

# PIN Diode

## **MI308**

Antenna Switch

50V / 500mW

# DATASHEET

OEM –Mitsubishi

Source: Mitsubishi Databook 1995

**ANTENNA SWITCH**  
**MI308**  
**PIN DIODE**  
**RF POWER SWITCHING**

**DESCRIPTION**

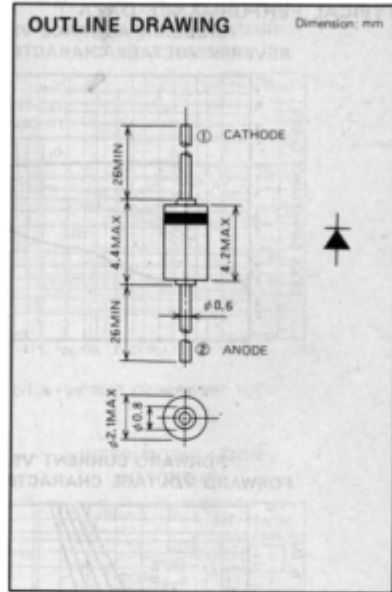
The MI308 PIN diode is employing a high reliability glass construction, designed for solid state antenna switches in commercial two-way radios.

**FEATURES**

- High power handling
- High zero bias impedance
- Low forward bias resistance
- Low insertion loss, High isolation
- Low distortion (TX: spurious < -80dBc, RX: inter-modulation -73dBc @90dBμ)

**APPLICATION**

High power antenna switch (10W output two-way radio)



**ABSOLUTE MAXIMUM RATINGS** (Ta = 25°C)

Symbol	Parameter	Rating	Unit
V <sub>RRM</sub>	Repetitive peak reverse voltage	50	V
V <sub>R</sub>	Reverse voltage	50	V
I <sub>FSM</sub> *	Forward surge current	2	A
P	Power dissipation	500	mW
T <sub>J</sub>	Junction temperature	175	°C
T <sub>stg</sub>	Storage temperature	-55 to 175	°C

\* : t = 5sec

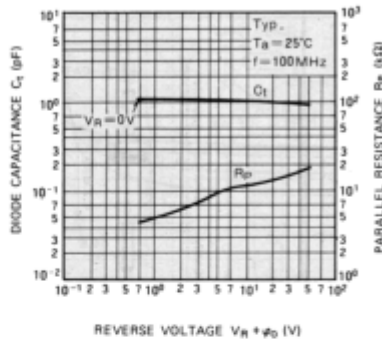
**ELECTRICAL CHARACTERISTICS** (Ta = 25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I <sub>R1</sub>	Reverse current	V <sub>R</sub> = 50 V			10	μA
I <sub>R2</sub>	Reverse current	V <sub>R</sub> = 45 V			0.5	μA
I <sub>F</sub>	Forward current	V <sub>F</sub> = 1.0 V	100			mA
r <sub>fs</sub>	Forward series resistance	I <sub>F</sub> = 50 mA, f = 470 MHz		0.5	0.7	Ω
C <sub>t</sub>	Diode capacitance	V <sub>R</sub> = 0 V, f = 100 MHz			1.6	pF
R <sub>p</sub>	Parallel resistance	V <sub>R</sub> = 0 V, f = 100 MHz	1.0	3.0		kΩ

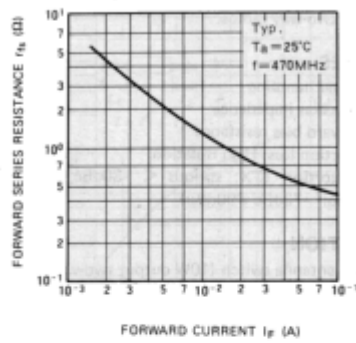
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**TYPICAL PERFORMANCE DATA**

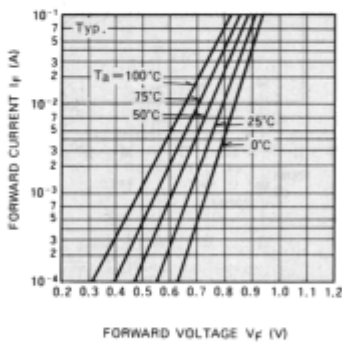
**DIODE CAPACITANCE VS. REVERSE VOLTAGE CHARACTERISTICS**



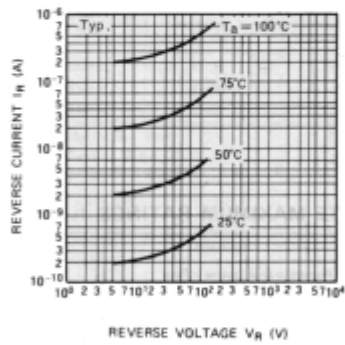
**FORWARD SERIES RESISTANCE VS. FORWARD CURRENT CHARACTERISTICS**



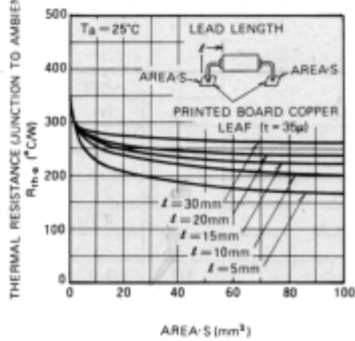
**FORWARD CURRENT VS. FORWARD VOLTAGE CHARACTERISTICS**



**REVERSE CURRENT VS. REVERSE VOLTAGE CHARACTERISTICS**

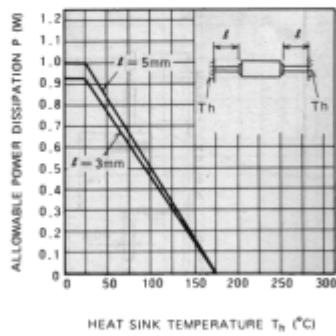


**THERMAL RESISTANCE (JUNCTION TO AMBIENT) VS. AREA CHARACTERISTICS**

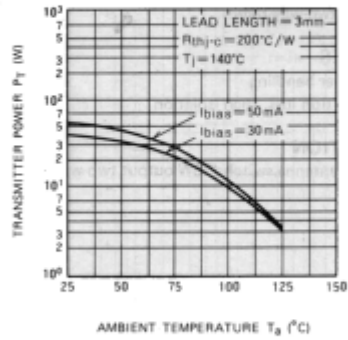


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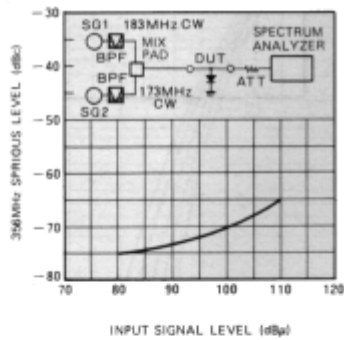
**ALLOWABLE POWER DISSIPATION VS. HEAT SINK TEMPERATURE CHARACTERISTICS**



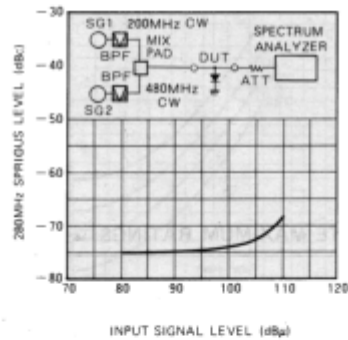
**TRANSMITTER POWER VS. AMBIENT TEMPERATURE CHARACTERISTICS**



**INTER MODULATION DISTORTION**



**INTER MODULATION DISTORTION**



**INTER MODULATION DISTORTION**

