CXG1022TM

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 $V_{CTL} \ (H) = 3.0 \ V$ 33 dBm at 2.0 GHZ $V_{CTL} \ (H) = 4.0 \ V$

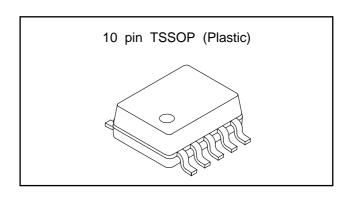
• Ultra-small TSSOP package

Applications

Antenna switch for digital cordless telephones

Structure

GaAs J-FET MMIC



Absolute Maximum Ratings (Ta=25 °C)

 Control voltage 	Vctl	6	V
 Operating temperature 	Topr	-35 to +85	°C
 Storage temperature 	Tstg	-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, PIN=21.5 dBm

(Ta=25 °C)

Item	Symbol	Condition	Min.	Тур.	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	μΑ

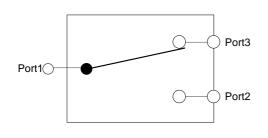
VCTL (L) =0 V, f =2.0 GHz, RrF=200 $k\Omega$

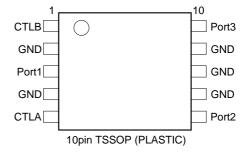
(Ta=25 °C)

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

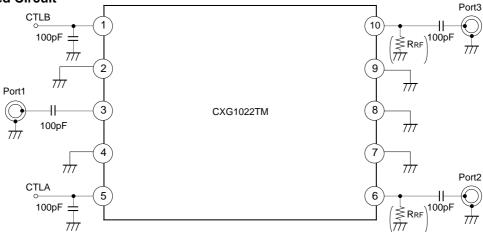






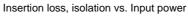
VCTLA	VCTLB		
10127	10125	Port1-Port2 ON	
High	Low	POILT-POILZ ON	
19		Port1-Port3 OFF	
Low	∐igh	Port1-Port2 OFF	
	High	Port1-Port3 ON	

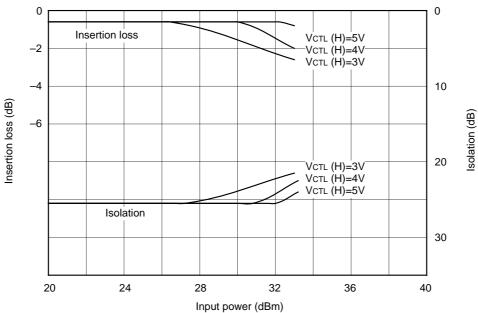
Recommended Circuit



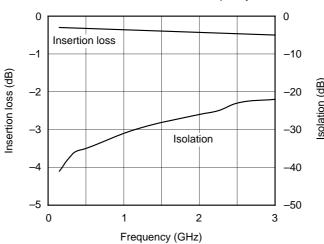
 \ast RRF (200k $\!\Omega\!)$ is used to stabilized the electrical characteristics at high power signal input

Example of Representative Characteristics (Ta=25 °C)



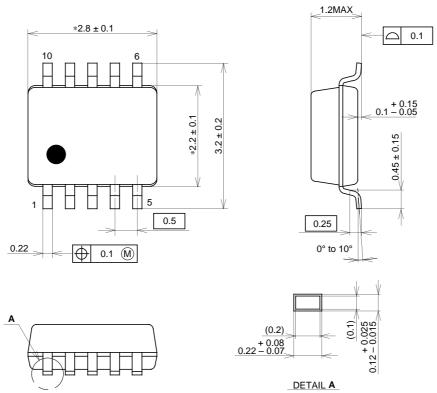


Insertion loss, isolation vs. Frequency



Package Outline Unit: mm

10PIN TSSOP(PLASTIC)



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

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

PACKAGE STRUCTURE

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