

**High-Frequency SPDT Antenna Switch****Description**

The CXG1016N is a high power antenna switch MMIC. This IC is designed using the Sony's GaAs J-FET process and operates at a single positive power supply

**Features**

- Single positive power supply operation
- Low insertion loss    0.45 dB (Typ.) at 1.5 GHz
- Isolation                20 dB (Typ.) at 1.5 GHz
- High power switching
 

P1 dB (Typ.)	33 dBm	at 1.5 GHz
		$V_{CTL(H)}=3.0\text{ V}$
	37 dBm	at 1.5 GHz
		$V_{CTL(H)}=4.0\text{ V}$

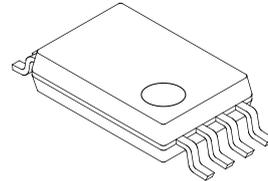
**Applications**

Antenna switch for digital cellular telephones

**Structure**

GaAs J-FET MMIC

8 pin SSOP (Plastic)

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

- |                         |           |             |    |
|-------------------------|-----------|-------------|----|
| • Control voltage       | $V_{ctl}$ | 7           | V  |
| • Operating temperature | $T_{opr}$ | -35 to +85  | °C |
| • Storage temperature   | $T_{stg}$ | -65 to +150 | °C |

**Operating Condition**

- |                   |  |     |   |
|-------------------|--|-----|---|
| • Control voltage |  | 0/4 | V |
|-------------------|--|-----|---|

**Electrical Characteristics**

$V_{CTL(L)}=0\text{ V}$ ,  $V_{CTL(H)}=4\text{ V}$ ,  $P_{IN}=32\text{ dBm}$ ,  $R_{EF}=75\text{ k}\Omega$

( $T_a=25\text{ }^\circ\text{C}$ )

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Insertion Loss	IL1	f=1.0 GHz		0.4	0.7	dB
Isolation	ISO1		20	23		dB
Insertion Loss	IL1.5	f=1.5 GHz		0.45	0.75	dB
Isolation	ISO1.5		17	20		dB
Insertion Loss	IL2	f=2.0 GHz		0.5	0.8	dB
Isolation	ISO2		14	17		dB
VSWR	VSWR				1.5	
Switching Time	TSW			100		ns

$V_{CTL(L)}=0\text{ V}$ , f=2 GHz

( $T_a=25\text{ }^\circ\text{C}$ )

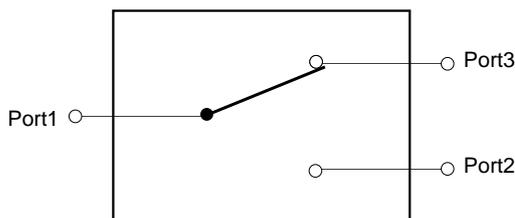
Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
1 dB Compression Point	P1 dB (3)	$V_{CTL(H)}=3\text{ V}$	31	33		dBm
1 dB Compression Point	P1 dB (4)	$V_{CTL(H)}=4\text{ V}$	35	37		dBm

$V_{CTL(L)}=0\text{ V}$ ,  $R_{RF}=75\text{ k}\Omega$

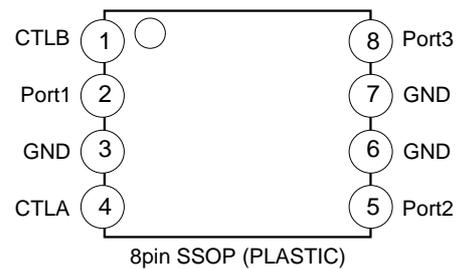
( $T_a=25\text{ }^\circ\text{C}$ )

Item	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Control Current	$I_{CTL(1)}$	$V_{CTL(H)}=3\text{ V}$		120	170	$\mu\text{A}$
Control Current	$I_{CTL(2)}$	$V_{CTL(H)}=4\text{ V}$		170	220	$\mu\text{A}$
Control Current	$I_{CTL(3)}$	$V_{CTL(H)}=5\text{ V}$		250	300	$\mu\text{A}$

**Block Diagram**

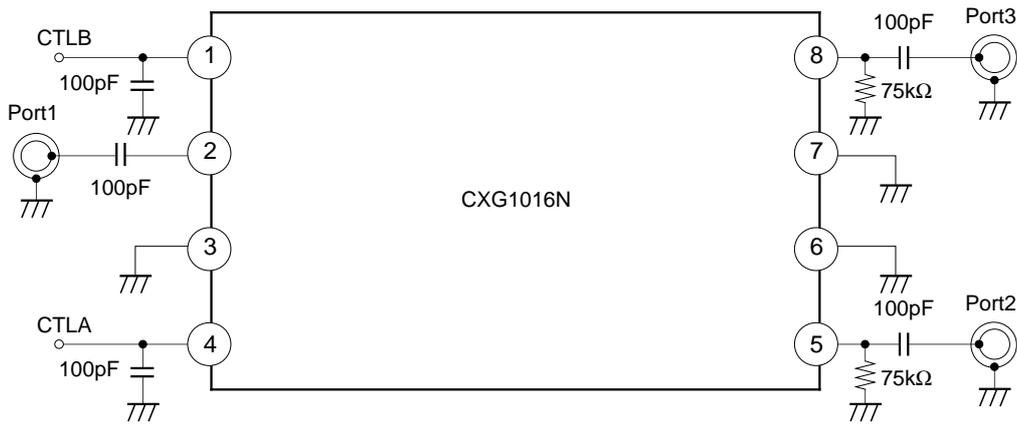


**Package Outline/Pin Configuration**

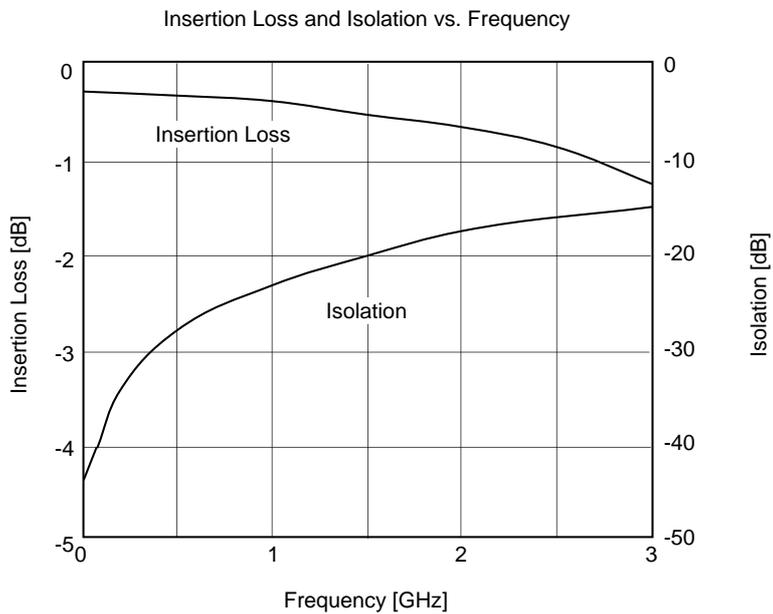
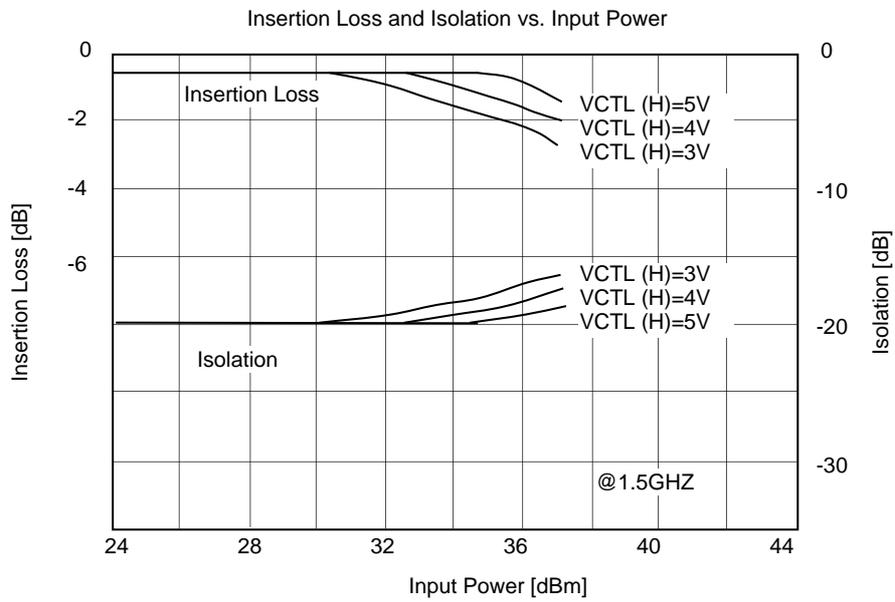


$V_{CTLA}$	$V_{CTLB}$	
High	Low	Port1-Port2 ON Port1-Port3 OFF
Low	High	Port1-Port2 OFF Port1-Port3 ON

Recommended Circuit

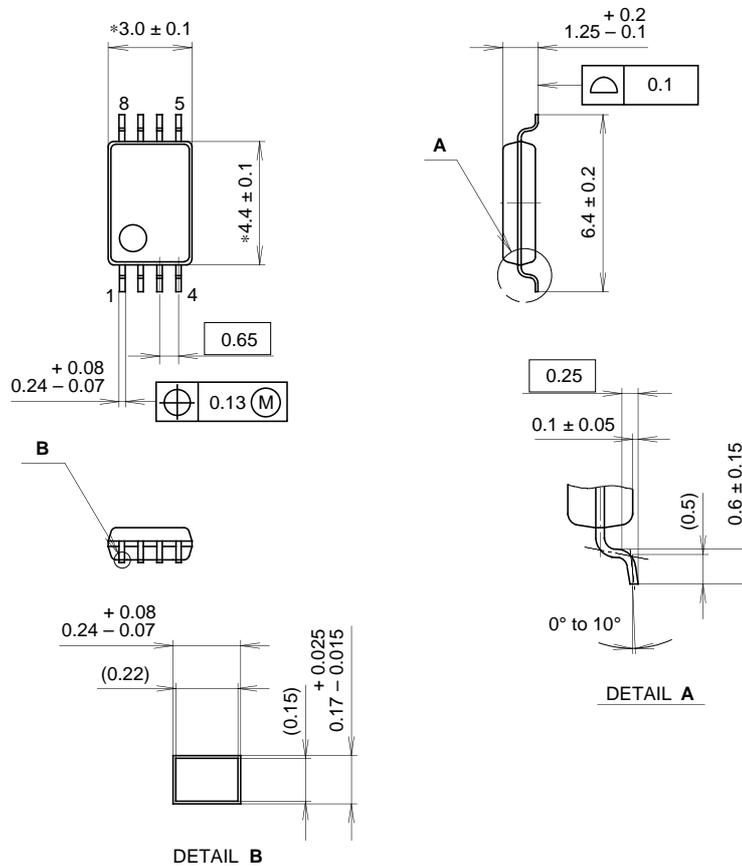


Example of Representative Characteristics (Ta=25 °C)



Package Outline Unit : mm

8PIN SSOP (PLASTIC)



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

PACKAGE STRUCTURE

SONY CODE	SSOP-8P-L01
EIAJ CODE	SSOP008-P-0044
JEDEC CODE	_____

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER / PALLADIUM PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE WEIGHT	0.04g