

## High Power SPDT Switch

### Description

The CXG1077TN is a SPDT (Single Pole Dual Throw) antenna switch MMIC used in personal communication handsets such as JCDMA.

This IC is designed using the Sony's GaAs J-FET process.

### Features

- Low control voltage  $V_{ctl} (H) = 2.8 \text{ V}$
- Low control current  $I_{ctl} = 30 \mu\text{A}$  (Typ.) @2.8 V
- Low insertion loss 0.35 dB (Typ.) @900 MHz
- High power handling P1dB: 33 dBm (Typ.) @900 MHz
- High intercept point  $I_{p3} = 60 \text{ dBm}$  (Typ.)
- Small package TSSOP-10pin

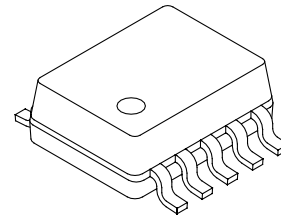
### Application

SPDT switch for digital cellular telephones such as JCDMA handsets.

### Structure

GaAs J-FET MMIC

10 pin (Plastic)



### Absolute Maximum Ratings (Ta=25 °C)

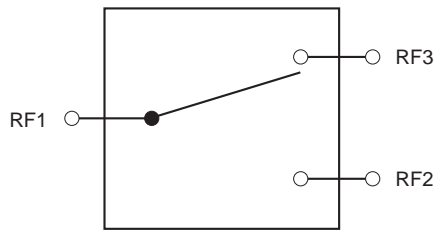
• Control voltage	$V_{ctl}$	7	V
• Operating temperature	$T_{opr}$	-35 to +85	°C
• Storage temperature	$T_{stg}$	-65 to +150	°C

### Operating Condition

Control voltage	CTL (H)	2.5 to 5	V
	CTL (L)	0 to 0.5	V

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Block Diagram



VCTLA	VCTLB	
High	Low	RF1-RF2 ON RF1-RF3 OFF
Low	High	RF1-RF2 OFF RF1-RF3 ON

Electrical Characteristics

(Ta=25 °C)

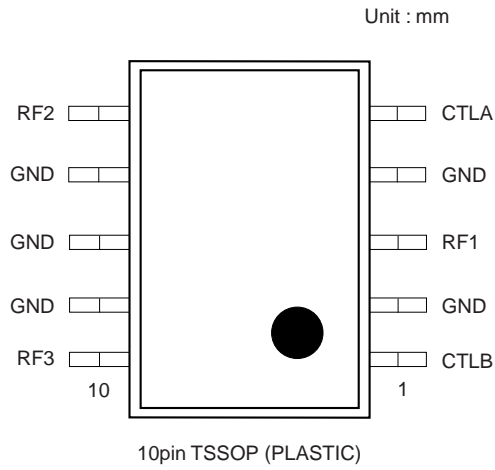
	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	*1		0.35	0.6	dB
		*2		0.5	0.8	dB
Isolation	ISO	*1	20	22		dB
		*2	15	17		dB
VSWR	VSWR	*1, *2		1.2	1.4	
Output harmonics	2fo, 3fo	*1			-30	dBm
		*2			-30	dBm
Input IP3	IIP3	*3		60	54	dBm
Input power for 1 dB compression	P1dB	*1	28	33		dBm
		*2	28	33		dBm
Switching speed TSW	TSW			100	300	ns
Control current	I CTL			30	50	μA

\*1 Pin=25 dBm, 900 MHz, CW, 0/2.8 V Control

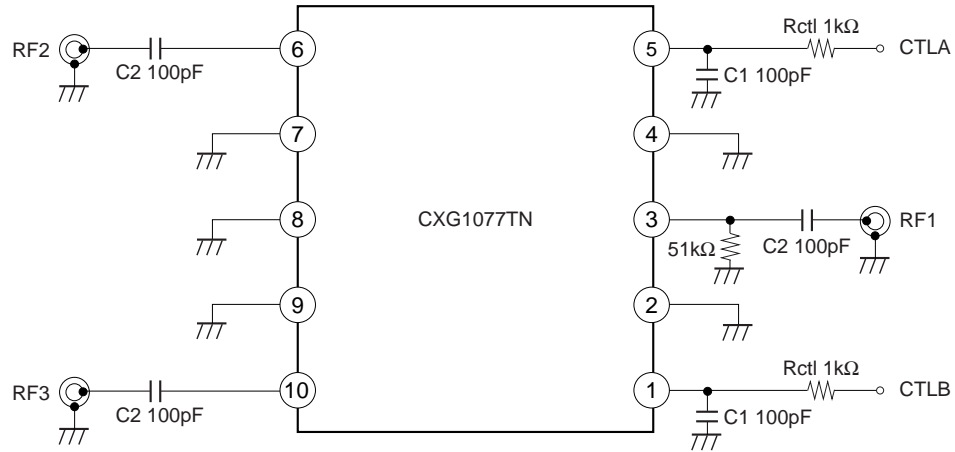
\*2 Pin=25 dBm, 1.8 GHz, CW, 0/2.8 V Control

\*3 Pin=21 dBm (900 MHz) +21 dBm (901 MHz), 0/2.8 V Control

Package Outline/Pin Configuration



Recommended Circuit

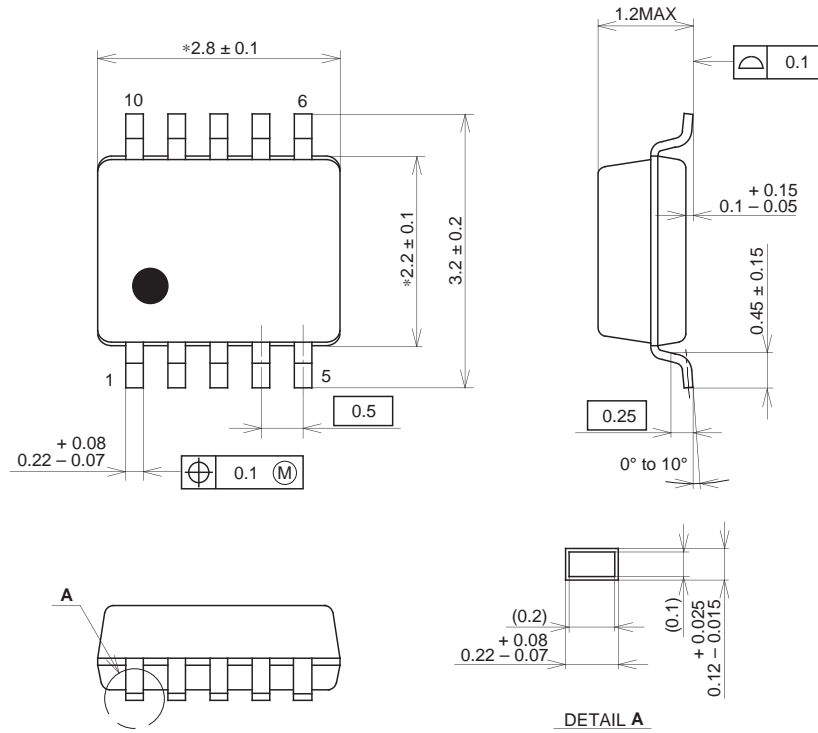


When using the CXG1077TN, the following external components should be used:

- C1: This is used for signal line filtering. 100 pF is recommended.
- C2: This is used for RF De-coupling and must be used in all applications. 100 pF is recommended.
- Rctl: This resistor is used to give improved ESD performance.

Package Outline Unit : mm

10PIN TSSOP(PLASTIC)



NOTE: Dimension "\*" does 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