

# MMP7051-11 Datasheet

Silicon PIN Diode

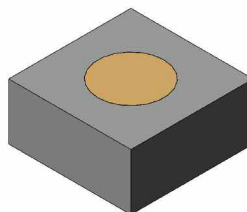
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## Features

- Fast switching : 25 ns typical
- Low series resistance for low insertion loss and high isolation
- Low junction capacitance for low insertion loss and high isolation
- Low thermal resistance
- Also available in several package styles
- RoHS compliant



Case Style CS11



## Description

The MMP7051-11 PIN diode is a fast switching, low series resistance, low capacitance PIN diode chip. This diode is also available packaged in several other package styles. The low junction capacitance, thin I layer and low series resistances of the MMP7051-11 combine to produce outstanding insertion loss, isolation and switching time.

The low thermal resistance ( $< 40^{\circ}\text{C/W}$ ) of the MMP7051-11 enables the device to safely handle moderately high power signals in high frequency switching applications.

This rugged device is capable of reliable operation in all military, commercial and industrial applications. The device is RoHS compliant.

The MMP7051-11 PIN diode is designed to be used in moderate peak and average power switch applications which operate at high frequencies and require low switching time. It performs exceptionally well from UHF through microwave frequencies.

## Environmental Capabilities

The MMP7051-11 PIN diode is capable of meeting the environmental requirements of MIL-STD-750 and MIL-STD-883.

## ESD Rating

As are all semiconductor devices, PIN diodes are susceptible to damage from ESD events. The ESD rating for MMP7051-11 is Class 0 (HBM).

## Electrical Specifications

$T_A = 25\text{ }^{\circ}\text{C}$  as measured in Cobham Metelics evaluation board (Unless Otherwise Defined)

Parameter	Symbol	Test Conditions	Min. Value	Typ. Value	Max. Value	Units
Breakdown Voltage	$V_B$	$I_R = 10\text{ }\mu\text{A}$	200	-	-	V
Series Resistance	$R_S$	$I_F = 75\text{ mA}$ , $f = 1\text{ GHz}$	-	0.7	-	$\Omega$
Series Resistance	$R_S$	$I_F = 20\text{ mA}$ , $f = 500\text{ MHz}$	-	1.7	-	$\Omega$
Junction Capacitance	$C_{j40}$	$V_R = 40\text{ V}$ , $f = 1\text{ MHz}$	-	-	0.2	pF
Minority Carrier Lifetime	$T_L$	50% control to 90% output voltage, $I_F = 10\text{ mA}$ , $I_R = 6\text{ mA}$ , $f = 1\text{ kHz}$	-	600	-	ns
I Layer Thickness	W		-	30	-	$\mu\text{m}$
Thermal Resistance	$\Theta_{JC}$		-	-	40	$^{\circ}\text{C/W}$

Notes:

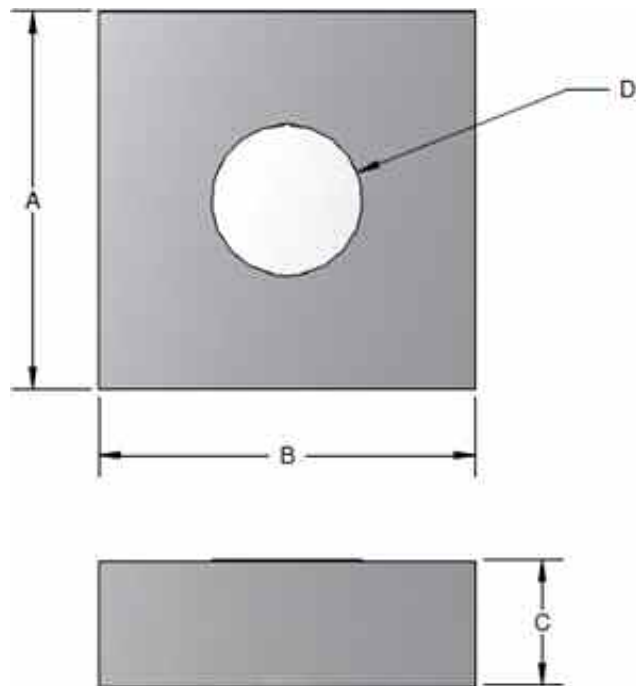
1 Series resistance and junction capacitance are measured on a 4291 Impedance Analyzer.

## Absolute Maximum Ratings

@  $Z_0 = 50\text{ }\Omega$ ,  $T_A = +25\text{ }^{\circ}\text{C}$  as measured in Cobham evaluation board (Unless Otherwise Defined)

Parameter	Absolute Maximum Value
Operating Temperature	-55 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$
Storage Temperature	-65 $^{\circ}\text{C}$ to 150 $^{\circ}\text{C}$
Junction Temperature	175 $^{\circ}\text{C}$
Assembly Temperature	< 300 $^{\circ}\text{C}$ for 5 s
Forward DC Current	150 mA
Reverse DC Voltage	200 V
Forward DC Voltage	1.3 V @ $I_F = 150\text{ mA}$

## Outline Case Style 11(CS11)



DIMENSIONS (INCHES)			
ITEM	MIN	TYP	MAX
A	0.012	0.013	0.014
B	0.012	0.013	0.014
C	0.007	0.008	0.009
D	0.006	0.007	0.008

## Part Number Ordering Information

Part Number	Description	Packaging
MMP7051-11	PIN diode chip	Waffle Pack (Quantity = 400)

## ISO 9001:2008 certified

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