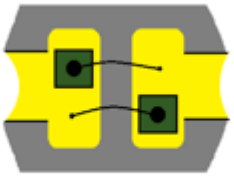
Description

The MAVR-045471-1437B0 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.

The MAVR-045471-1437B0 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.

Functional Schematic





Internal Construction

Electrical Specifications: T_A = +25°C

Junction Capacitance (per diode)	Total Capacitance	Breakdown Voltage	Forward Voltage	Δ Forward Voltage	Carrier Lifetime
f = 1 MHz, V_R = 0 V	f = 1 MHz, V_R = 0 V	I_R = 10 µA	I_F = 20 µA	I_F = 20 µA (between each)	I_F = 10 mA / I_R = 6 mA
(pF)	(pF)	(V)	(V)	(mV)	(ns)
0.75 - 1.25	1.5 - 2.5	100	0.5 - 0.8	+/-20	300 typ.

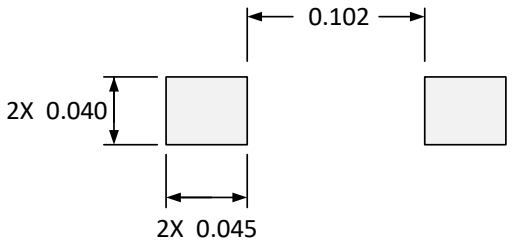
* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Absolute Maximum Ratings:
T_A = +25°C (unless otherwise noted)[1,2,3]

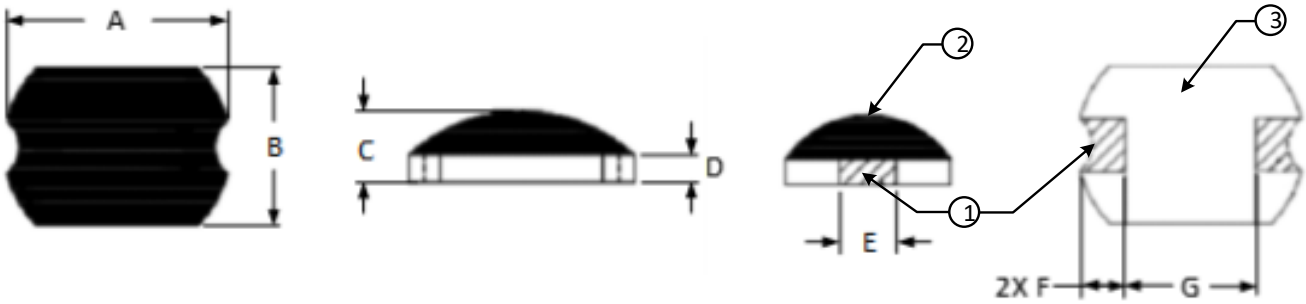
Parameter	Absolute Maximum
Reverse Voltage	75 V
Forward Current	2 A
Power Dissipation (per diode)	1.7 W
Junction Temperature	+175°C
Operating & Storage Temperature	-55°C to +125°C

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) @ +25°C.

Solder Pad:
Dimensions in inches



Outline Drawing: Case Style 1437



(1) Plated surfaces (cross hatch areas) nonmagnetic. Au 80 µ in. / Ag 80 µ in.
(2) Epoxy encapsulated.
(3) Package: ceramic 96% Alumina (A1203).

Dim.	Min.	Max.
A	0.162	0.178
B	0.112	0.128
C	—	0.055
D	0.017	0.023
E	0.035	0.045
F	Typ.	0.034
G	0.096	0.108