

GN02018B

GaAs IC (with built-in ferroelectric)

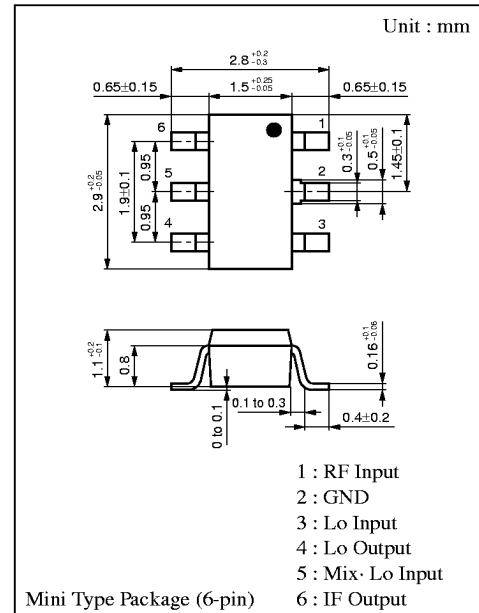
For mixer with built-in local amplifier of cellular phone
Other communication equipment

■ Features

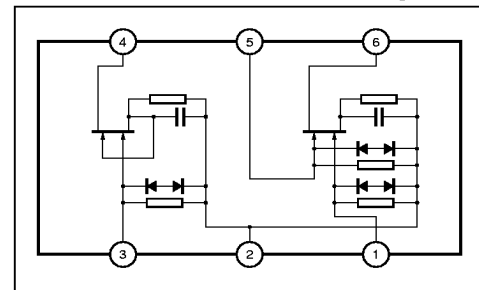
- High conversion-gain, low noise, low distortion (IP3)
- Single, positive power supply

■ Absolute Maximum Ratings (Ta= 25°C)

Parameter	Symbol	Rating	Unit
RF section	V _{in}	-3	V
	I _{in}	1	mA
	P _{in}	10	dBm
Lo input section	V _{in}	-3	V
	I _{in}	1	mA
	P _{in}	10	dBm
Lo output section	V _{out}	5	V
	I _{out}	10	mA
Mix-Lo section	V _{in}	-3	V
	I _{in}	1	mA
IF section	V _{out}	5	V
	I _{out}	10	mA
Overall	P _D	0.1	W
	T _{ch}	150	°C
	T _{stg}	-55 to +150	°C



■ Circuit-Function Block Diagram

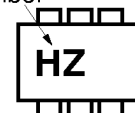


■ Electrical Characteristics (Ta = 25 ± 2°C)

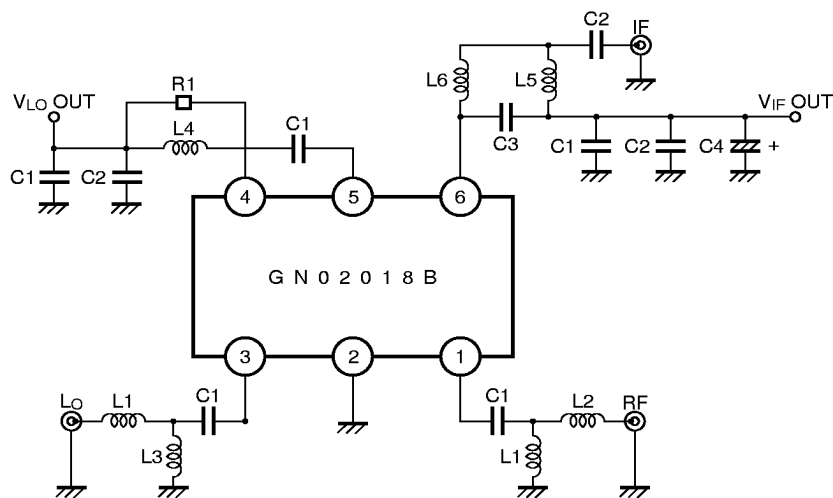
Parameter	Symbol	Test method	Condition	Min	Typ	Max	Unit
Mixer current	IMix		V _{IFout} = 3V	2.7	5.2	7.6	mA
Local amplifier current	ILo		V _{LOout} = 3V	0.8	2	3.3	mA
Conversion gain	CG1	(1), (2), (4)	V _{LOout} = V _{IFout} = 3V f _{RF} = 820MHz, f _{IF} =130MHz	8	13		dB
	CG2	(1), (3), (5)	V _{LOout} = V _{IFout} = 3V f _{RF} =1489MHz, f _{IF} =130MHz	6	12		dB
Third harmonics mutual modulation distortion at output	OIP3-1	(1), (2), (4)	V _{LOout} = V _{IFout} = 3V f _{RF} = 820MHz, 820.1MHz f _{IM3} =130.1MHz	6	12		dBm
	OIP3-2	(1), (3), (5)	V _{LOout} = V _{IFout} = 3V f _{RF} =1489MHz, 1489.1MHz f _{IM3} =130.1MHz	2	8		dBm

- Test method
- (1) : Use the attached circuit diagram for measurement.
 - (2) : Sampling-guaranteed items (AQL= 0.65%)
 - (3) : Design-guaranteed items
 - (4) : f_{Lo}= 950MHz or each input power to be PRF= -30dBm and P_{Lo}= -10dBm
 - (5) : f_{Lo}=1619MHz or each input power to be PRF= -30dBm and P_{Lo}= -10dBm

■ Marking Part Number

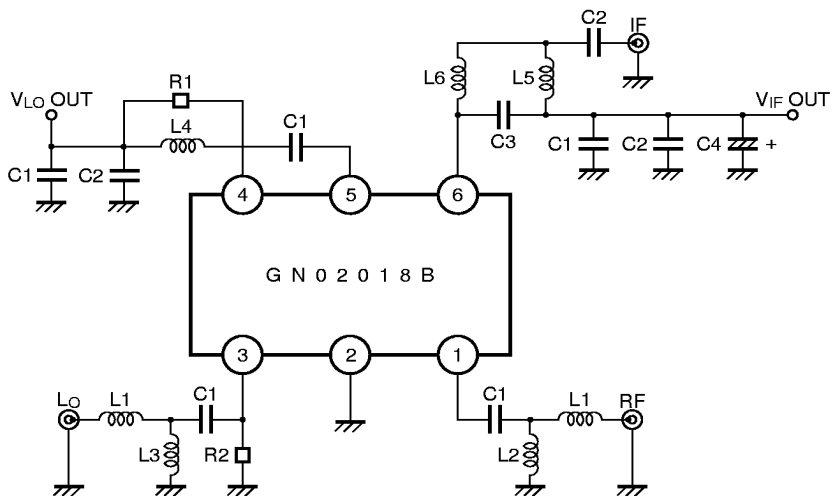


■ Measurement Circuit –1 (CG1, OIP3-1)



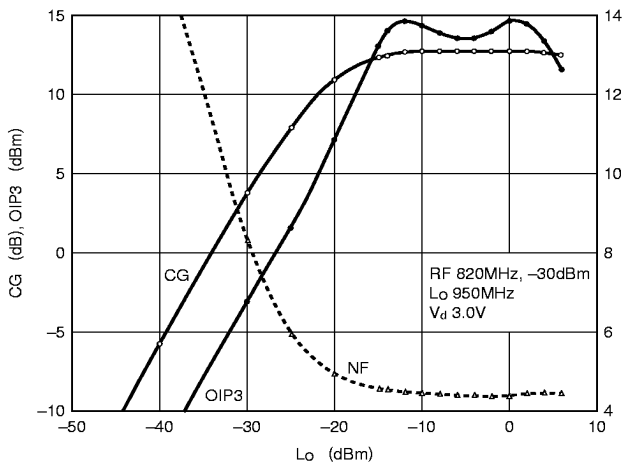
- (Value of each part)
- | | | |
|----------|----------|-----------|
| R1=1.2kΩ | L1= 22nH | C1=100pF |
| | L2= 27nH | C2=1000pF |
| | L3= 15nH | C3= 6pF |
| | L4= 10nH | C4=10μF |
| | L5= 82nH | |
| | L6=150nH | |

■ Measurement Circuit – 2 (CG2, OIP3-2)

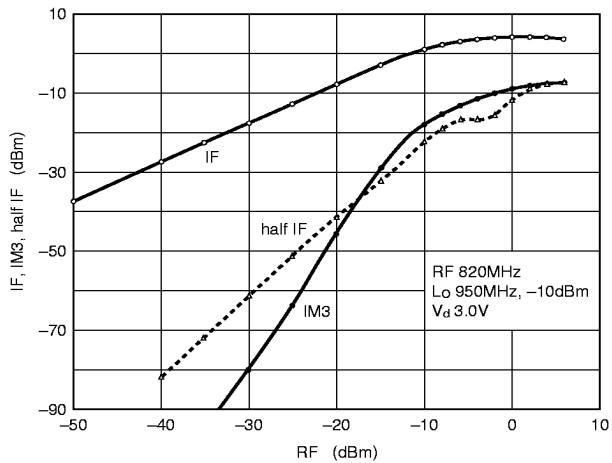


- (Value of each part)
- | | | |
|----------|-----------|-----------|
| R1= 330Ω | L1=10nH | C1=100pF |
| R2=1.2kΩ | L2= 6.8nH | C2=1000pF |
| | L3= 4.7nH | C3= 6pF |
| | L4= 3.9nH | C4=10μF |
| | L5= 82nH | |
| | L6=150nH | |

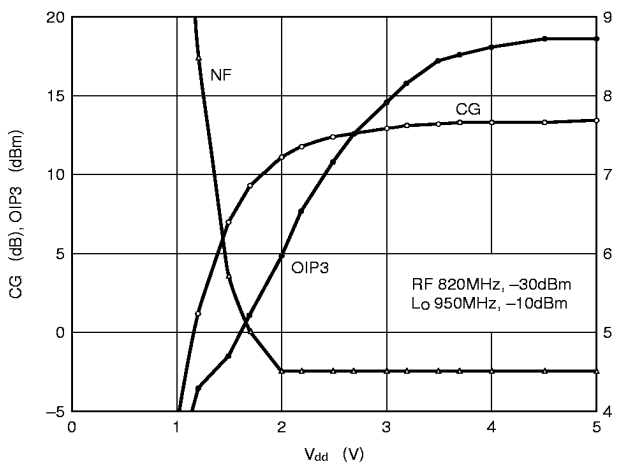
LO power – CG, OIP3, NF



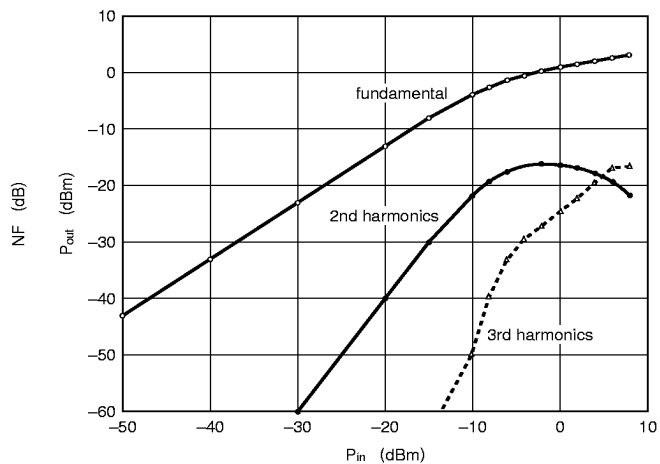
RF power – IF, IM3, half IF



Vdd – CG, OIP3, NF



LO amp P_{in} – P_{out}



LO amp P_{in} – P_{out}

