

High-Frequency SPDT Antenna Switch

Description

The CXG1022TM is an antenna switch MMIC. This IC is designed using the Sony's GaAs J-FET process and operates at a single positive power supply with an ultra-small package.

Features

- Single positive power supply operation
- Insertion loss 0.4 dB (Typ.) at 2.0 GHz
- Medium power switching

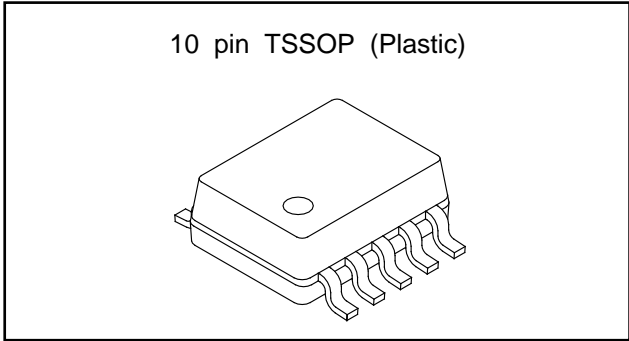
P1dB (Typ.)	29 dBm	at 2.0 GHz
		$V_{CTL} (H)=3.0\text{ V}$
	33 dBm	at 2.0 GHz
		$V_{CTL} (H)=4.0\text{ V}$
- Ultra-small TSSOP package

Applications

Antenna switch for digital cordless telephones

Structure

GaAs J-FET MMIC



Absolute Maximum Ratings (Ta=25 °C)

- Control voltage V_{ctl} 6 V
- Operating temperature T_{opr} -35 to +85 °C
- Storage temperature T_{stg} -65 to +150 °C

Operating Condition

Control voltage 0/3 V

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Electrical Characteristics

VCTL (L) =0 V, VCTL (H) =3 V, P_{IN}=21.5 dBm

(Ta=25 °C)

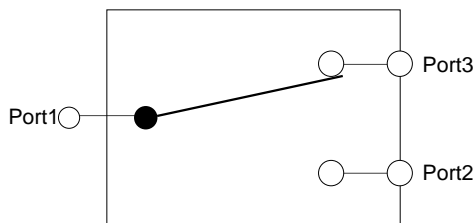
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL1	f=1.0 GHz		0.3	0.6	dB
Isolation	ISO1		28	31		dB
Insertion loss	IL2	f=2.0 GHz		0.4	0.8	dB
Isolation	ISO2		23	26		dB
Input VSWR	VSWRIN			1.3	1.5	
Output VSWR	VSWROUT			1.3	1.5	
Switching time	TSW			50		ns
Control pin current	ICTL			50	100	μA

VCTL (L) =0 V, f =2.0 GHz, R_{RF}=200 kΩ

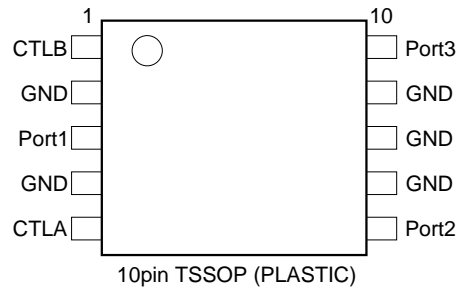
(Ta=25 °C)

1 dB gain compression point output	P1dB (3)	VCTL (H) =3 V	26	29		dBm
1 dB gain compression point output	P1dB (4)	VCTL (H) =4 V	30	33		dBm

Block Diagram

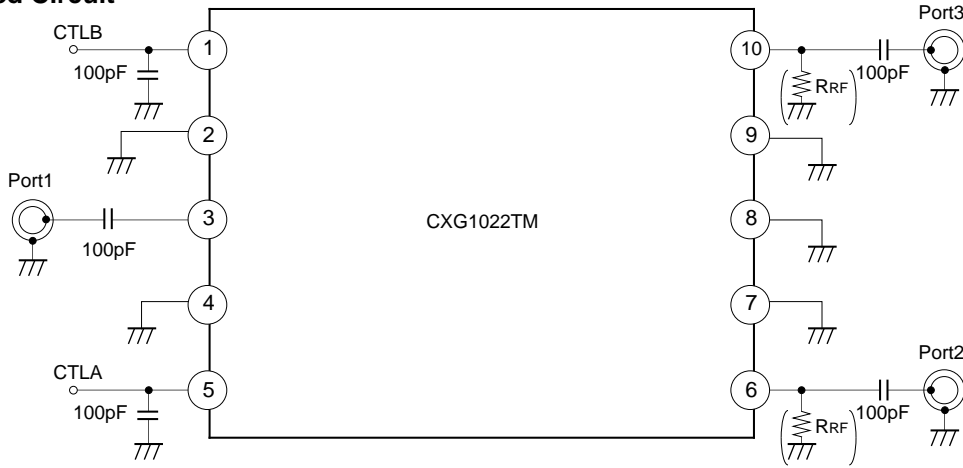


Pin Configuration



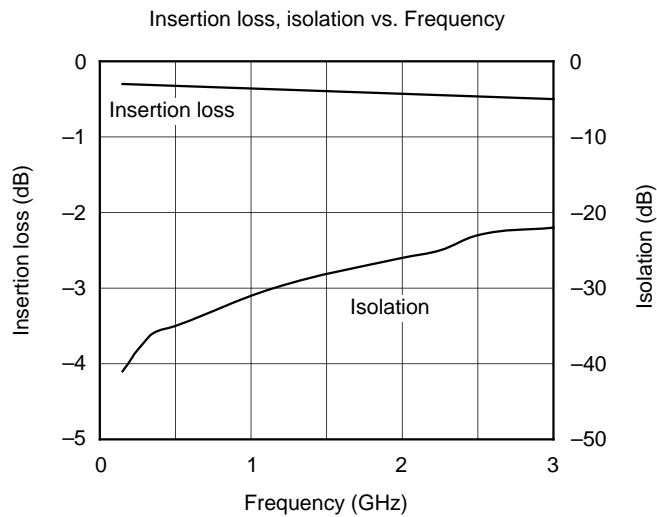
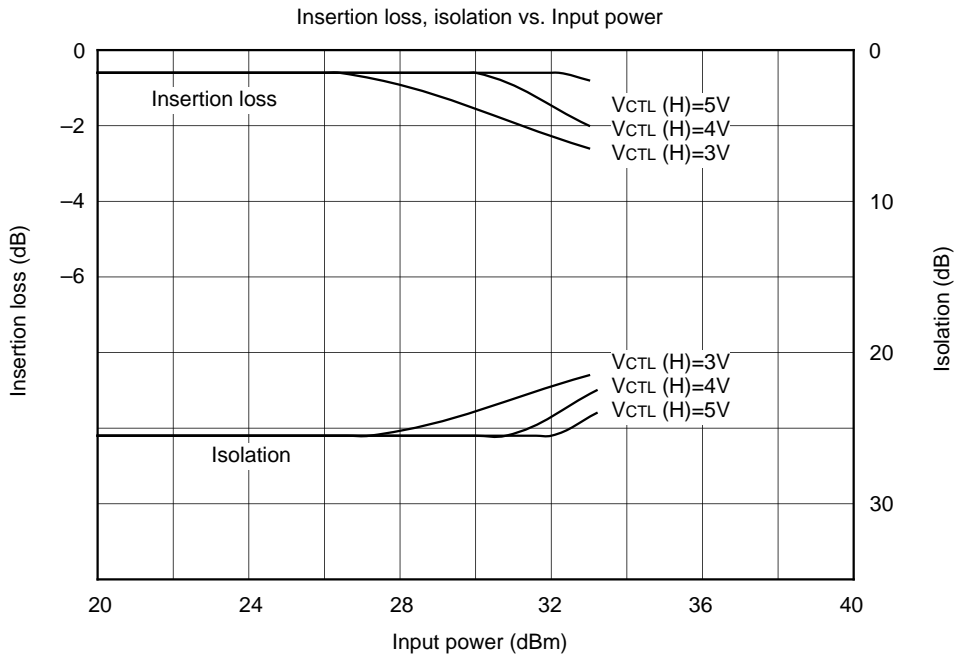
VCTLA	VCTLB	
High	Low	Port1-Port2 ON Port1-Port3 OFF
Low	High	Port1-Port2 OFF Port1-Port3 ON

Recommended Circuit



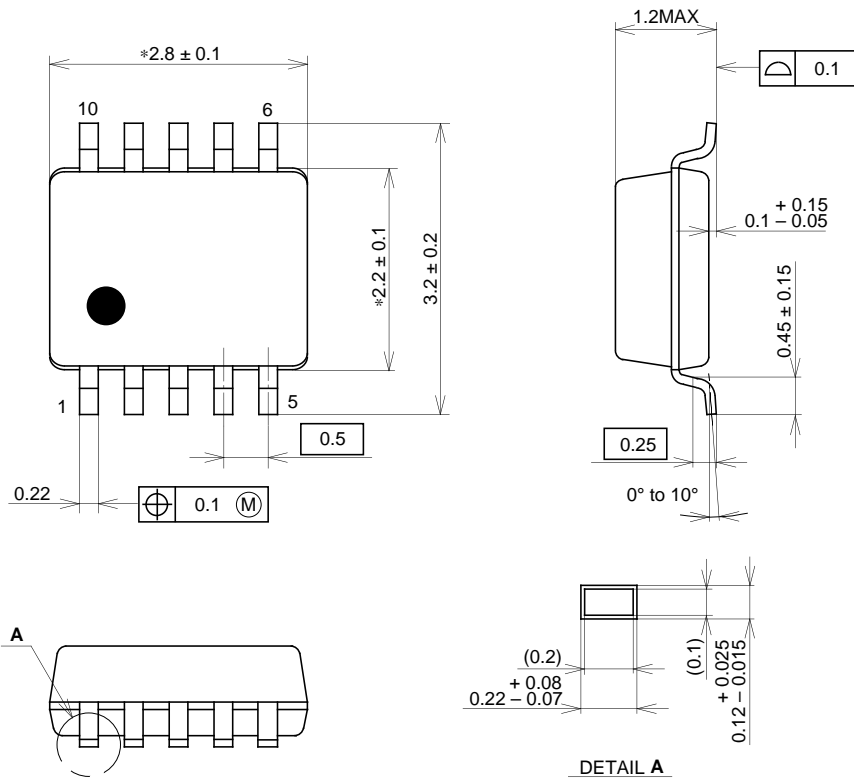
* RRF (200kΩ) is used to stabilized the electrical characteristics at high power signal input

Example of Representative Characteristics (Ta=25 °C)



Package Outline Unit : mm

10PIN TSSOP(PLASTIC)



NOTE: "*" Dimensions do not include mold protrusion.

PACKAGE STRUCTURE

SONY CODE	TSSOP-10P-L01
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.02g