

Description

The CXG1189UR is a high power SPDT (Single Pole Dual Throw) switch MMIC used in wireless communication systems, for example, GSM handsets, GSM/UMTS dual mode handsets.

The Sony JPHEMT process is used for low insertion loss.

(Applications: Antenna switch for cellular handsets, GSM, GSM/UMTS dual mode)

Features

- ◆ Low insertion loss: 0.2dB@900MHz, 0.25dB@1.8GHz, 0.3dB@2.17GHz
- ◆ Low harmonics level: -35dBm (Max.)

Package

Small package size: 12-pin UQFN

Structure

GaAs JPHEMT MMIC

Absolute Maximum Ratings

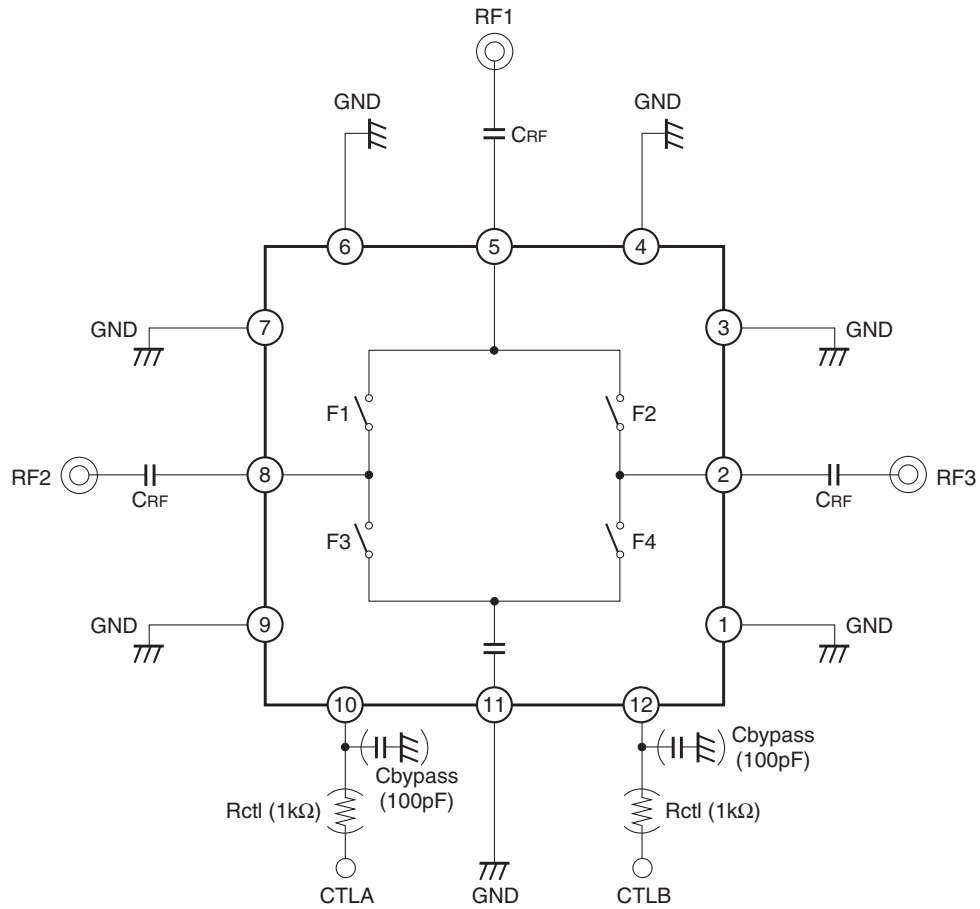
(Ta = 25°C)

◆ Control voltage	Vctl	5	V
◆ Input power max. [824 to 915MHz]		37	dBm
◆ Input power max. [1710 to 1910MHz]		35	dBm
◆ Input power max. [1920 to 1980MHz]		33	dBm
◆ Operating temperature	Topr	-35 to +85	°C
◆ Storage temperature	Tstg	-60 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:

Rctl: This resistor is used to improve ESD performance. 1kΩ is recommended

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

Cbypass: This capacitor is used for DC line filtering. 100pF is recommended.

Truth Table

CTLA	CTLB	ON State	F1	F2	F3	F4
L	H	RF1 – RF2	ON	OFF	OFF	ON
H	L	RF1 – RF3	OFF	ON	ON	OFF

DC Bias Condition

(Ta = 25°C)

Item	Min.	Typ.	Max.	Unit
Vctl (H)	2.6	2.8	3.6	V
Vctl (L)	0	—	0.4	V

Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Path	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	RF1 – RF2	824 to 960MHz		0.20	0.30	dB
			1710 to 1990MHz		0.25	0.35	dB
			1920 to 2170MHz		0.30	0.40	dB
		RF1 – RF3	824 to 960MHz		0.20	0.30	dB
			1710 to 1990MHz		0.25	0.35	dB
			1920 to 2170MHz		0.30	0.40	dB
Isolation	ISO.	RF1 – RF2	824 to 960MHz	25	32		dB
			1710 to 1990MHz	25	31		dB
			1920 to 2170MHz	25	30		dB
		RF1 – RF3	824 to 960MHz	25	32		dB
			1710 to 2170MHz	25	31		dB
			1920 to 2170MHz	25	30		dB
VSWR	VSWR		824 to 960MHz		1.2		—
			1710 to 2170MHz		1.2		—
			1920 to 2170MHz		1.2		—
Harmonics*1	2fo	RF1 – RF2	824 to 915MHz Vctl = 2.8/0V		-39	-35	dBm
	3fo	RF1 – RF3			-40	-35	dBm
	2fo	RF1 – RF2	1710 to 1910MHz Vctl = 2.8/0V		-38	-35	dBm
	3fo	RF1 – RF3			-37	-35	dBm
	2fo	RF1 – RF2	1920 to 1980MHz Vctl = 2.8/0V		-38	-35	dBm
	3fo	RF1 – RF3			-42	-35	dBm
P1dB compression input power	P1dB	RF1 – RF2 RF1 – RF3	824 to 915MHz Vctl = 2.8/0V	37			dBm
		RF1 – RF2 RF1 – RF3	1710 to 1910MHz Vctl = 2.8/0V	34			dBm
		RF1 – RF2 RF1 – RF3	1920 to 1980MHz Vctl = 2.8/0V	32			dBm
Control current	Ictl		Vctl = 2.8V		2	6	μA

Electrical characteristics are measured with all RF ports terminated in 50Ω.

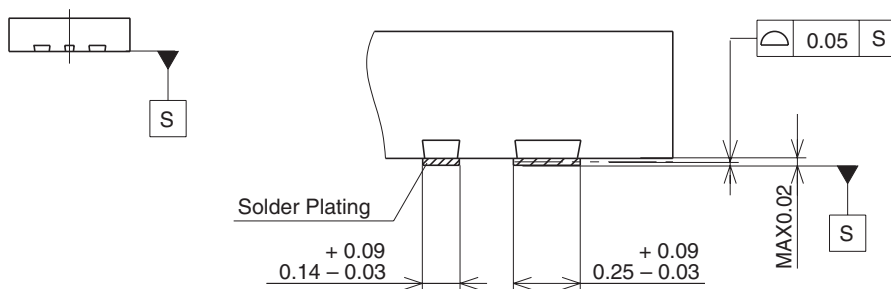
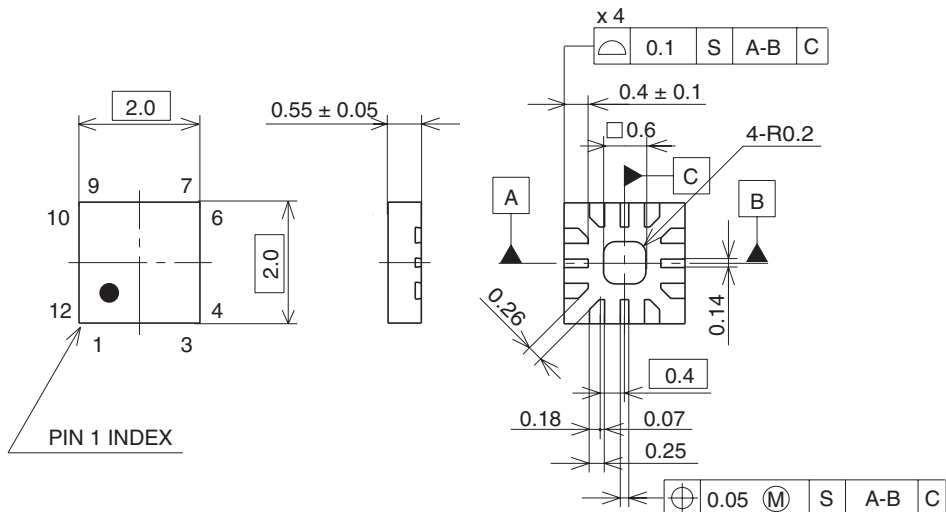
*1 Harmonics measured with Tx inputs harmonically matched. The use of harmonic matching is recommended to ensure optimum performance.

1. Power incident on Tx, Pin = 34dBm, 824 to 915MHz, Vctl (H) = 2.8V, Vctl (L) = 0V
2. Power incident on Tx, Pin = 32dBm, 1710 to 1910MHz, Vctl (H) = 2.8V, Vctl (L) = 0V
3. Power incident on Tx, Pin = 29dBm, 1920 to 1980MHz, Vctl (H) = 2.8V, Vctl (L) = 0V

Package Outline

(Unit: mm)

12PIN UQFN (PLASTIC)



TERMINAL SECTION

Note:Cutting burr of lead are 0.05mm MAX.

SONY CODE	UQFN-12P-01
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.01g

LEAD PLATING SPECIFICATIONS

ITEM	SPEC.
LEAD MATERIAL	COPPER ALLOY
SOLDER COMPOSITION	Sn-Bi Bi:1-4wt%
PLATING THICKNESS	5-18μm