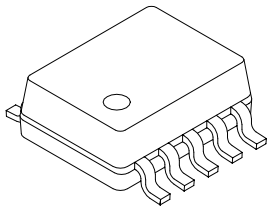
SONY

CXG1100TN

High Power DPDT Switch with Logic Control

10 pin TSSOP (Plastic)



Description

The CXG1100TN is a high power DPDT switch MMIC.

This IC can be used in wireless communi-cation 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

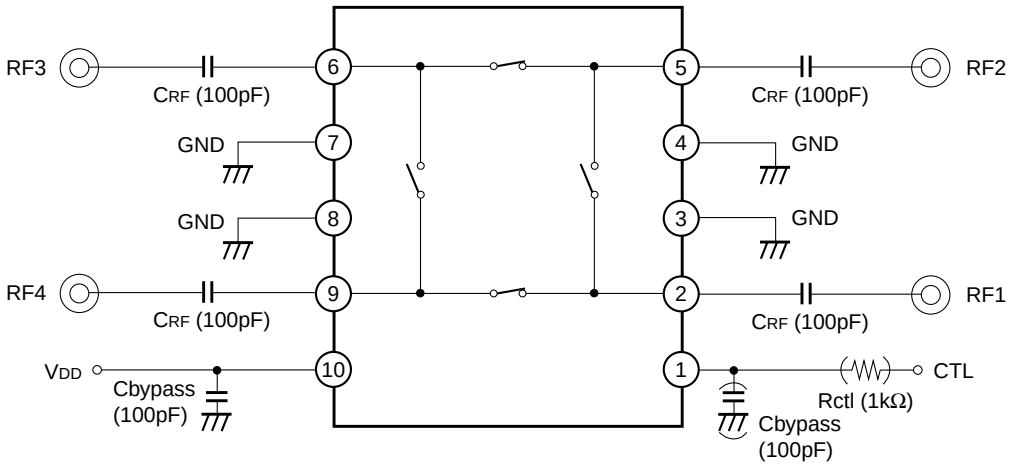
Absolute Maximum Ratings (Ta = 25°C)

• Bias voltage	V_{DD}	7	V
• Control voltage	Vctl	5	V
• Operating temperature	Topr	–35 to +85	°C
• Storage temperature	Tstg	–65 to +150	°C

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

E01433-PS

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.

C_{RF}: 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
V_{DD}	2.7	3.0	4.5	V

Electrical Characteristics (Ta = 25°C)

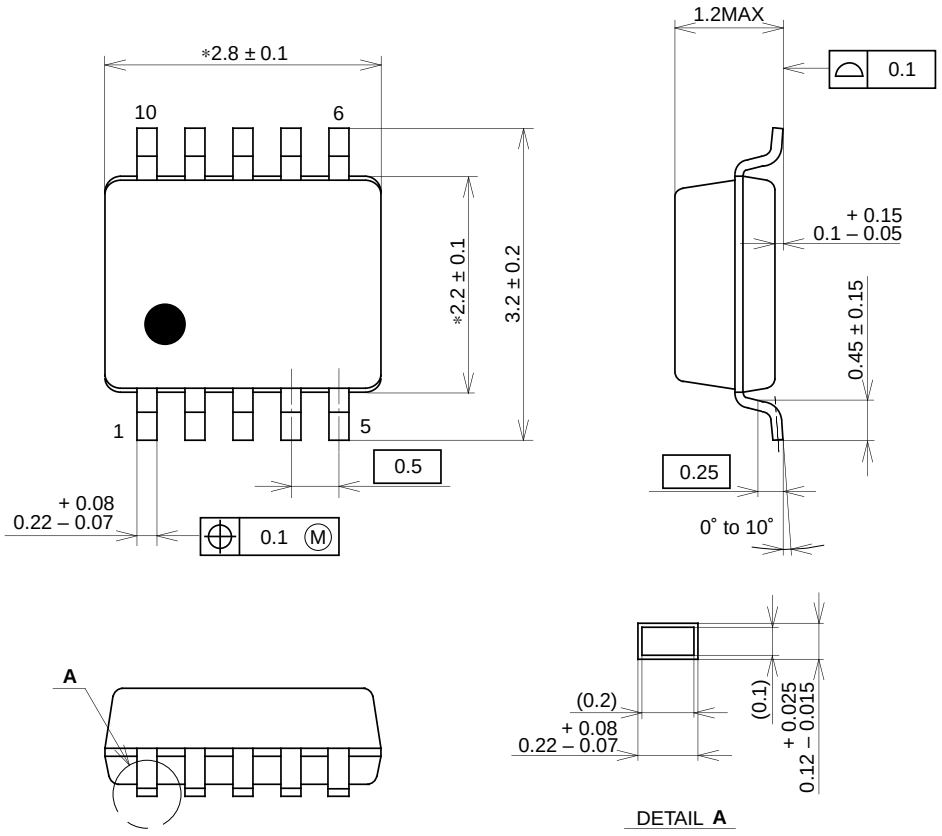
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	*1		0.35	0.60	dB
Isolation	ISO.	*1	20	22		dB
VSWR	VSWR	50Ω		1.2	1.4	—
Harmonics	2fo	*1	–60	–75		dBc
	3fo	*1	–60	–75		dBc
Input IP3	IIP3	*2	50	60		dBm
1dB compression input power	P1dB	V_{DD} = 2.8V	32	35		dBm
Switching speed	TSW			1	5	µs
Bias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

*1 Pin = 24dBm, 0/3V control, V_{DD} = 3.0V, 900MHz

*2 Pin = 24dBm (900MHz) + 24dBm (901MHz), 0/3V control, V_{DD} = 3.0V

Package Outline Unit: mm

10PIN TSSOP (PLASTIC)



NOTE: Dimension "∗" does 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