SONY

CXG1063TN

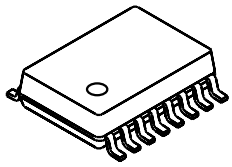
High Power 2 × 4 Antenna Switch MMIC

Description

The CXG1063TN is a high power antenna switch MMIC. The CXG1063TN is suited to connect Tx/Rx to one of 4 antennas in cellular handset such as PDC.

This IC is designed using the Sony's GaAs J-FET process which enable the CXG1063TN to be operated with low voltage.

16 pin TSSOP (Plastic)



Features

- Low Control voltage
- Low Insertion Loss: 0.4dB (Typ.) @900MHz, 0.5dB (Typ.) @1.5GHz
- Small Package: TSSOP-16pin
- High Power Handling: PldB: 36dBm @V_{DD} = Vctl (H) = 4V

Application

2 × 4 antenna switch for digital cellular telephones such as PDC handsets.

Structure

GaAs J-FET MMIC

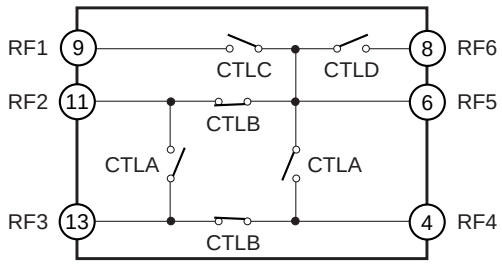
Absolute Maximum Ratings (Ta = 25°C)

• Control voltage	Vctl	7	V
• Operating temperature	Topr	–35 to +85	°C
• Storage temperature	Tstg	–65 to +150	°C

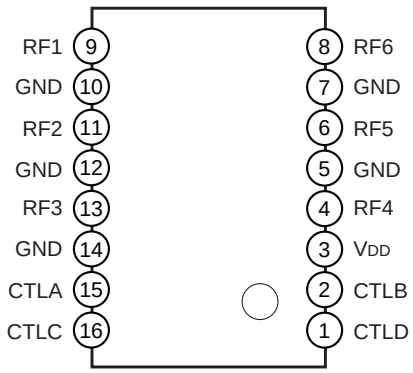
Operating Condition (Ta = 25°C)

Control voltage Vctl (H) – Vctl (L) = 2.5 to 6V

Block Diagram



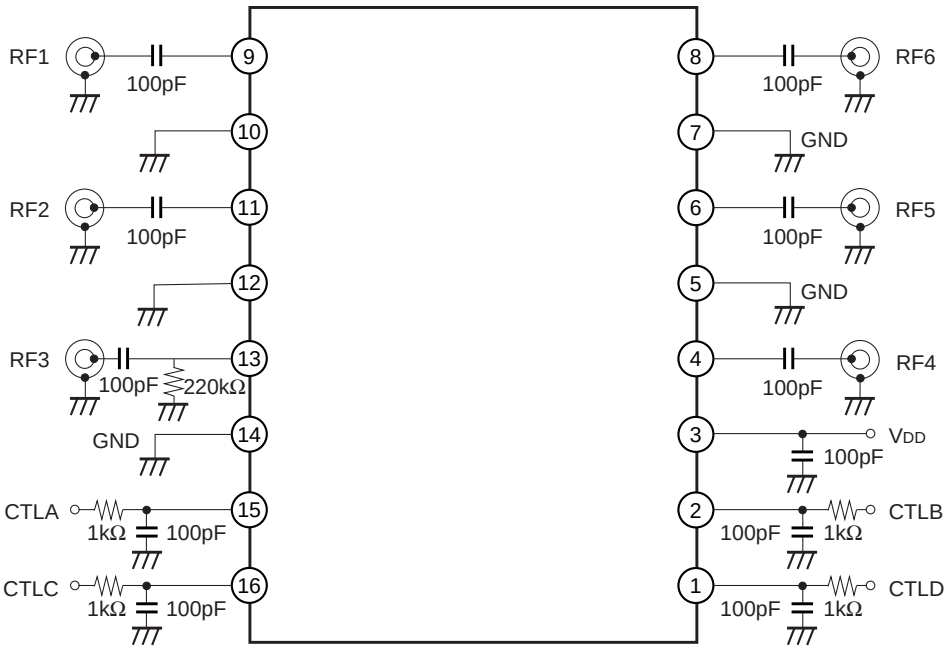
Pin Configuration



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

E98747-PS

Recommended Circuit



Electrical Characteristics (Ta = 25°C)

Item		Frequency	Condition	Min.	Typ.	Max.	Unit
Insertion loss	RF3-RF2 RF3-RF4	889MHz to 960MHz	Pin = 30dBm *1, *2		0.40	0.65	dB
	RF5-RF2 RF5-RF4	810MHz to 885MHz	Pin = 10dBm *3		0.55	0.80	dB
	RF5-RF1 RF5-RF6		Pin = 10dBm *3		0.50	0.75	dB
Isolation	RF3-RF2 RF3-RF4	889MHz to 960MHz	Pin = 30dBm *1, *2	18	21		dB
	RF5-RF2 RF5-RF4	810MHz to 885MHz	Pin = 10dBm *3	18	21		dB
	RF5-RF1 RF5-RF6		Pin = 10dBm *3	21	25		dB
VSWR		810MHz to 960MHz				1.3	
ACP (±50kHz)	RF3-RF2 RF3-RF4	889MHz to 960MHz	Pin = 30dBm *1, *2, *4		–65	–60	dBc
ACP (±100kHz)	RF3-RF2 RF3-RF4	889MHz to 960MHz	Pin = 30dBm *1, *2, *4		–70	–65	dBc
2nd, 3rd harmonics	RF3-RF2 RF3-RF4	889MHz to 960MHz	Pin = 30dBm *1, *2, *4		–65	–60	dBc
Control current Ictl (H)			*1		20	60	µA
			*2		15	50	µA
			*3		15	50	µA
Bias current I_{DD}			*1		40	90	µA
			*2		25	70	µA
			*3		25	70	µA
Switching speed					200		ns

*1 Vctl (L) = 0V, Vctl (H) = 4V, V_{DD} = 4V

*2 Vctl (L) = –2.5V, Vctl (H) = 3V, V_{DD} = 3V

*3 Vctl (L) = 0V, Vctl (H) = 3V, V_{DD} = 3V

*4 Input signal: ACP (±50kHz) < –65dBc, ACP (±100kHz) < –75dBc,
2nd harmonics < –65dBc, 3rd harmonics < –65dBc

Electrical Characteristics (Ta = 25°C)

Item		Frequency	Condition	Min.	Typ.	Max.	Unit
Insertion loss	RF3-RF2 RF3-RF4	1429MHz to 1453MHz	Pin = 30dBm *1, *2		0.50	0.75	dB
	RF5-RF2 RF5-RF4	1477MHz to 1501MHz	Pin = 10dBm *3		0.65	0.90	dB
	RF5-RF1 RF5-RF6		Pin = 10dBm *3		0.60	0.8	dB
Isolation	RF3-RF2 RF3-RF4	1429MHz to 1453MHz	Pin = 30dBm *1, *2	15	18		dB
	RF5-RF2 RF5-RF4	1477MHz to 1501MHz	Pin = 10dBm *3	15	18		dB
	RF5-RF1 RF5-RF6		Pin = 10dBm *3	17	21		dB
VSWR		1429MHz to 1501MHz				1.3	
ACP (±50kHz)	RF3-RF2 RF3-RF4	1429MHz to 1453MHz	Pin = 30dBm *1, *2, *4		–65	–60	dBc
ACP (±100kHz)	RF3-RF2 RF3-RF4	1429MHz to 1453MHz	Pin = 30dBm *1, *2, *4		–70	–65	dBc
2nd, 3rd harmonics	RF3-RF2 RF3-RF4	1429MHz to 1453MHz	Pin = 30dBm *1, *2, *4		–65	–60	dBc
Control current Ictl (H)			*1		20	60	µA
			*2		15	50	µA
			*3		15	50	µA
Bias current I_{DD}			*1		40	90	µA
			*2		25	70	µA
			*3		25	70	µA
Switching speed					200		ns

*1 Vctl (L) = 0V, Vctl (H) = 4V, V_{DD} = 4V

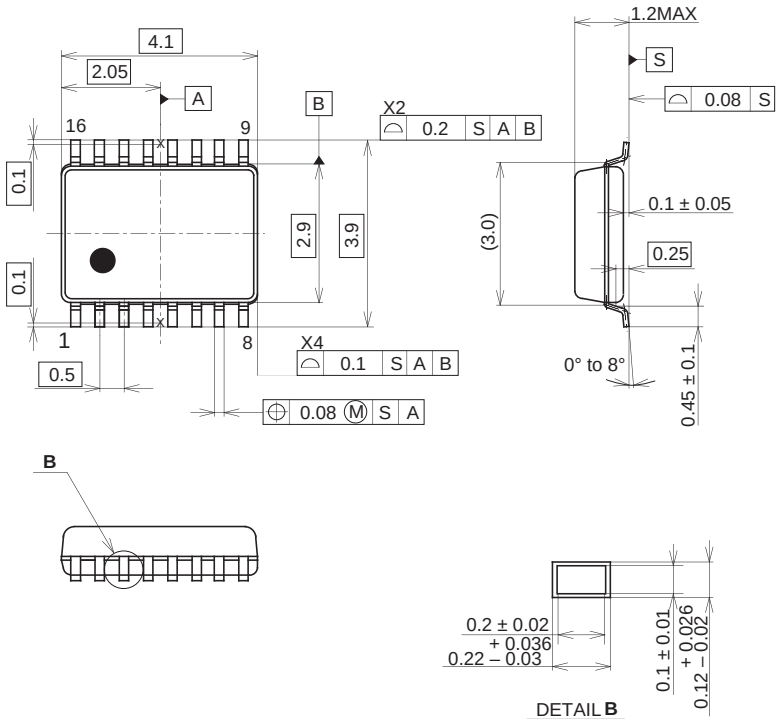
*2 Vctl (L) = –2.5V, Vctl (H) = 3V, V_{DD} = 3V

*3 Vctl (L) = 0V, Vctl (H) = 3V, V_{DD} = 3V

*4 Input signal: ACP (±50kHz) < –65dBc, ACP (±100kHz) < –75dBc,
2nd harmonics < –65dBc, 3rd Harmonics < –65dBc

Package Outline Unit: mm

16PIN TSSOP(PLASTIC)



SONY CODE	TSSOP-16P-L01
EIAJ CODE	————————
JEDEC CODE	————————

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.03g