ANTENNA SWITCH

MI303

PIN DIODE
RF POWER SWITCHING

DESCRIPTION

The MI303 PIN diode is employing high reliability glass construction, designed for solid state antenna switches in commercial two-way radios.

FEATURES

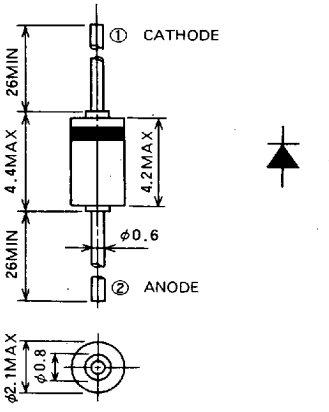
- Low insertion loss
- High isolation
- Small glass construction

APPLICATION

Antenna switching

OUTLINE DRAWING

Dimension: mm



ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

Symbol	Parameter	Ratings	Unit
V_{RM}	Repetitive peak reverse voltage	180	V
I_{FSM} *	Forward surge current	2	A
P	Power dissipation	500	mW
T_j	Junction temperature	175	°C
Tstg	Storage temperature	−55 to 175	°C

* : t=5sec

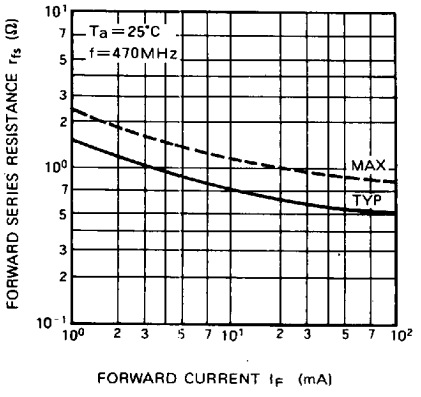
ELECTRICAL CHARACTERISTICS (Ta=25°C)

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
I_{R1}	Reverse current	V_R=180V			10	μA
I_{R2}	Reverse current	V_R=140V			150	nA
I_F	Forward current	V_F=1.0V	200			mA
Ct	Diode capacitance	V_R=0V, f=1MHz			4.0	pF
r_{fs}	Forward series resistance	I_F=20mA, f=470MHz			1.0	Ω
f_C	Cut-off frequency	V_R=3V, f=50MHz	800			MHz

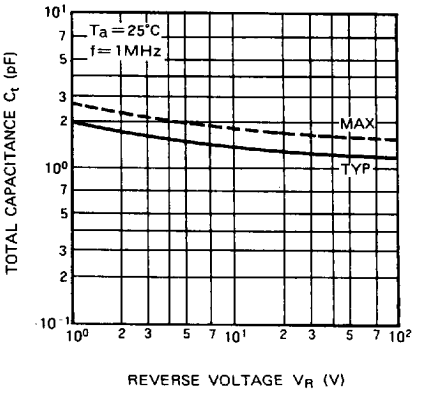
MITSUBISHI ELECTRIC

TYPICAL PERFORMANCE DATA

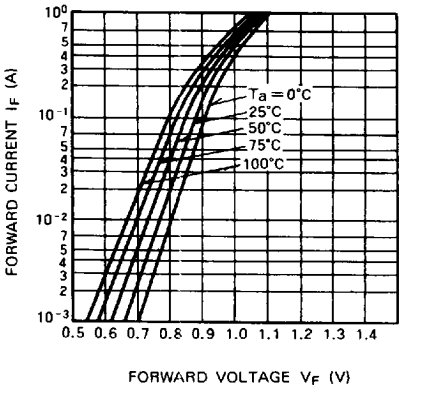
FORWARD SERIES RESISTANCE VS. FORWARD CURRENT CHARACTERISTICS



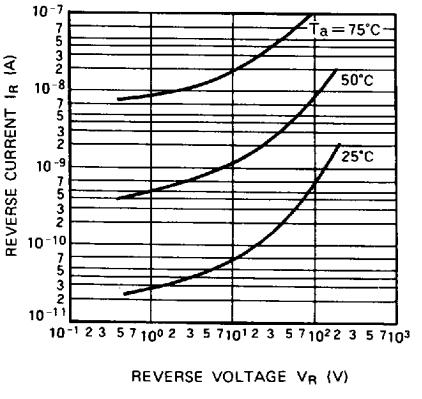
TOTAL CAPACITANCE VS. REVERSE VOLTAGE CHARACTERISTICS



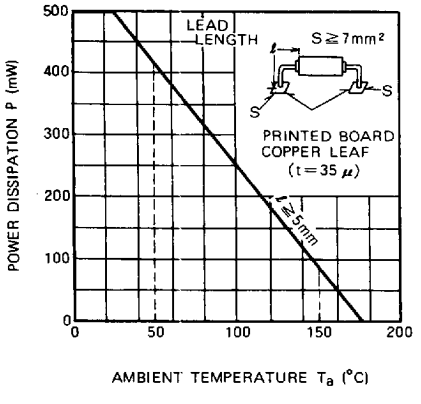
FORWARD CURRENT VS. FORWARD VOLTAGE CHARACTERISTICS



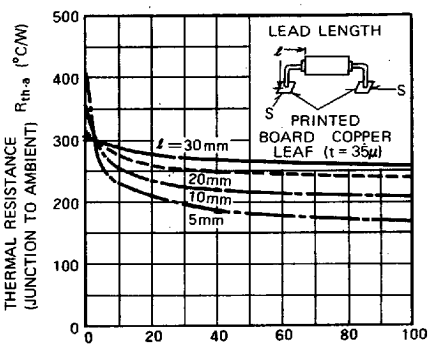
REVERSE CURRENT VS. REVERSE VOLTAGE CHARACTERISTICS



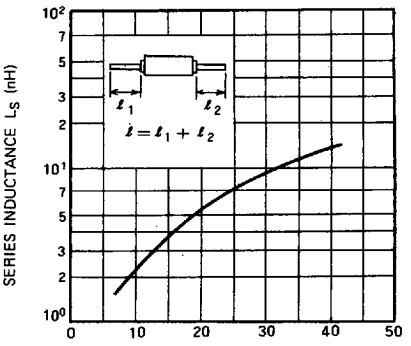
POWER DISSIPATION VS. AMBIENT TEMPERATURE CHARACTERISTICS



THERMAL RESISTANCE (JUNCTION TO AMBIENT) VS. PRINTED BOARD COPPER LEAF AREA CHARACTERISTICS

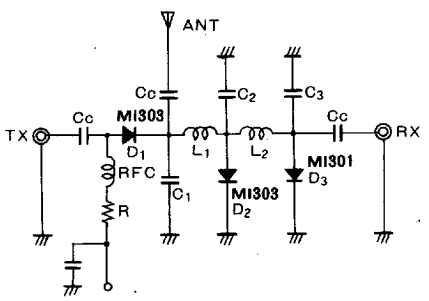


SERIES INDUCTANCE VS. TOTAL LEAD LENGTH CHARACTERISTICS



APPLICATION

SINGLE POLE DOUBLE THROW SWITCHING CIRCUIT (λ-4 TYPE)



	C_1	C_2	C_3	L_1, L_2
50MHz	45pF	90pF	35pF	230nH
144MHz	15pF	24pF	10pF	75nH
440MHz	3pF	6pF	2pF	25nH

TYPICAL DATA

f	Isolation TX→RX	Insertion Loss TX→ANT
50MHz	33dB	0.3dB
144MHz	33dB	0.3dB
440MHz	30dB	0.5dB

Handling Power 10W
Bias Current 20mA DC
2nd Harmonic >80dBc