

## High Power DPDT Switch with Logic Control

### Description

The CXG1100TN is a high power DPDT switch MMIC.

This IC can be used in wireless communication systems, for example, dual-band CDMA handsets.

The CXG1100TN can be operated by CMOS control.

The Sony's JFET process is used for low insertion loss and on-chip logic circuit.

### Features

- Low insertion loss: 0.35dB @900MHz
- High linearity: IIP3 (Typ.) = 60dBm
- 1 CMOS compatible control line
- Small package size: 10-pin TSSOP

### Applications

- Dual band cellular handsets
- CDMA and GPS, dual band CDMA

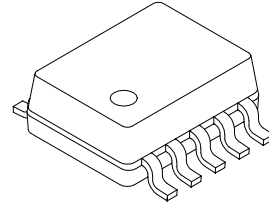
### Structure

GaAs J-FET MMIC

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

• Bias voltage	V <sub>DD</sub>	7	V
• Control voltage	V <sub>ctl</sub>	5	V
• Operating temperature	T <sub>opr</sub>	-35 to +85	°C
• Storage temperature	T <sub>stg</sub>	-65 to +150	°C

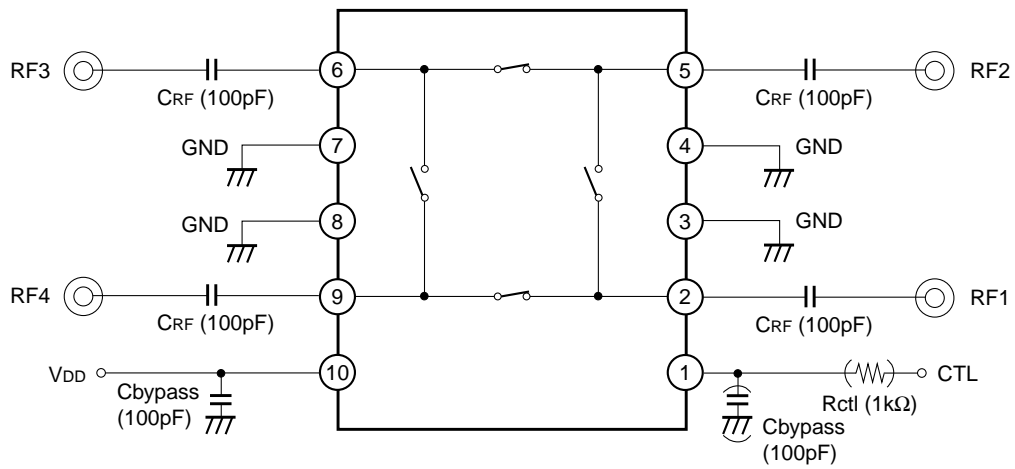
10 pin TSSOP (Plastic)



GaAs MMICs are ESD sensitive devices. Special handling precautions are required.

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**Block Diagram and Recommended Circuit**



When using this IC, the following external components should be used:

- Rctl: This resistor is used to improve ESD performance. 1kΩ is recommended.
- CRF: This capacitor is used for RF de-coupling and must be used for all applications. 100pF is recommended.
- Cbypass: This capacitor is used for DC line filtering. 100pF is recommended.

**Truth Table**

CTL	ON state	OFF state	F1	F2	F3	F4
L	RF1 – RF2, RF3 – RF4	RF2 – RF3, RF4 – RF1	ON	OFF	ON	OFF
H	RF2 – RF3, RF4 – RF1	RF1 – RF2, RF3 – RF4	OFF	ON	OFF	ON

**DC Bias Conditions** (Ta = 25°C)

Item	Min.	Typ.	Max.	Unit
Vctl (H)	2.5	3.0	3.6	V
Vctl (L)	0	—	0.8	V
VDD	2.7	3.0	4.5	V

## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	*1		0.35	0.60	dB
Isolation	ISO.	*1	20	22		dB
VSWR	VSWR	50Ω		1.2	1.4	—
Harmonics	2fo	*1		-75	-60	dBc
	3fo	*1		-75	-60	dBc
Input IP3	IIP3	*2	50	60		dBm
1dB compression input power	P1dB	V <sub>DD</sub> = 2.8V	32	35		dBm
Switching speed	TSW			1	5	μs
Bias current	I <sub>DD</sub>	V <sub>DD</sub> = 3.0V		0.1	0.3	mA
Control current	I <sub>ctl</sub>	V <sub>ctl</sub> (High) = 3V		80	160	μA

\*1 Pin = 24dBm, 0/3V control, V<sub>DD</sub> = 3.0V, 900MHz

\*2 Pin = 24dBm (900MHz) + 24dBm (901MHz), 0/3V control, V<sub>DD</sub> = 3.0V

