SONY

CXG1061TN

Low Noise Down Conversion Mixer for PHS

Description

The CXG1061TN is a low noise down conversion mixer MMIC for PHS. This IC is designed using the Sony's GaAs J-FET process.

Features

- High gain Gc=22 dB (Typ.)
- Low distortion Input IP3=–13 dBm (Typ.)
- Low LO input power operation
  P_{LO}=–15 dBm
- High image suppression ratio
  IMR=27 dBc (Typ.)
- LO input matching circuit
- Single 3 V power supply operation
- 10-pin TSSOP package

Function

Frequency conversion

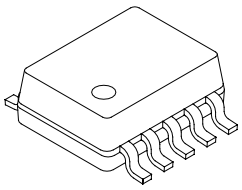
Applications

Japan digital cordless telephones (PHS)

Structure

GaAs J-FET MMIC

10 pin TSSOP (Plastic)



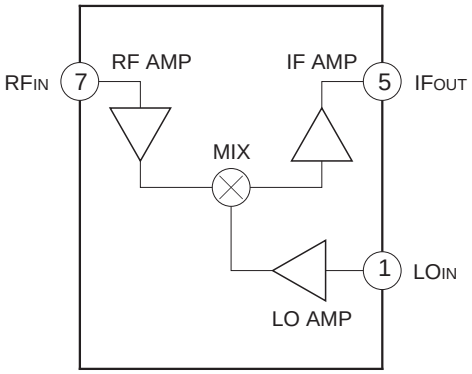
Absolute Maximum Ratings (Ta=25 °C)

• Supply voltage	V_{DD}	4.5	V
• Input power	P_{IN}	+5	dBm
• Operating temperature	Topr	–35 to +85	°C
• Storage temperature	Tstg	–65 to +150	°C

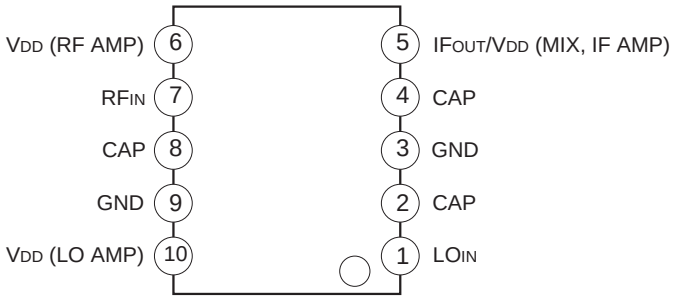
Recommended Operating condition

• Supply voltage	V_{DD}	2.7 to 3.3	V

Block Diagram



Pin Configuration



E98335A8Y

Electrical Characteristics

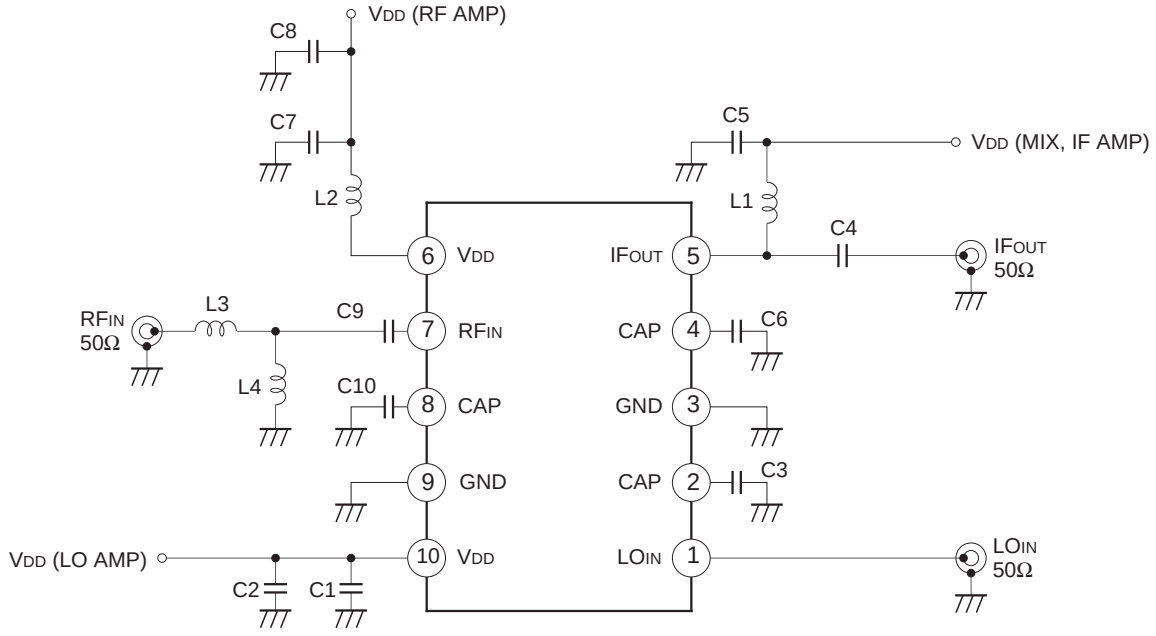
V_{DD}=3.0 V, f_{RF}=1.9 GHz, f_{LO}=1.66 GHz, P_{LO}=–15 dBm, RF input and IF output 50 Ω matching; unless otherwise specified

(Ta=25 °C)

Item	Symbol	Min.	Typ.	Max.	Unit	Measurement condition
Current consumption	I_{DD}	—	7	9	mA	When no signal
Conversion gain	Gc	19.5	22	24.5	dB	When a small signal
Noise figure	NF	—	3.3	4.5	dB	When a small signal
Input IP3	IIP3	–15.5	–13	—	dBm	P_{RF}=–40 dBm offset=600 kHz Conversion by the IM3 suppression ratio for two-wave input
Image suppression ratio	IMR	22	27	—	dBc	When P_{RF}=–40 dBm input
1/2 IF suppression ratio	1/2IFR	35	40	—	dBc	When P_{RF}=–40 dBm input
LO to RF leak level	P_{LK}	—	–46	–41	dBm	
LO input VSWR	$VSWR_{LO}$	—	2	3.5	—	

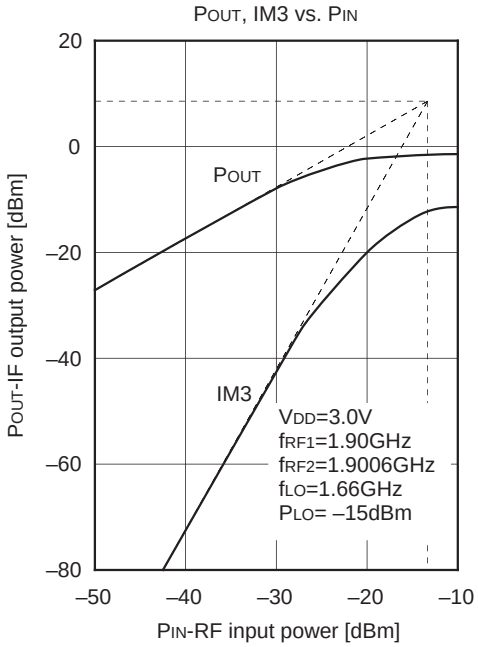
(Note) The values shown above are the specified values on the Sony's recommended evaluation board.

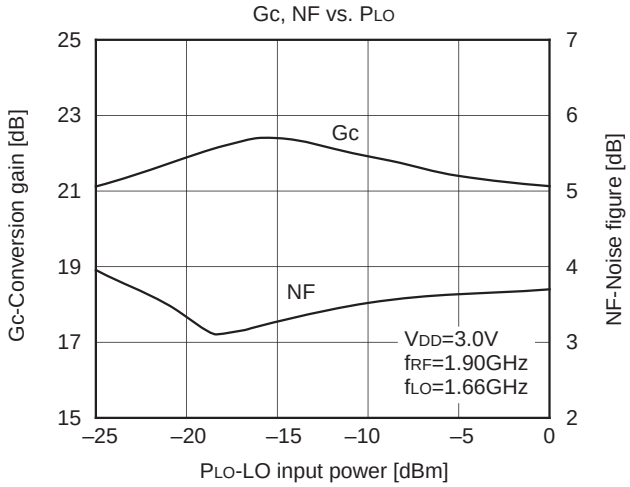
Recommended Evaluation Board

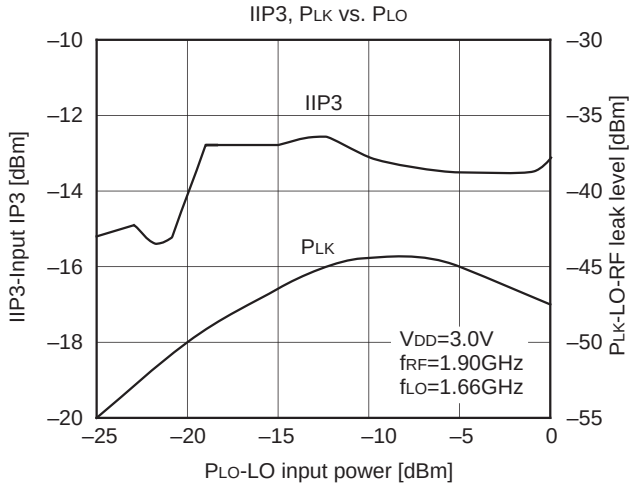


L1	82 nH	C4	5 pF
L2	3.9 nH	C5	1000 pF
L3	12 nH	C6	0.1 µF
L4	10 nH	C7	13 pF
C1	18 pF	C8	1000 pF
C2	1000 pF	C9	3 pF
C3	18 pF	C10	1000 pF

Example of Representative Characteristics (Ta=25 °C)

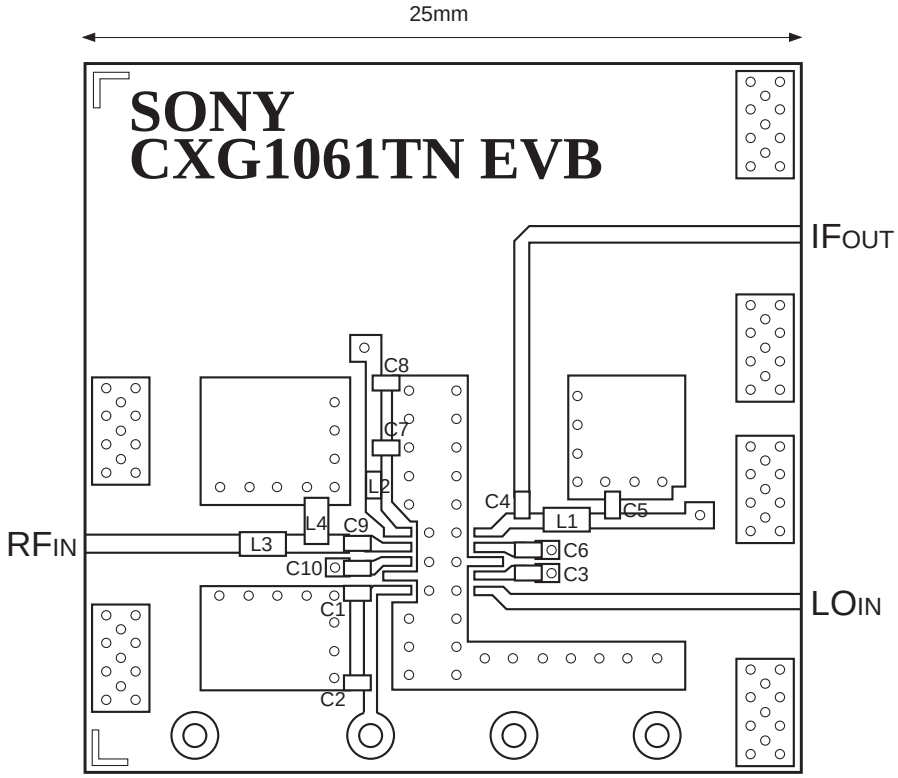




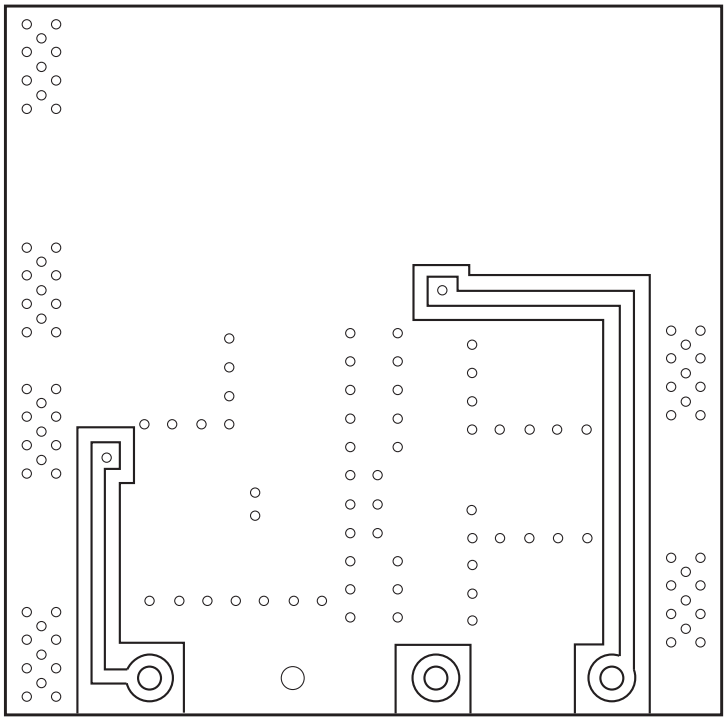


Recommended Evaluation Board

Front



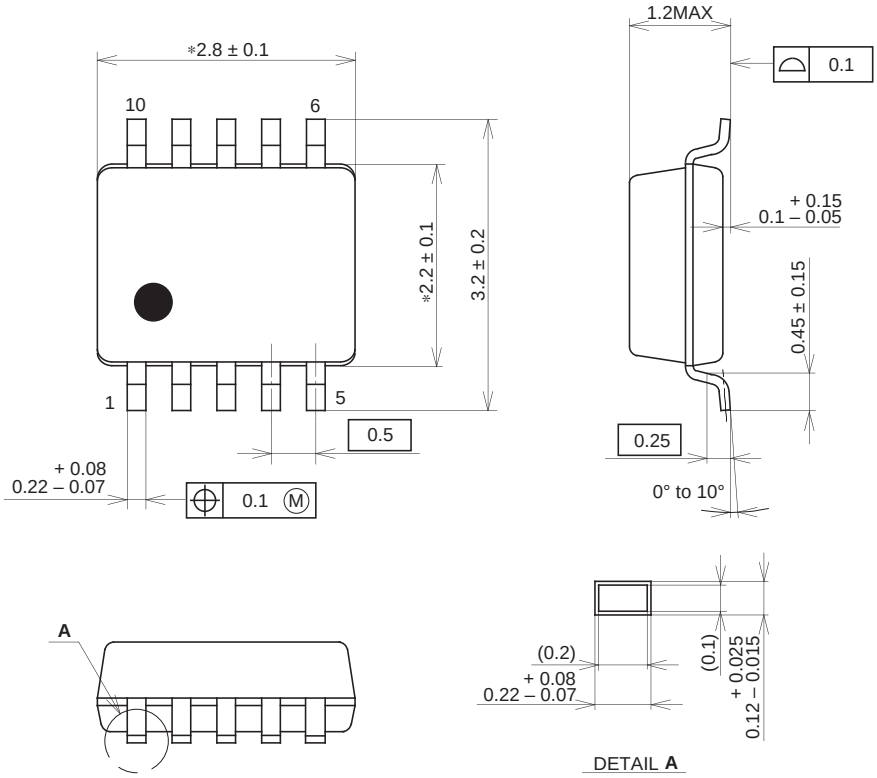
Back



Glass fabric-base 4-layer epoxy board (thickness: 0.3 mm × 2)
GND for the 2nd and 3rd layers

Package Outline Unit : mm

10PIN TSSOP(PLASTIC)



NOTE: Dimension "∗" does not include mold protrusion.

SONY CODE	TSSOP-10P-L01
EIAJ CODE	————
JEDEC CODE	————

PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER ALLOY
PACKAGE MASS	0.02g