

Dual Anti-Parallel Non-Magnetic PIN Diode RoHS Compliant

V1

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

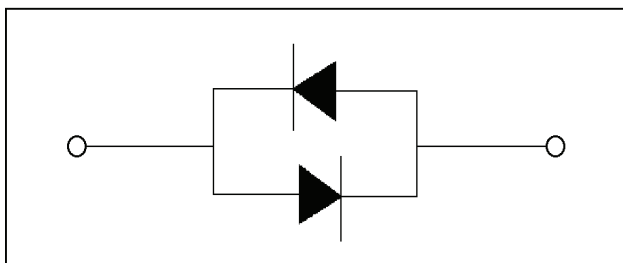
The MA45471 is well suited for MRI Passive switching applications. The PIN diodes become a high Q, R-C network under small signal and behave as an effective passive rectifier or short circuit under high RF Signal to tune and de-tune the resonant MRI tank circuit. The anti-parallel arrangement provides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

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

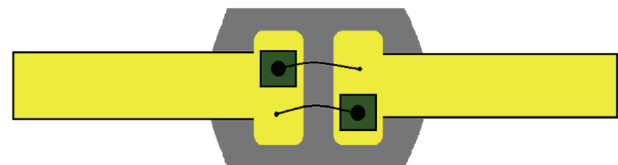
Parameter	Absolute Maximum
Reverse Voltage	75V
Forward Current	2A
Power Dissipation (per diode)	1.7 W
Operating Temperature	-55 °C to +125 °C
Storage Temperature	-55 °C to +125 °C
Junction Temperature	+175 °C

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

Schematic



Internal Construction



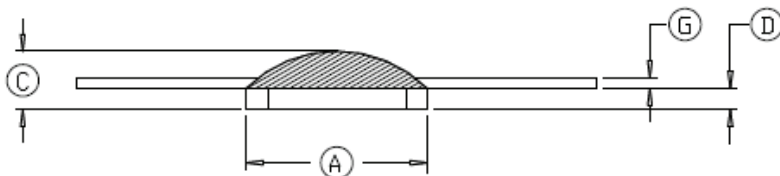
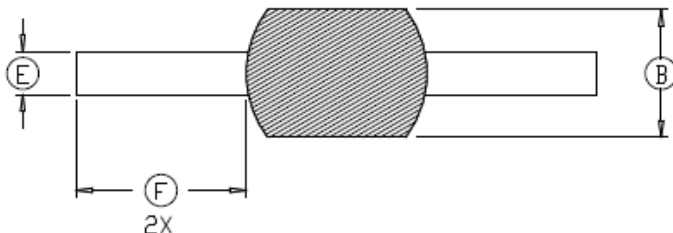
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Electrical Performance @ $T_A = +25^\circ\text{C}$

Part Number	Junction Capacitance	Total Capacitance	Breakdown Voltage	Forward Voltage	Δ Forward Voltage	Carrier Lifetime
	$f = 1\text{MHz}$ $V_r = 0\text{V}$	$f = 1\text{MHz}$ $V_r = 0\text{V}$	$I_r = 10\mu\text{A}$	$I_f = 20\mu\text{A}$	$I_f = 20\mu\text{A}$ (between each diode)	$I_f = 10\text{mA} / I_r = 6\text{mA}$
	(pF)	(pF)	(V)	(V)	(mV)	(nS)
MA45471	1.25 - 1.50	3.0 - 3.5	75	0.5 - 0.8	+/-20	200

Case Style 1134



DIM.	INCHES		MILLIMETERS	
	MIN.	MAX.	MIN.	MAX.
A	.162	.178	4.11	4.52
B	.112	.128	2.84	3.25
C	-	.055	-	1.40
D	.017	.023	0.43	0.58
E	.036	.044	0.91	1.12
F	.150	-	3.81	-
G	.008	.012	0.20	0.30