

Receiving Mixer

Description

The CXG1034TN is a receiving mixer MMIC. This IC is designed using the Sony's GaAs J-FET process.

Features

- Low distortion Input $IP3=+1.5$ dBm (Typ.)
- Low LO input power operation $P_{LO}=-15$ dBm
- RF, LO input matching circuit
- Single 3 V power supply operation
- 10-pin TSSOP package

Function

Frequency conversion

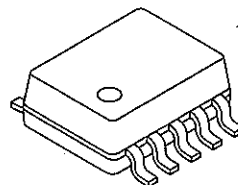
Applications

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	T_{opr}	-35 to +85	°C
• Storage temperature	T_{stg}	-65 to +150	°C

Operating Conditions

Supply voltage	V_{DD}	3.0	V
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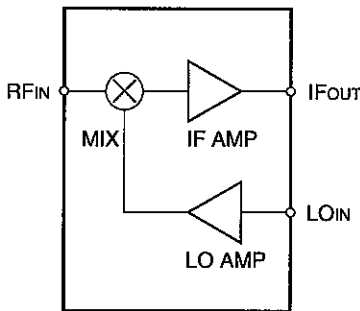
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Electrical Characteristics

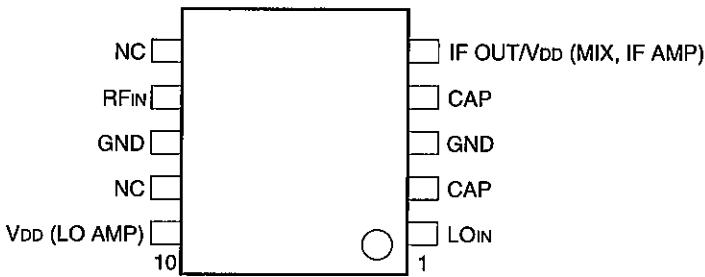
$V_{DD}=3.0\text{ V}$, $f_{RF}=1.9\text{ GHz}$, $f_{LO}=1.66\text{ GHz}$, $P_{LO}=-15\text{ dBm}$, when $50\ \Omega$ IF output matching; unless otherwise specified
($T_a=25\text{ }^{\circ}\text{C}$)

Item	Symbol	Min.	Typ.	Max.	Unit	Measurement condition
Current consumption	I_{DD}	—	5	7	mA	When no signal
Conversion gain	G_c	7	8	10	dB	
Noise figure	NF	—	8.5	10.5	dB	
Input IP3	IIP3	-1.5	1.5	—	dBm	
LO to RF leak level	P_{LK}	—	-19	-14	dBm	
RF input VSWR	$VSWR_{RF}$	—	1.5	2.5	—	
LO input VSWR	$VSWR_{LO}$	—	2	3.5	—	

Block Diagram

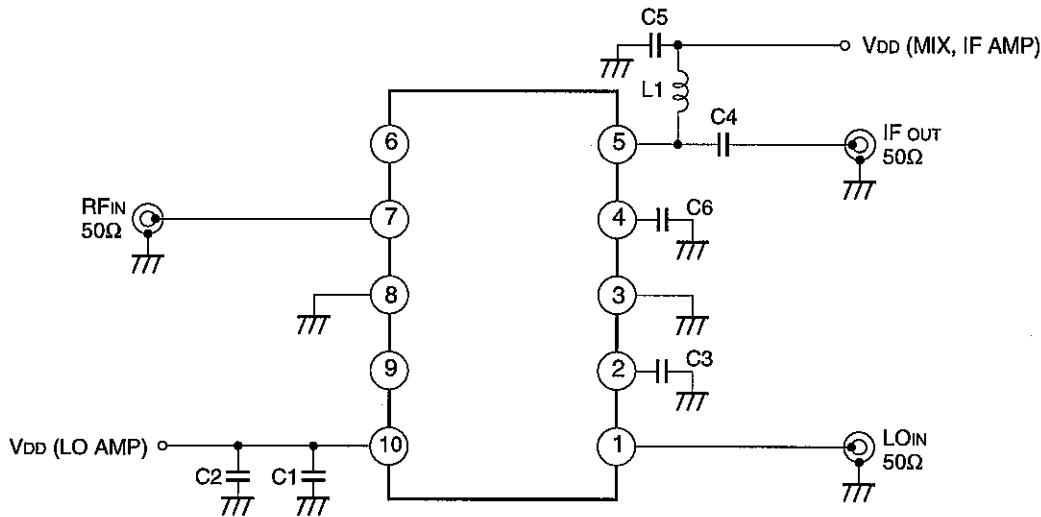


Pin Configuration



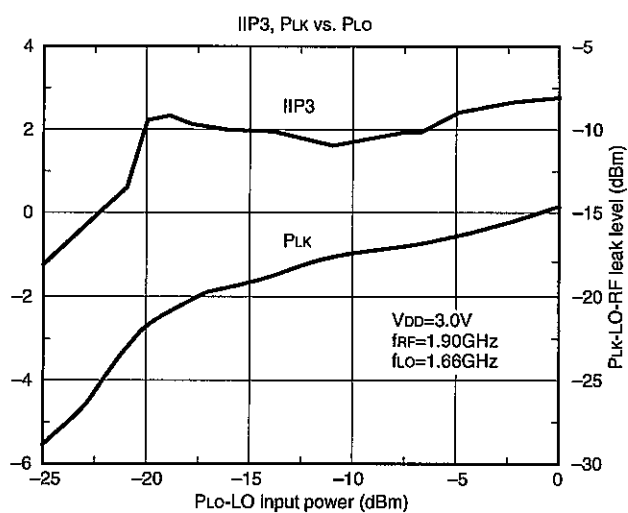
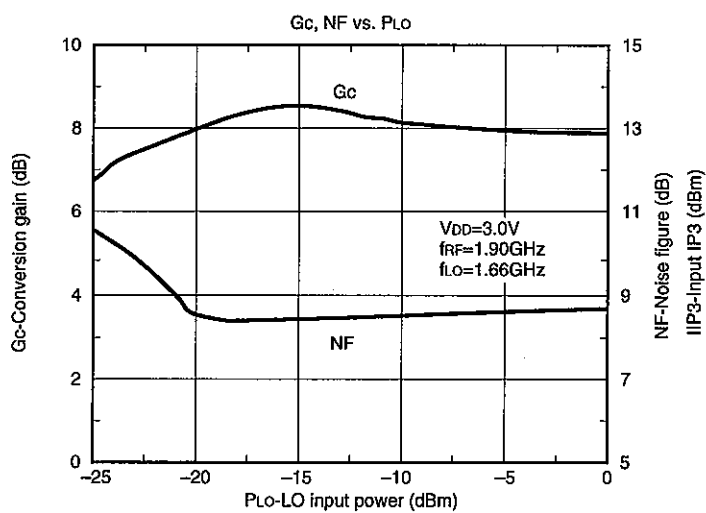
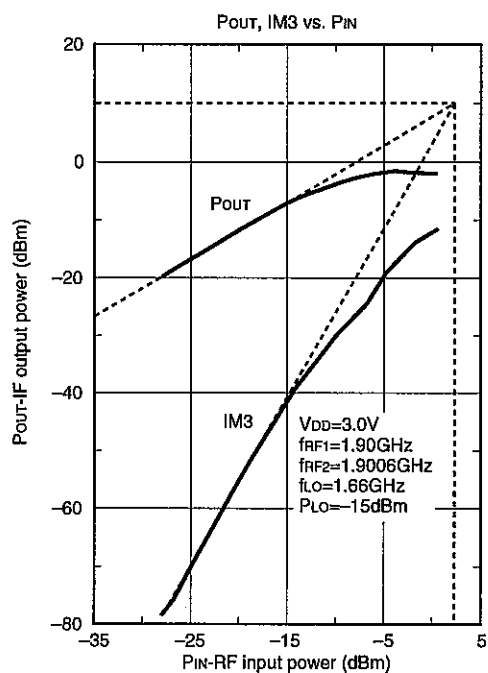
10-pin TSSOP (Plastic)

Recommended Evaluation Circuit



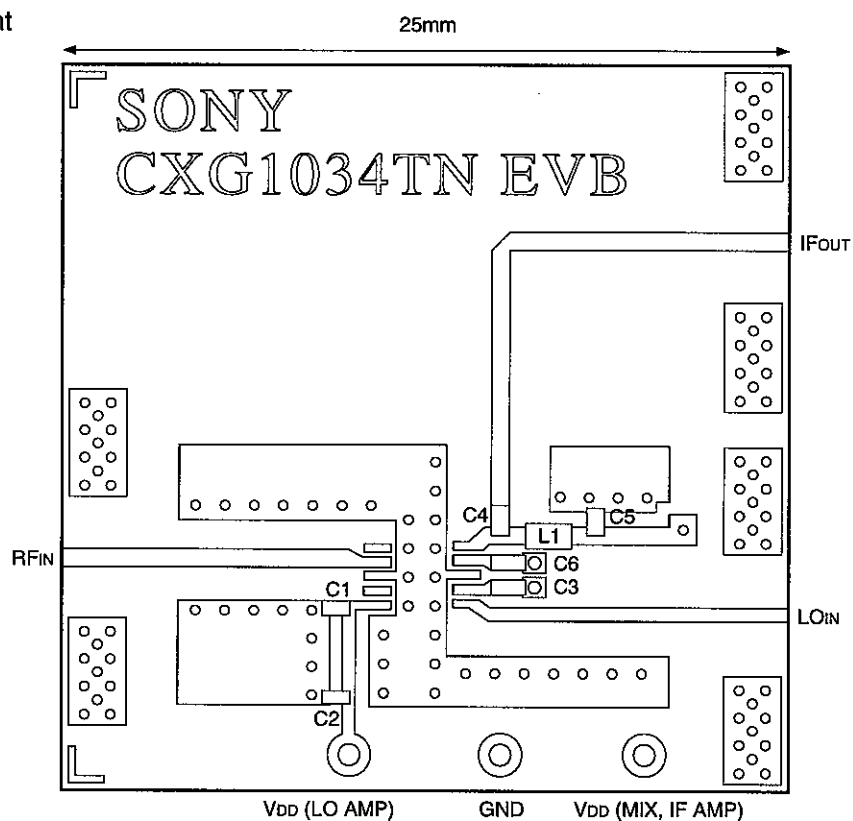
L1	56 nH
C1	18 pF
C2	1000 pF
C3	18 pF
C4	8 pF
C5	1000 pF
C6	0.1 μF

Example of Representative Characteristics (Ta=25 °C)

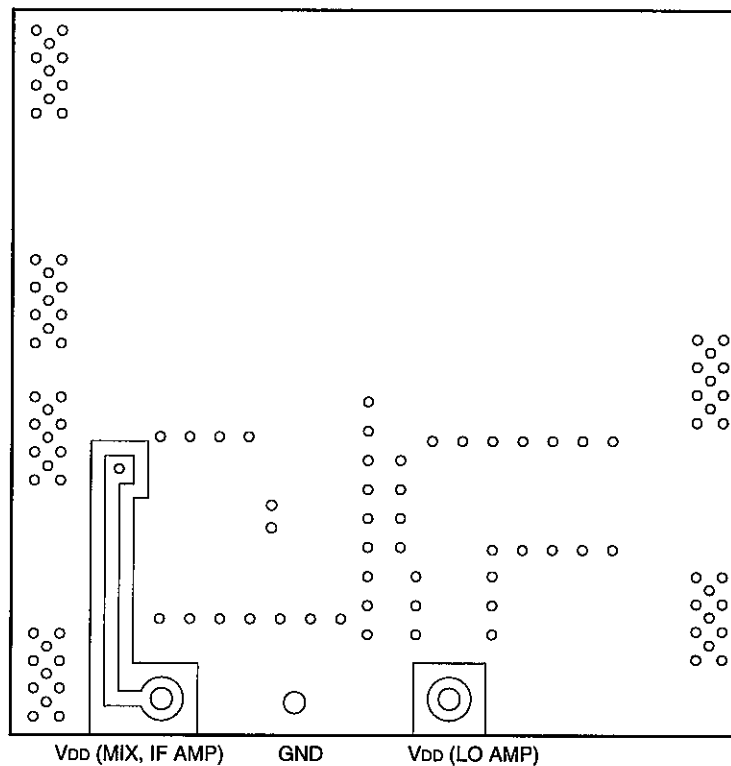


Recommended Evaluation Board

Front

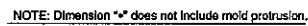


Back



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

10PIN TSSOP(PLASTIC)



PACKAGE STRUCTURE

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

10PIN TSSOP(PLASTIC)



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