
Description

The CXG1214UR is a 3P3T(Triple Pole Triple Throw) switch and suitable for wireless communication systems, for example, W-CDMA handsets.

This IC has on-chip logic for operation with 3 CMOS control inputs.

Low insertion loss and on-chip logic circuit are realized by the Sony JPHEMT process.

(Applications: Antenna switch for cellular handsets, triple band W-CDMA)

Features

- ◆ Low insertion loss: 0.25dB@900MHz
- ◆ 3 CMOS compatible control line

Package

Small package size: 20-pin UQFN

Structure

GaAs JPHEMT MMIC

Absolute Maximum Ratings

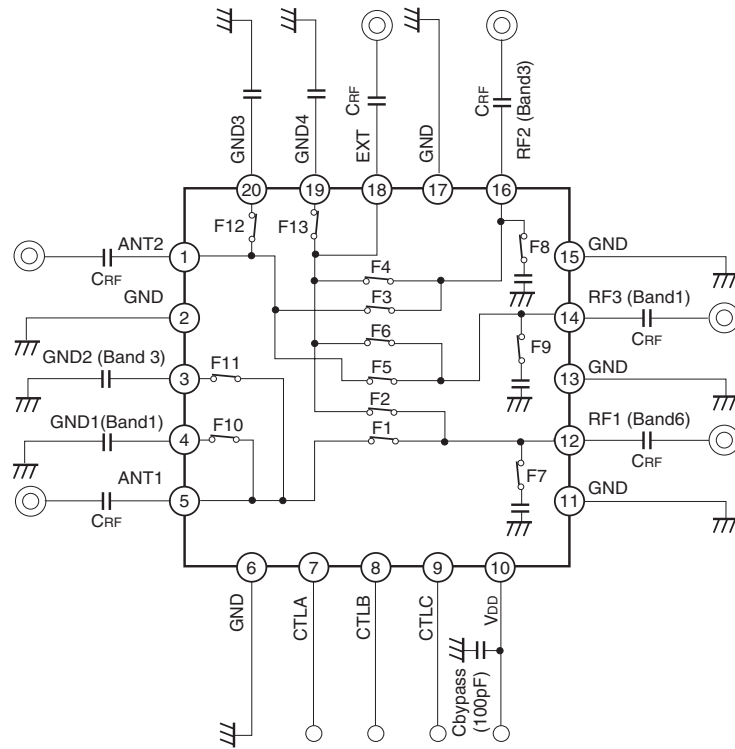
(Ta = 25°C)

◆ Bias voltage	V _{DD}	7	V
◆ Control voltage	V _{ctl}	5	V
◆ Operating temperature	T _{opr}	-35 to +85	°C
◆ Storage temperature	T _{stg}	-65 to +150	°C

This IC is ESD sensitive device. Special handling precautions are required.

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Block Diagram and Recommended Circuit



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

CRF: This capacitor is used for RF decoupling and must be used for all applications.

Cbypass: This capacitor is used for DC line filtering.

Truth Table

State	CTLA	CTLB	CTLC	ON path	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
1	H	L	H	RF1 – ANT1	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON	ON
2	L	H	H	RF2 – ANT2	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	ON	OFF	ON	OFF	ON
3	L	L	H	RF3 – ANT2	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF	OFF	ON
4	H	L	L	RF1 – EXT	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	ON	OFF
5	L	H	L	RF2 – EXT	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF	ON	OFF	ON	ON	OFF
6	L	L	L	RF3 – EXT	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	ON	ON	ON	OFF

DC Bias Conditions

(Ta = 25°C)

Item	Min.	Typ.	Max.	Unit
Vctl (H)	2.2	2.85	3.2	V
Vctl (L)	0	—	0.4	V
VDD	2.6	2.85	3.2	V

Electrical Characteristics

(Ta = 25°C)

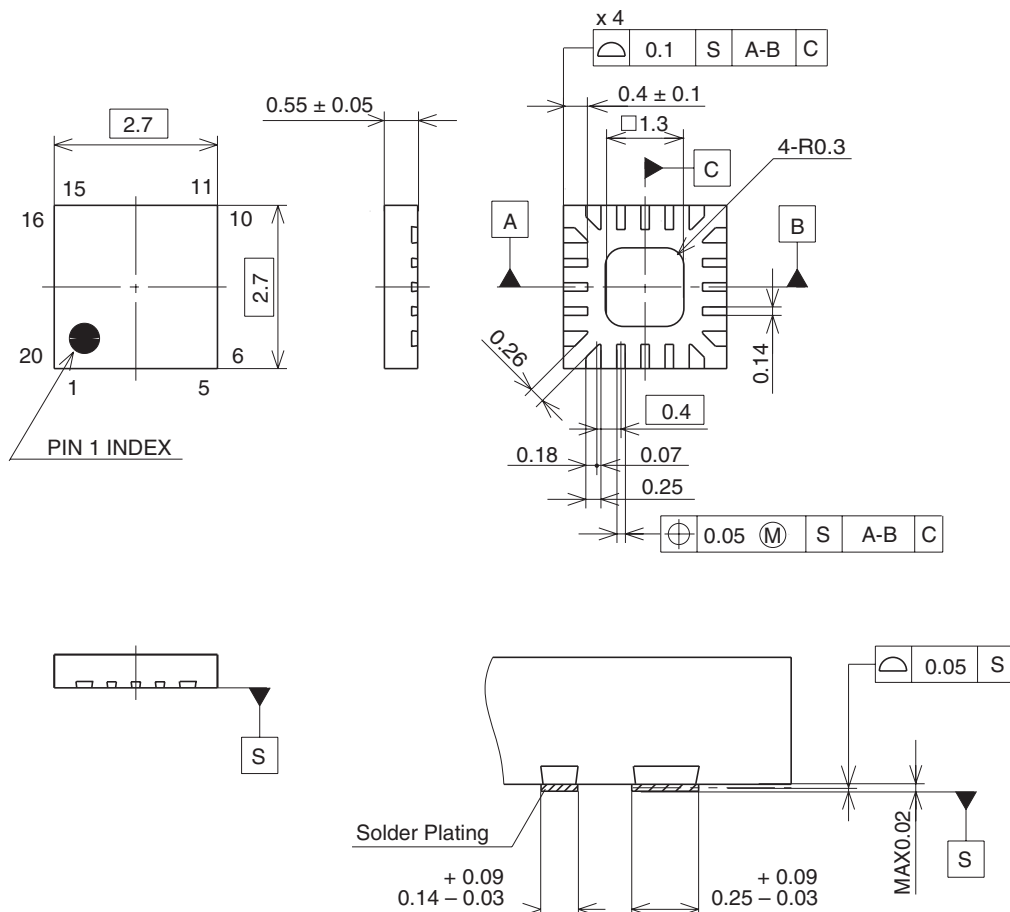
Item	Symbol	State	Path	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	1 2 3	RF1 – ANT1 RF2 – ANT2 RF3 – ANT2	830 to 885MHz		0.35	0.50	dB
				1749.9 to 1880MHz		0.45	0.65	dB
				1920 to 1980MHz		0.47	0.67	dB
				2110 to 2170MHz		0.50	0.75	dB
		4 5 6	RF1 – EXT RF2 – EXT RF3 – EXT	830 to 885MHz		0.40	0.55	dB
				1749.9 to 1880MHz		0.53	0.73	dB
				1920 to 1980MHz		0.55	0.75	dB
				2110 to 2170MHz		0.60	0.85	dB
Isolation	ISO	4 5 6	RF1 – ANT1 RF2 – ANT2 RF3 – ANT2	830 to 885MHz	25	35		dB
				1749.9 to 1880MHz	20	30		dB
				1920 to 2170MHz	20	30		dB
		1	RF1 – EXT	830 to 885MHz	25	35		dB
				1749.9 to 1880MHz	20	30		dB
				1920 to 2170MHz	20	30		dB
		2	RF2 – EXT	830 to 885MHz	20	27		dB
				1749.9 to 1880MHz	17	23		dB
				1920 to 2170MHz	15	21		dB
		3	RF3 – EXT	830 to 885MHz	20	30		dB
				1749.9 to 1880MHz	20	27		dB
				1920 to 2170MHz	19	25		dB
VSWR	VSWR			50Ω		1.2		
Switching speed	TSW					5	10	
1dB compression input power	P1dB			V _{DD} = 2.85V		32		dBm
ACLR	ACLR1			±5MHz, 3.84MHz BW*1			-50	dBc
	ACLR2			±10MHz, 3.84MHz BW*1			-55	dBc
Harmonics	2fo			*1			-45	dBm
	3fo			*1			-45	dBm
Bias current	I _{DD}			V _{DD} = 2.85V		200	330	μA
Control current	I _{ctl}			V _{ctl(H)} = 2.85V		30	50	μA

*1 Pin = 25dBm, 0/2.85V control, V_{DD} = 2.85V, 830 to 840MHz, 1749.9 to 1785MHz, 1920 to 1980MHz, Measurement system noise level : ACLR(±5MHz) <-60dBc, (±10MHz) <-65dBc, 2nd Harmonics <-75dBm, 3rd Harmonics <-75dBm

Package Outline

(Unit: mm)

20PIN UQFN (PLASTIC)



TERMINAL SECTION

Note: Cutting burr of lead are 0.05mm MAX.

SONY CODE	UQFN-20P-01
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE STRUCTURE

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