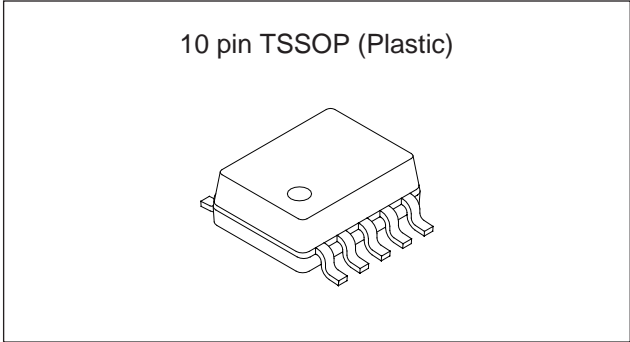# SONY

CXG1101TN

SP3T Antenna Switch for TDMA800/1900/AMPS800 Triple Mode Application

Description

The SP3T is a high power antenna switch MMIC for use in TDMA800/1900/AMPS800 triple mode handsets. One Antenna can be routed to one of AMPS, PCS Tx and PCS Rx. This IC is designed using the Sony's JFET process for low insertion loss.

Features

- Low second harmonics < −31dBm at 29dBm @2.8V
- Low insertion loss: 0.3dB (Ant. − AMPS)
- Small package size: TSSOP-10pin (3.2mm × 2.8mm)

Applications

TDMA800/1900/AMPS800 triple mode handsets.

Structure
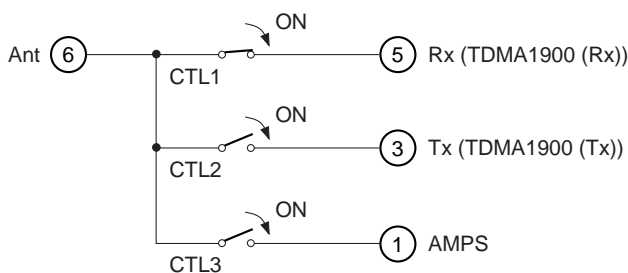
GaAs J-FET MMIC

Absolute Maximum Ratings (Ta = 25°C)

- Control voltage V_{CTL} 5   V
- Operating temperature   Topr   −35 to +85   °C
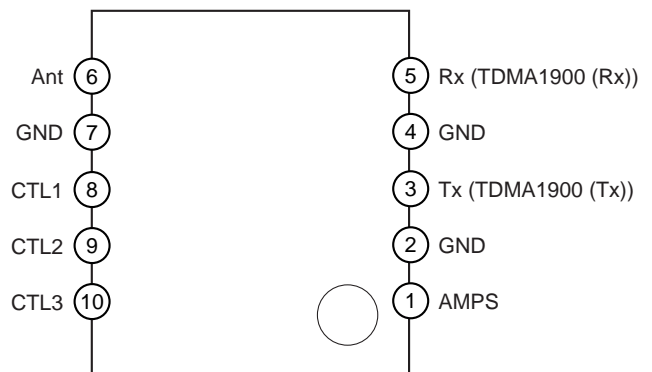- Storage temperature   Tstg   −60 to +150   °C

Notes on Handling

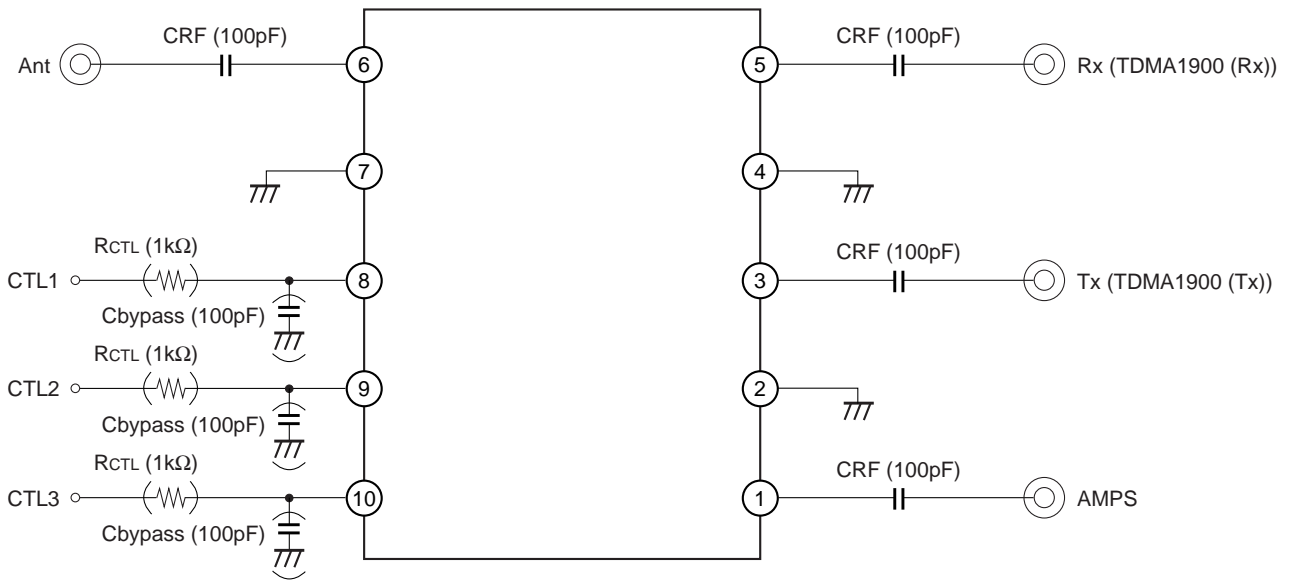GaAs MMICs are ESD sensitive devices. Special handling precautions are required.

10 pin TSSOP (Plastic)

Block Diagram

Pin Configuration

E00443-PS

Recommended Circuit

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

R_{CTL}: 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

On Pass	CTL1	CTL2	CTL3
Ant – Rx (TDMA1900 (Rx))	H	L	L
Ant – Tx (TDMA1900 (Tx))	L	H	L
Ant – AMPS	L	L	H

Electrical Characteristics

V_{CTL} = 0/2.8V control.

All measurements are made in a 50Ω system, and unused ports are terminated with 50Ω.   (Ta = 25°C)

Item	Symbol	Port	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	Ant – Tx	*1	—	0.60	0.85	dB
		Ant – Rx	*2	—	0.65	0.90	dB
		Ant – AMPS	*3	—	0.30	0.55	dB
Isolation	ISO.	Ant – Tx		14	16	—	dB
		Ant – Rx		14	16	—	dB
		Ant – AMPS		18	21	—	dB
VSWR	VSWR			—	1.2	1.5	—
Harmonics	2fo	Ant – Tx	*1, *3	—	−45	−31	dBm
	3fo	Ant – AMPS		—	−40	−31	dBm
1dB compression input power	P1dB	Ant – Tx Ant – AMPS	V_{CTL} = 2.8V	32	35	—	dBm
Switching speed	TSW			—	100	500	ns
Control current	ICTL		*4	—	5	20	µA

*1 Pin = 29dBm, 1900MHz

*2 Pin = 10dBm, 1900MHz

*3 Pin = 29dBm, 800MHz

*4 No signal input

Package Outline Unit: mm

10PIN TSSOP(PLASTIC)

*2.8 ± 0.1

10 6

*2.2 ± 0.1

3.2 ± 0.2

1 5

0.5

0.22

0.1 (M)

1.2MAX

0.1

+ 0.15
0.1 − 0.05

0.45 ± 0.15

0.25

0° to 10°

A

DETAIL **A**

(0.2)

+ 0.08
0.22 − 0.07

(0.1)

+ 0.025
0.12 − 0.015

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