SONY

High-Frequency SPDT Switch

CXG1199UR

Description

The CXG1199UR is a SPDT (Single Pole Dual Throw) switch and suitable for middle power wireless communication systems, for example, cellular phones, Bluetooth and WLAN.
Low insertion loss is realized by the Sony JPHEMT process.
(Applications: Cellular phones, Bluetooth and WLAN)

Features

◆ Low insertion loss

Package

Small package: 12-pin UQFN (2.0mm × 2.0mm × 0.6mm (Max.))

Structure

GaAs JPHEMT MMIC

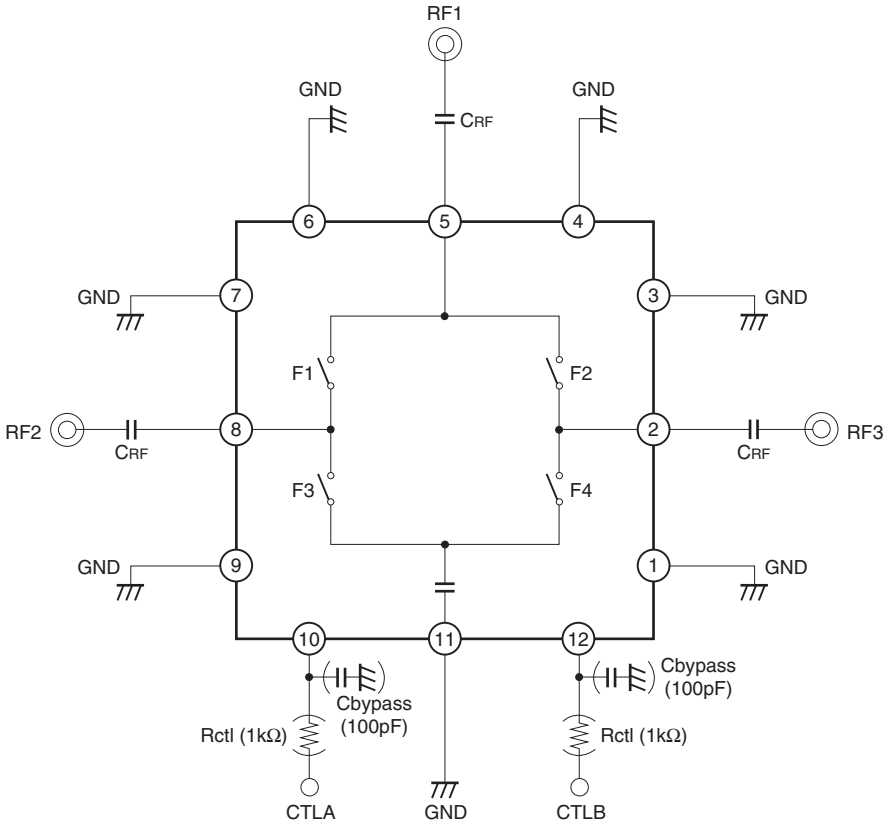
Absolute Maximum Ratings

(Ta = 25℃)

◆ Control voltage	Vctl	5	V	
◆ Operating temperature	Topr	–35 to +85	℃	(for general use)
		–40 to +85	℃	(for Bluetooth & WLAN)
◆ Storage temperature	Tstg	–65 to +150	℃	

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

Block Diagram and Recommended Circuit



When using this IC, the following external components are needed:

Rctl: This resistor is for improving ESD performance. 1kΩ is recommended.

CRF: This capacitor is for RF decoupling and needed for all applications.

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

Truth Table

CTLA	CTLB	ON Path	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℃)

Item	Min.	Typ.	Max.	Unit	Condition
Vctl (H)*1	2.0	2.8	3.6	V	Pin = 15dBm
Vctl (H)*2	1.65	1.8	1.95	V	Pin = 5dBm
Vctl (L)	0	—	0.4	V	—

*1 General use

*2 Bluetooth & WLAN

Electrical Characteristics

1. Electrical Characteristics for General Use

(Ta = 25℃)

Item	Symbol	Path	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	RF1 – RF2	0.5 to 1.0GHz	—	0.20	0.30	dB
			1.0 to 2.0GHz	—	0.25	0.35	dB
			2.0 to 2.5GHz	—	0.35	0.45	dB
		RF1 – RF3	0.5 to 1.0GHz	—	0.20	0.30	dB
			1.0 to 2.0GHz	—	0.25	0.35	dB
			2.0 to 2.5GHz	—	0.35	0.45	dB
Isolation	ISO.	RF1 – RF2	0.5 to 1.0GHz	25	32	—	dB
			1.0 to 2.0GHz	25	31	—	dB
			2.0 to 2.5GHz	20	27	—	dB
		RF1 – RF3	0.5 to 1.0GHz	25	32	—	dB
			1.0 to 2.0GHz	25	31	—	dB
			2.0 to 2.5GHz	20	27	—	dB
VSWR	VSWR	—	0.5 to 1.0GHz	—	1.2	1.5	—
			1.0 to 2.0GHz	—	1.2	1.5	—
			2.0 to 2.5GHz	—	1.2	1.5	—
Control current	Ictl	—	Vctl = 2.8V	—	2	6	μA

Common condition: Pin = 15dBm, Vctl (H) = 2.8V, Vctl (L) = 0V, All RF ports are 50Ω terminated.

2. Electrical Characteristics for Bluetooth & WLAN

(Ta = 25℃)

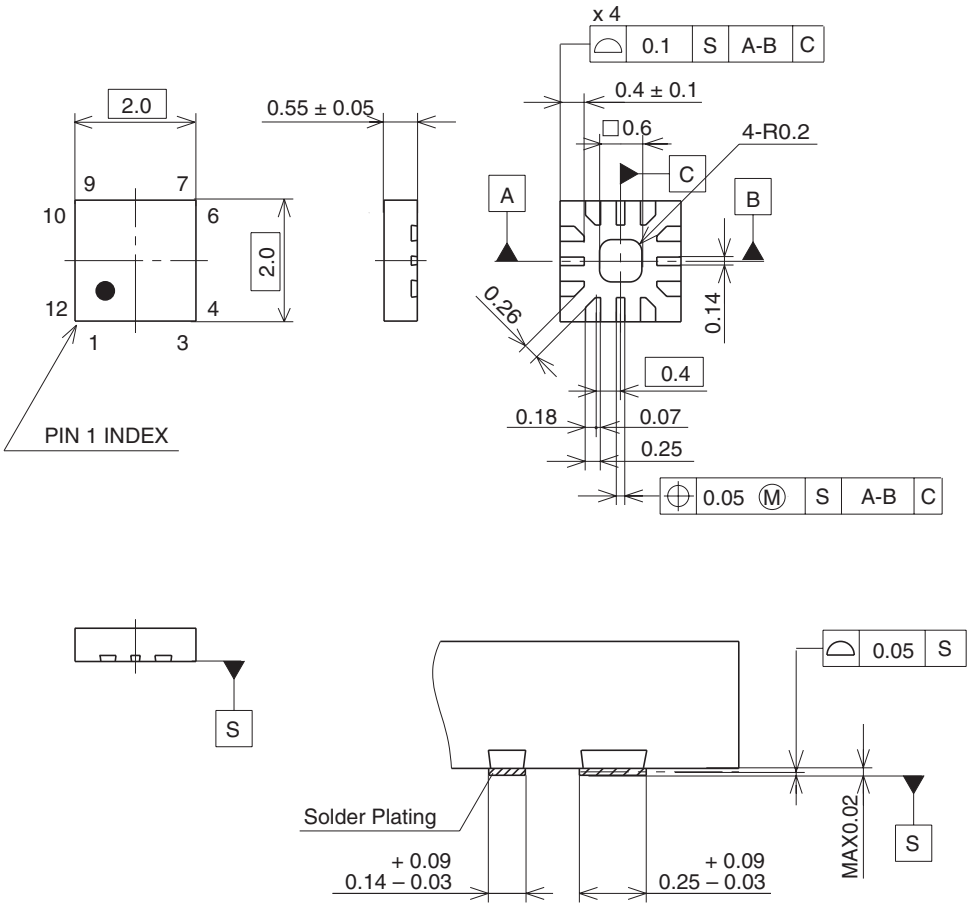
Item	Symbol	Path	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	RF1 – RF2	2.0 to 2.5GHz	—	0.35	0.50	dB
		RF1 – RF3	2.0 to 2.5GHz	—	0.35	0.50	dB
Isolation	ISO.	RF1 – RF2	2.0 to 2.5GHz	20	27	—	dB
		RF1 – RF3	2.0 to 2.5GHz	20	27	—	dB
VSWR	VSWR	—	2.0 to 2.5GHz	—	1.2	1.5	—
Control current	Ictl	—	Vctl = 1.8V	—	1	3	μA
Switching speed	TSW	—		—	0.1	1	μs

Common condition: Pin = 5dBm, Vctl (H) = 1.8V, Vctl (L) = 0V, All RF ports are 50Ω terminated.

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