

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

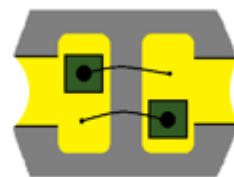
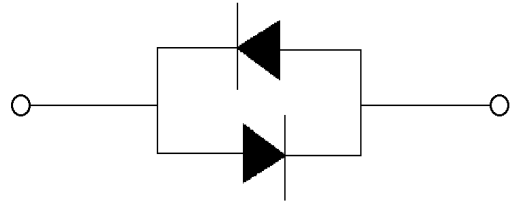
- MRI Passive Switching

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: $T_A = +25^\circ\text{C}$

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

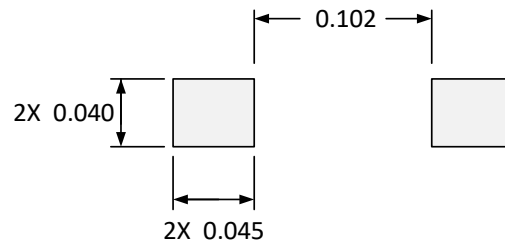
* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Absolute Maximum Ratings:
 $T_A = +25^\circ\text{C}$ (unless otherwise noted)^{1,2,3}

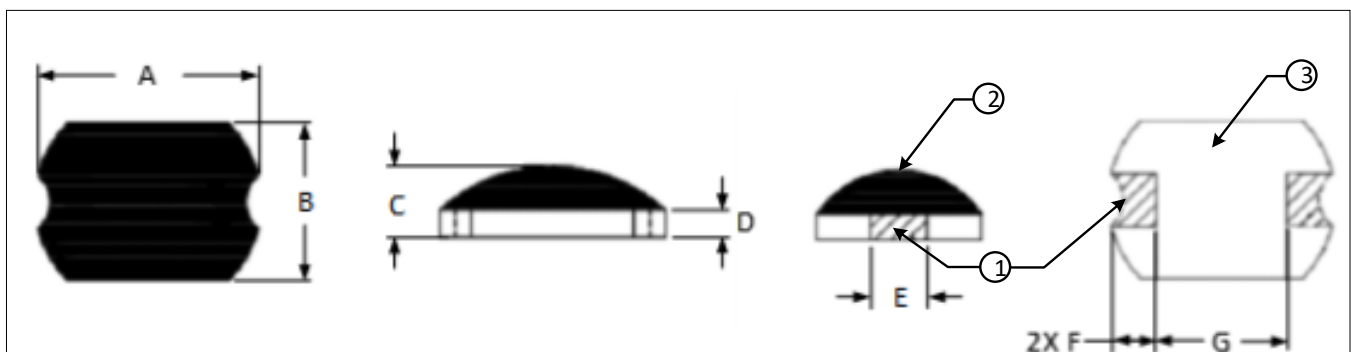
Parameter	Absolute Maximum
Reverse Voltage	75 V
Forward Current	2 A
Power Dissipation (per diode)	1.7 W
Junction Temperature	+175°C
Operating & Storage Temperature	-55°C to +125°C

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 = $I(\text{rms}) + I(\text{dc}) @ +25^\circ\text{C}$.

Solder Pad:
 Dimensions in inches



Outline Drawing: Case Style 1437



- (1) Plated surfaces (cross hatch areas) nonmagnetic. Au 80 $\mu\text{in.}$ / Ag 80 $\mu\text{in.}$
- (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

MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM 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.