SONY

CXG1028ATN

GSM900/1800/1900 SPDT TX/RX Switch

Description

The CXG1028ATN is a high power SPDT switch suitable for Digital Cellular applications. This device is part of a growing family of MMIC Antenna switches for digital cellular and cordless radios. It uses the state-of-the-art Sony GaAs JFET process.

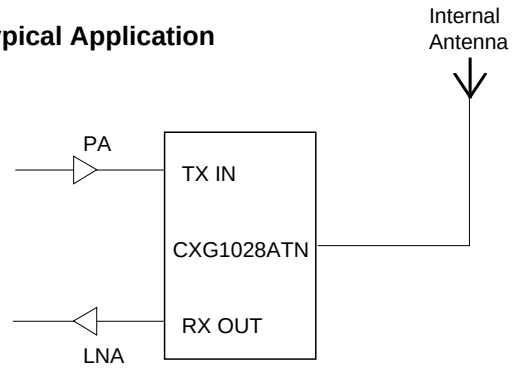
Features

- Positive voltage supply only
- Low insertion loss, typically 0.3dB at 34.5dBm, 900MHz
- Low Harmonics:–64.5dBc Max. at 34.5dBm (Vctl = 5V, 25°C)
- Stable Characteristics over wide temperature range
- Fast switching-100ns Typical
- Low current consumption, 190µA typical at 5V
- 10 pin TSSOP package (3.2 × 2.8mm)

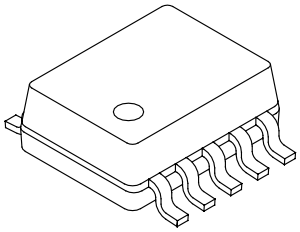
Applications

- GSM900 handportable applications
- GSM1800 handportable
- GSM1900 handportable
- GSM900/1800/1900 Base station
- Other digital cellular and wireless local loop applications

Typical Application



10 pin TSSOP (Plastic)



ESD

As with other GaAs semiconductors, ESD precautions must be adhered to.

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E98527B25-PS

Electrical Characteristics

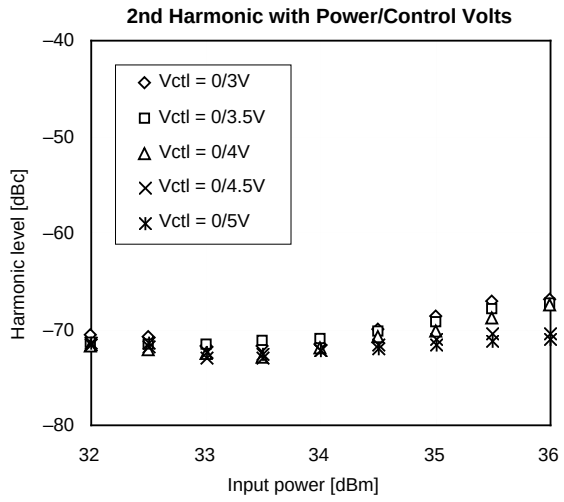
Measurement Conditions, unless otherwise stated: Ta = 25°C. CW

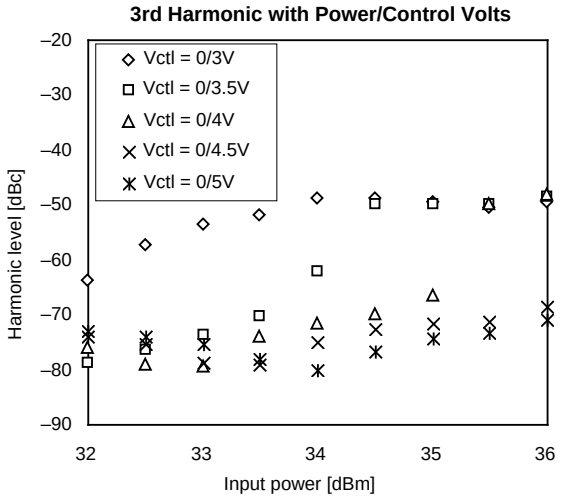
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	*1,*3		0.3	0.6	dB
		*2,*4		0.5	0.8	dB
Isolation	ISO	*1,*3	20	22		dB
		*2,*4		17		dB
VSWR	VSWR			1.2		
Output Harmonics	2fo,3fo	*1			–30	dBm
		*2		–35		dBm
Input Power for 0.2dB Compression	P0.2dB	*1		36		dBm
		*2		35		dBm
Input Power for 1dB Compression	P1dB	*1	36	38		dBm
		*2	35	37		dBm
Switching Speed TSW	TSW			100		ns
Control Current	ICTL			190	350	µA

*1 Pin = 34.5dBm, 880 to 915MHz, 0/5V Control
*2 Pin = 32dBm, 1710 to 1785MHz, 0/5V Control
*3 Pin = 10dBm, 925 to 960MHz, 0/3V Control
*4 Pin = 10dBm, 1805 to 1880MHz, 0/3V Control

Control Voltage Selection, Vctl (H)

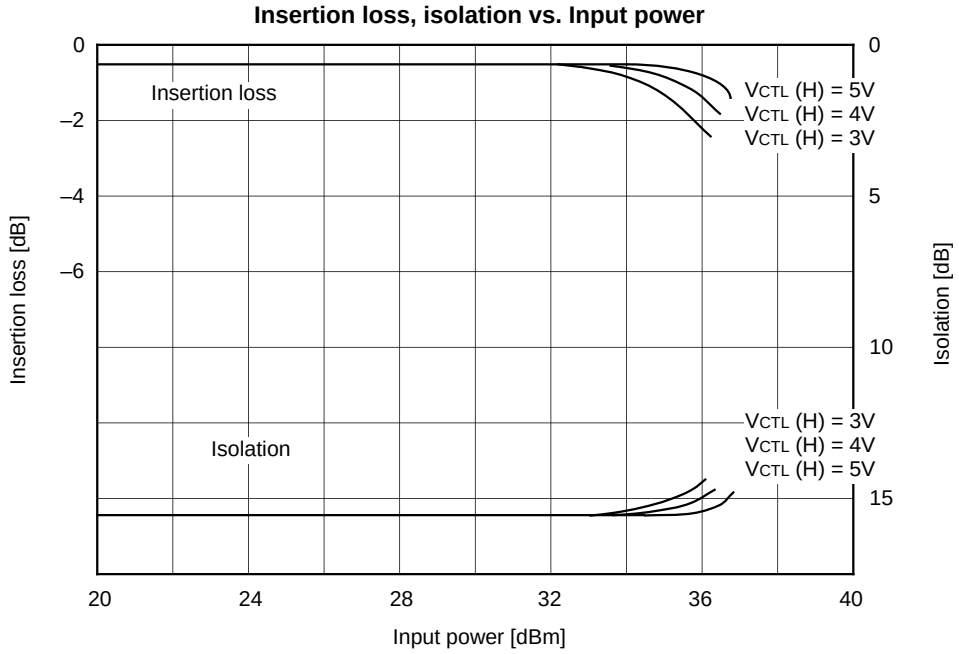
The choice of control voltage will determine the compression characteristic of the switch and the generation of harmonics. The table above indicates P0.2dB, P1dB. The graphs below indicate the sensitivity of harmonic levels:





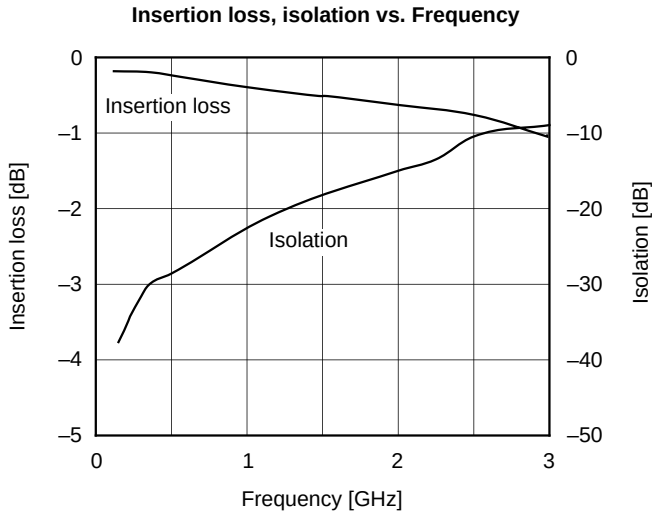
Compression Characteristics

Measurement Conditions: Vctl (L) = 0V, Ta = 25°C

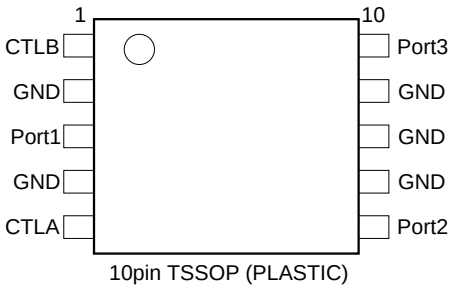


Frequency Characteristics

Measurement Conditions: Vctl (L) = 0V, Vctl (H) = 5V, Pin = 0dBm CW, Ta = 25°C



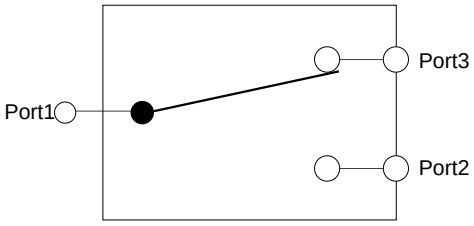
Schematic/Pinout



10pin TSSOP (PLASTIC)

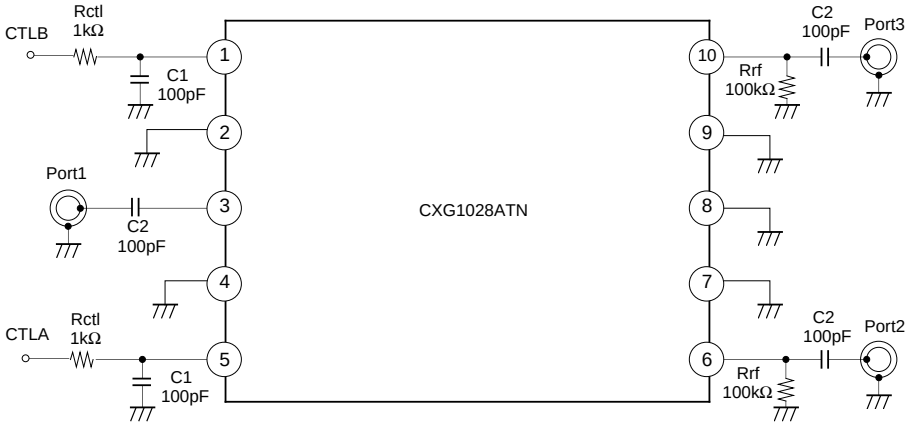
Pin No.	FUNCTION
1	CONTROL B
2	GROUND
3	RF PORT1
4	GROUND
5	CONTROL A
6	RF PORT2
7	GROUND
8	GROUND
9	GROUND
10	RF PORT3

Block Diagram/Truth Table



V_{CTLA}	V_{CTLB}	
High	Low	Port1-Port2 ON Port1-Port3 OFF
Low	High	Port1-Port2 OFF Port1-Port3 ON

External Circuitry



When using the CXG1028ATN, the following external components should be used:

C_1: This is used for signal line filtering .100pF is recommended.

C_2: This is used for RF De-coupling and must be used in all applications. 100pF is recommended.

Rrf: This resistor is used to stabilize the dc operating point at high power levels. A value of 100kΩ is recommended.

Rctl: This resistor is used to reduce the current consumption or to give improved ESD performance.

ESD Precautions

As this is a GaAs MMIC, ESD precautions must be adhered to, as outlined in sony's standard Data Book. Please contact Sony if detailed ESD performance data is required.

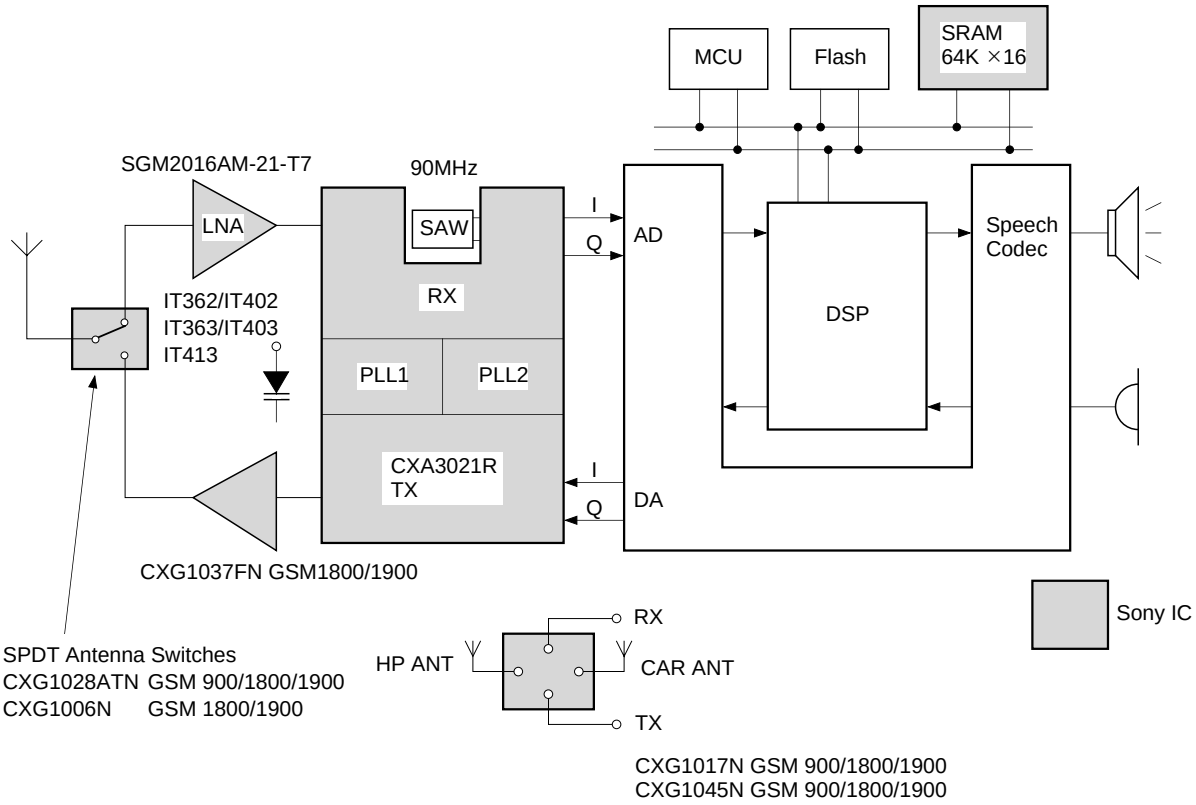
Absolute Maximum Ratings (Ta = 25°C)

• Control voltage	$\lvert V_{CTL} \rvert$	6	V
	V_{CTL} (H) – V_{CTL} (L)	6	V
• Control Current	I_{CTL}	2	mA
• Operating temperature	Topr	–35 to +85	°C
• Storage temperature	Tstg	–65 to +150	°C
• Input Power	Pin	38	dBm

Tape and Reel Information

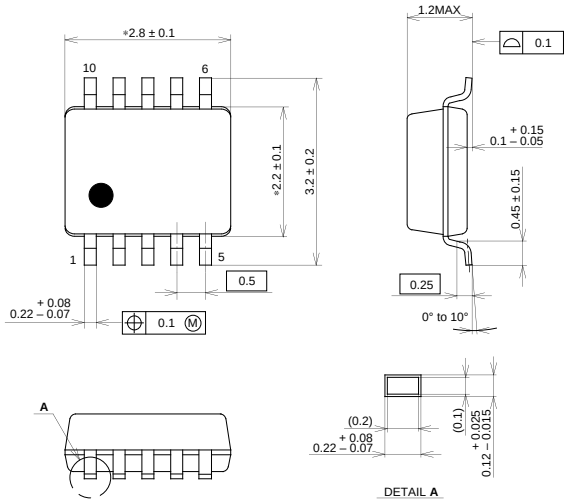
This device is available in Tape and Reel. Order CXG1028ATN-T2
Reel Quantity: 1000 pieces/reel
Reel Dimensions: 254mm Plastic reel. 12mm width embossed taping.

Sony GSM Lineup



Package Outline Unit: mm

10PIN TSSOP(PLASTIC)



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

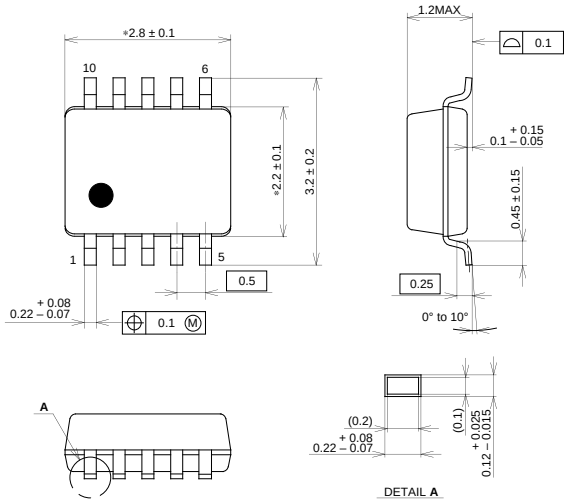
SONY CODE	TSSOP-10P-L01
EIAJ CODE	————
JEDEC CODE	————

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.02g

Kokubu Ass'y

10PIN TSSOP(PLASTIC)



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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	5-18µm