

## 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

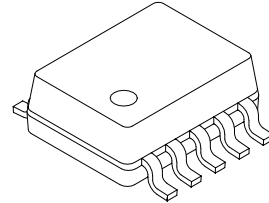
### Structure

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

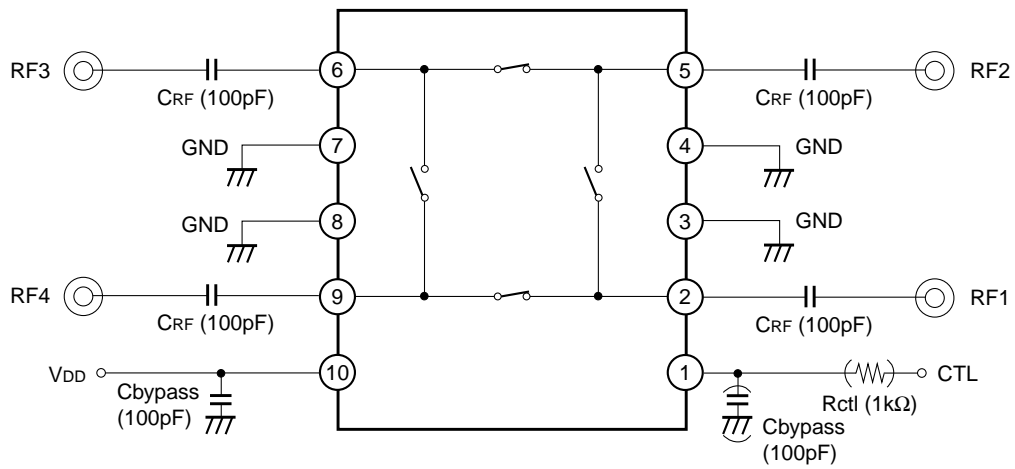
10 pin TSSOP (Plastic)



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

Sony reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits.

**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	-60	-75		dBc
	3fo	*1	-60	-75		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

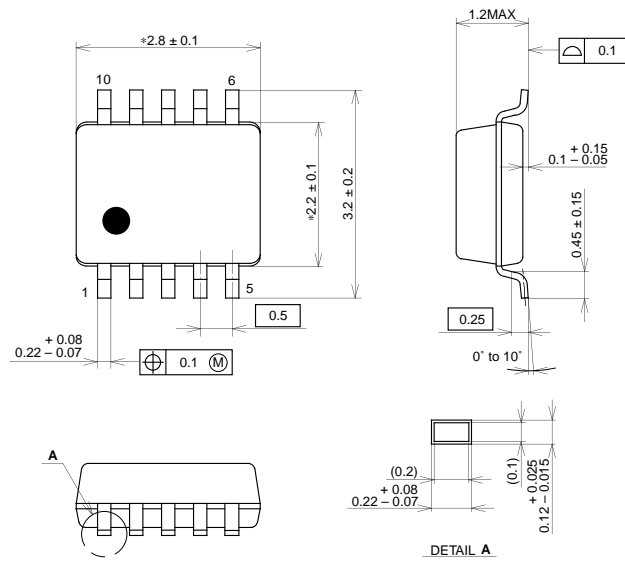
\*1 Pin = 24dBm, 0/3V control, V<sub>DD</sub> = 3.0V, 900MHz

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

Package Outline

Unit: mm

10PIN TSSOP (PLASTIC)



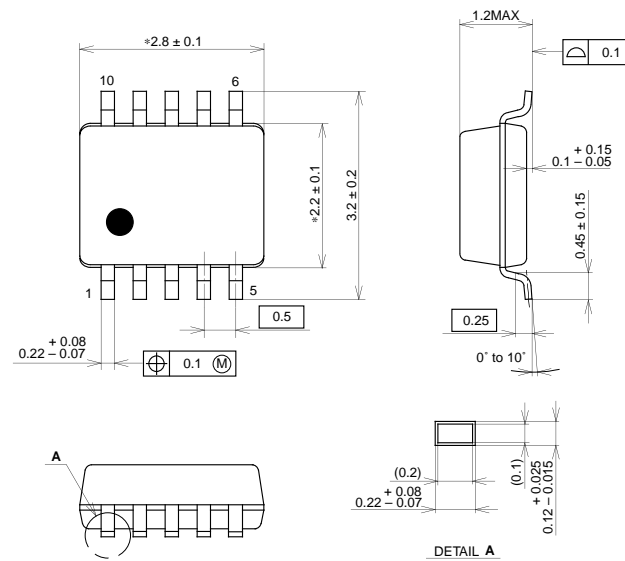
NOTE: Dimension "\*" does not include mold protrusion.

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

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

LEAD PLATING SPECIFICATIONS

ITEM	SPEC.
LEAD MATERIAL	COPPER ALLOY
SOLDER COMPOSITION	Sn-Bi Bi:1-4wt%
PLATING THICKNESS	5-18 $\mu$ m