

High Power SPDT Switch with Logic Control

Description

The CXG1134EN is a high power and high Isolation SPDT switch MMIC. This IC can be used in wireless communication systems. The CXG1134EN can be operated by one CMOS control line. The Sony GaAs J-FET process is used for low insertion loss and on-chip logic circuit.

Features

- Low insertion loss: 0.25dB @900MHz,
0.35dB @1.9GHz
- High linearity: IIP3 (typ.) = 70dBm
- 1 CMOS compatible control line
- Small package size: 10-pin VSON

Applications

- Cellular handsets
- PDC, CDMA

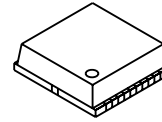
Structure

GaAs J-FET 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 |

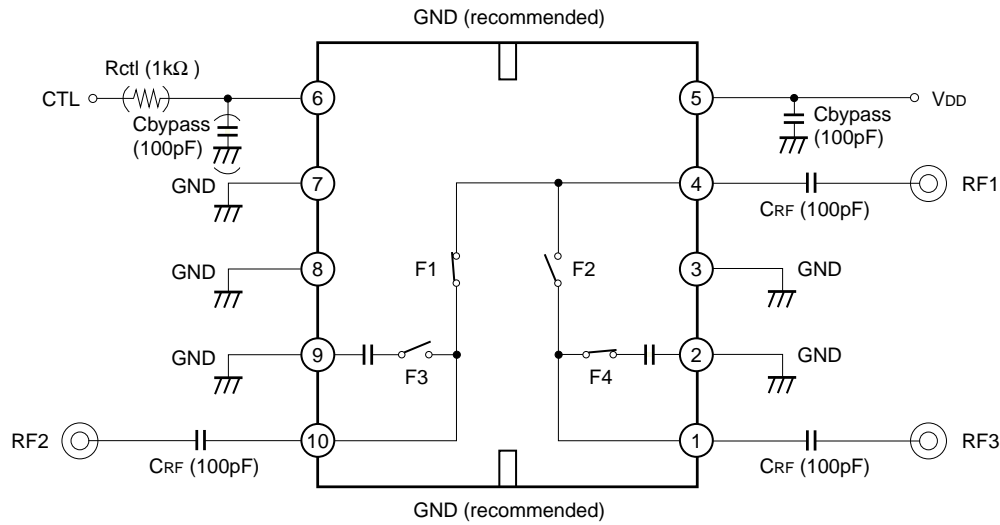
10 pin VSON (Plastic)



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

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Block Diagram and Recommended Circuit



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

- Rctl: This resistor is used to improve ESD performance. 1kΩ is recommended.
- CRF: This capacitor is used for RF de-coupling and must be used for all applications. 100pF is recommended.
- Cbypass: This capacitor is used for DC line filtering. 100pF is recommended.

Truth Table

On Pass	CTL	F1	F2	F3	F4
RF1 – RF2	H	ON	OFF	OFF	ON
RF1 – RF3	L	OFF	ON	ON	OFF

DC Bias Condition

(Ta = 25°C)

Item	Min.	Typ.	Max.	Unit
Vctl (H)	2.2	3.0	3.6	V
Vctl (L)	0	—	0.4	V
VDD	2.7	3.0	3.6	V

Electrical Characteristics

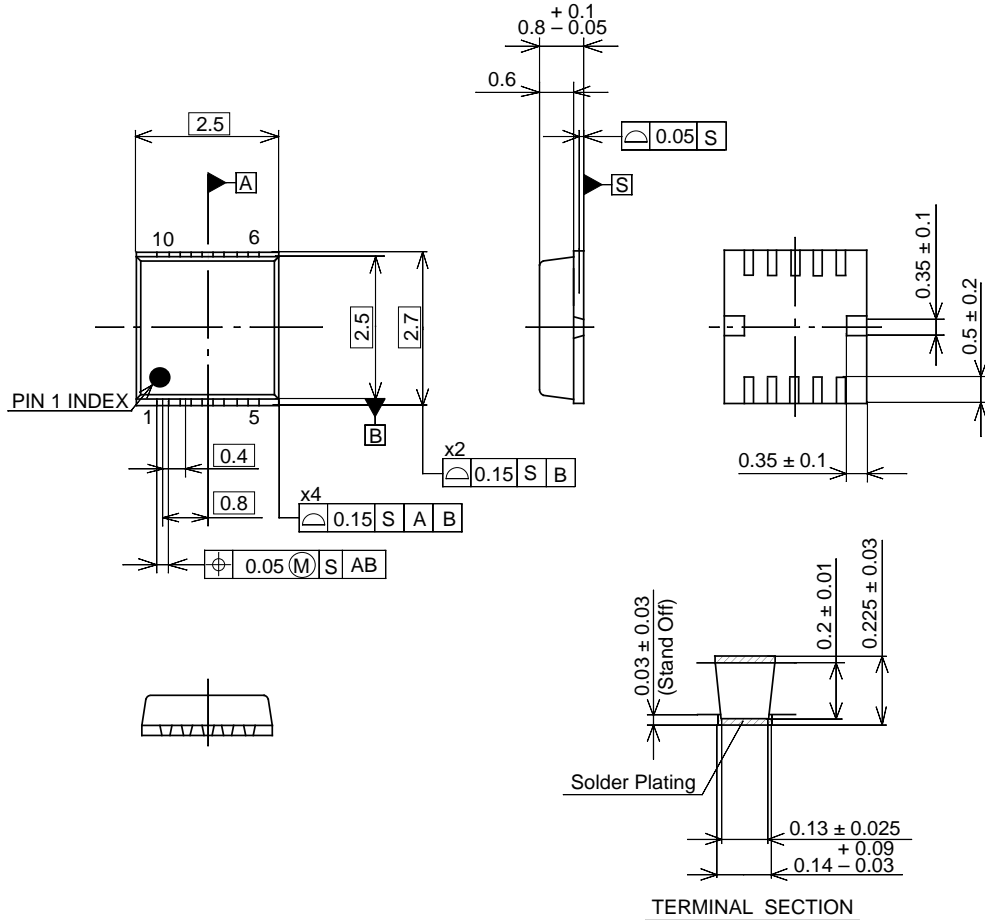
(Ta = 25°C)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Insertion loss	IL	900MHz		0.25	0.50	dB
Isolation	ISO.	900MHz	28	32		dB
VSWR	VSWR	900MHz		1.2	1.4	—
Harmonics	2fo	*1		-75	-60	dBc
	3fo	*1		-75	-60	dBc
1dB compression input power	P1dB	V _{DD} = 3.0V, 0/3V control	32	35		dBm
Switching speed	TSW			2	5	μs
Control current	I _{ctl}	V _{ctl} (High) = 3V		10	30	μA
Bias current	I _{DD}	V _{DD} = 3V		50	100	μA

*1 Pin = 30dBm, 900MHz, V_{DD} = 3.0V, 0/3V control

Package Outline Unit: mm

10PIN VSON(PLASTIC)



NOTE: 1) The dimensions of the terminal section apply to the ranges of 0.1mm and 0.25mm from the end of a terminal.

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.013g

SONY CODE	VSON-10P-01
EIAJ CODE	_____
JEDEC CODE	_____

LEAD PLATING SPECIFICATIONS

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