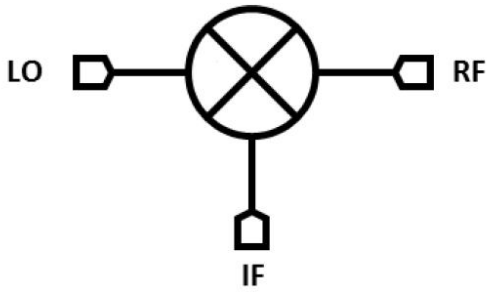
GMX-0626A

GaAs MMIC Mixer Chip, 6GHz-26GHz

Performance characteristics

- RF/LO frequency range: 6 - 26 GHz
- IF frequency range : DC-6GHz
- Conversion loss : 8 dB@+15dBm LO input
- LO-RF isolation: 51dB
- LO-IF isolation : 24dB
- RF-IF isolation : 33 dB
- Local oscillator power: +13dBm~+17dBm
- Chip size: 1.25 x 1.00 x 0.1mm

Block Diagram



Product Introduction

GMX-0626A is a GaAs MMIC double-balanced mixer with a frequency range of 6 GHz to 26 GHz , an IF range of DC to 6 GHz , a conversion loss of 8.0 dB , a LO/RF isolation of 51 dB , a LO /IF isolation of 24 dB , an RF/ IF isolation of 33 dB , and a typical LO input power of +15 dBm. The chip uses an on-chip through-hole metallization process to ensure good grounding, and no additional grounding measures are required. Easy to use. The back of the chip is metallized, suitable for eutectic sintering or conductive adhesive bonding. There is no DC blocking capacitor at the RF , LO, and IF ports .

Use restriction parameter [1]	
Maximum RF input power	+22dBm
Maximum LO input power	+22dBm
Maximum IF input power	+22dBm
Operating temperature	-55 ~ +85°C
storage temperature	-65 ~ +150°C

【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters (T_A = +25°C , IF = 100MHz , LO = + 15dBm)				
index	Minimum	Typical Value	Maximum	unit
RF frequency range	6-26			GHz
LO frequency range	6-26			GHz
IF frequency	DC-6			GHz
Frequency conversion loss	-	8	-	dB
LO-RF Isolation	-	51	-	dB
LO-IF isolation	-	twenty four	-	dB
RF-IF isolation	-	33	-	dB
RF input P-1dB		11		dB m
IIP3		twenty one		dBm
The above parameters are all tested in down-conversion mode, with an intermediate frequency of 0.1GHz and a local oscillator power of + 15dBm.				

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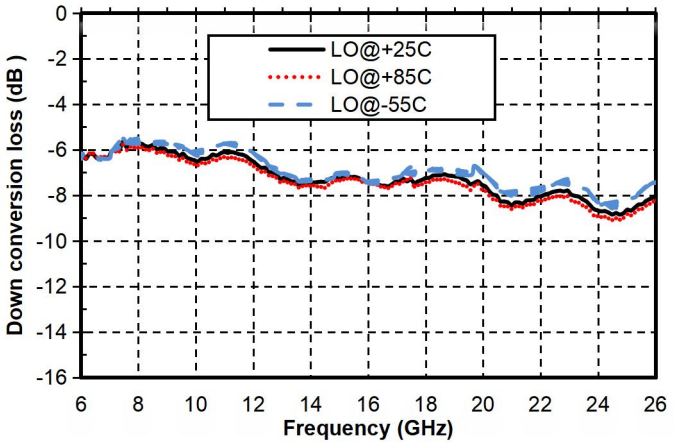
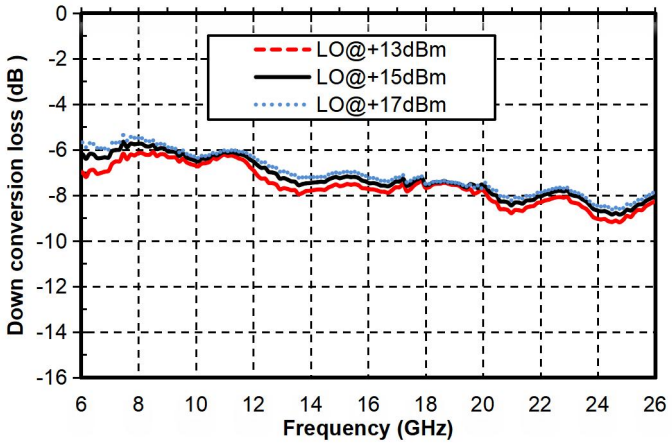
Main index test curve

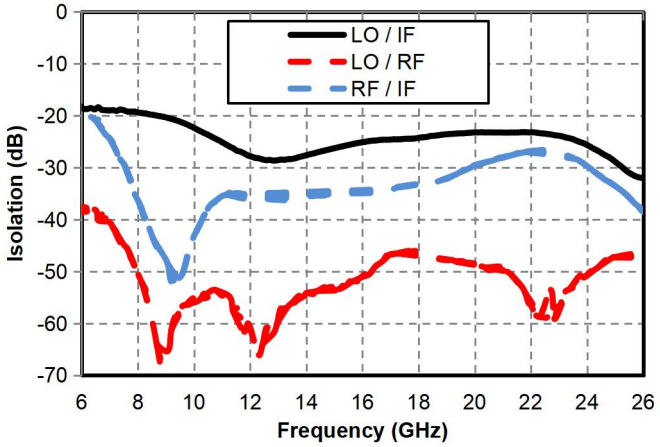
Downconversion loss vs. temperature @ LO = +15dBm



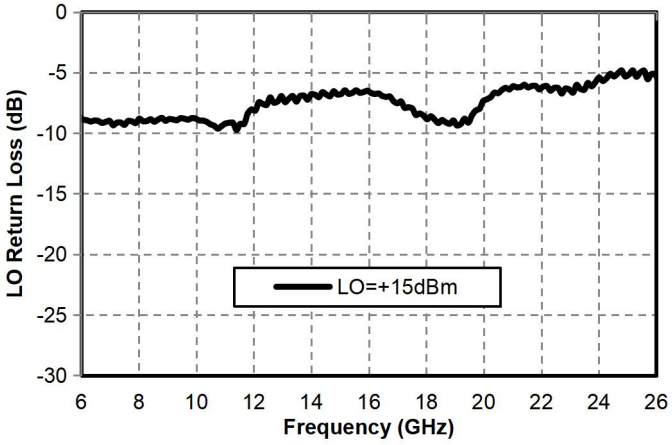
Downconversion Loss vs. LO Power



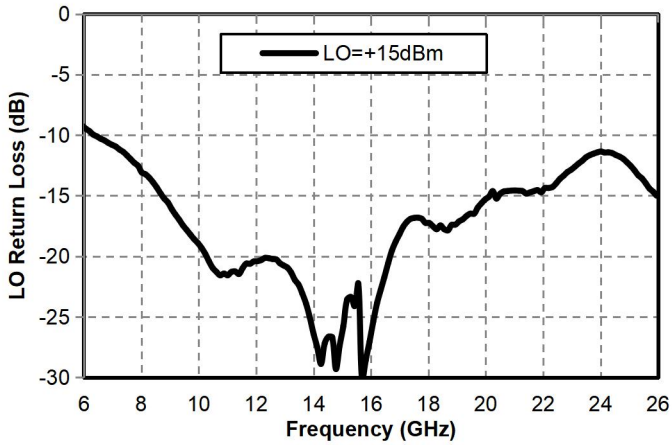
Isolation @ LO = +15dBm



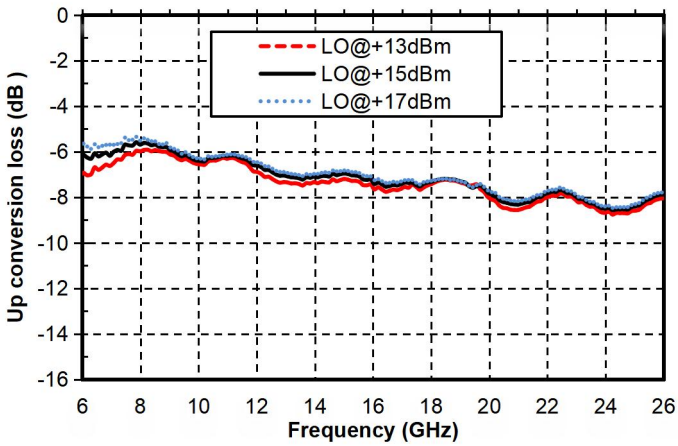
RF Return Loss Vs. Frequency



LO Return Loss Vs. Frequency



Upconversion Loss vs. LO Power



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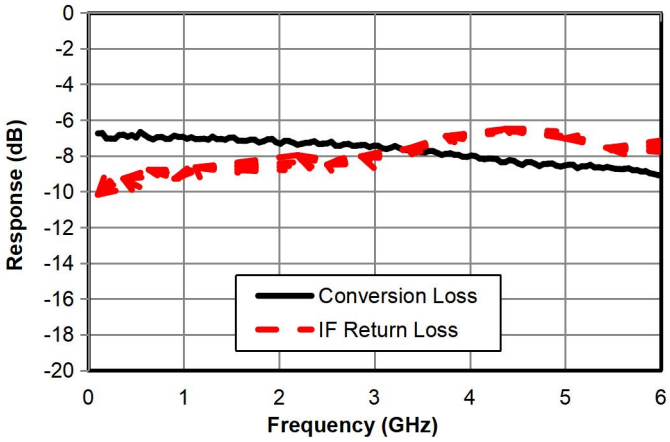
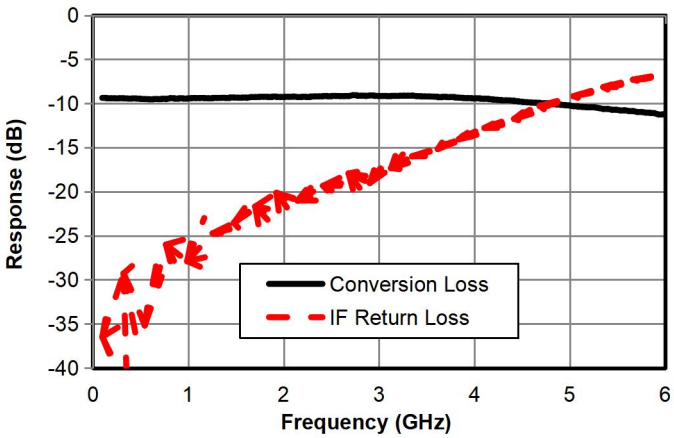
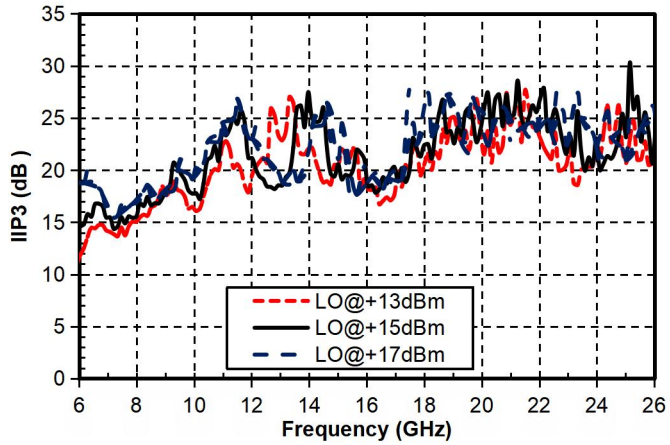
Down-converter IF bandwidth, return loss @LO=6G, 15dBm



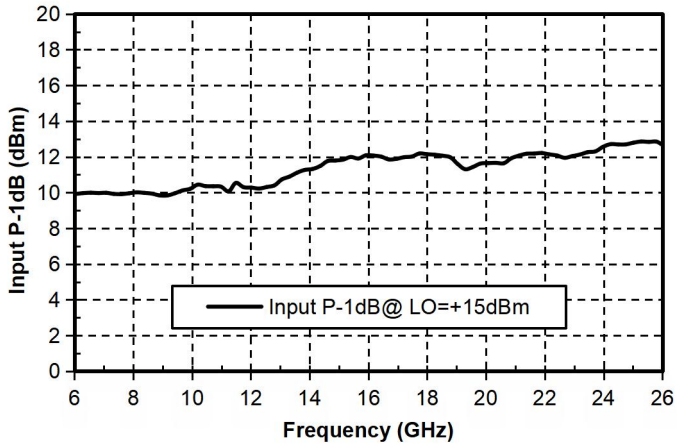
Down-converter IF bandwidth, return loss @LO=26G, 15dBm



IIP3



P-1 vs. Frequency



LO harmonic leakage

	nLO (measured at RF port) dBc		
LO(GHz) 15dbm	1	2	3
6	38	29	47
8	51	31	49
10	54	38	57
12	62	45	69
14	55	62	63
16	52	64	57
18	49	64	/
20	50	54	/
twenty two	72	41	/
twenty four	49	42	/
26	47	/	/

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Down-conversion combined spurious suppression

	nLO				
mRF	0	1	2	3	4
0	×××	-8	29	12	27
1	36	0	40	29	46
2	79	54	65	58	70
3	84	76	78	64	78
4	/	100	105	94	102
Test conditions: RF=10.1GHz@-10dBm, LO=10GHz@15dBm, all values are relative values of 1*RF-1*LO(P_IF,dBm), unit: dBc .					

	nLO				
mRF	0	1	2	3	4
0	×××	-8	26	/	/
1	27	0	58	twenty two	/
2	84	55	67	57	86
3	/	76	98	69	/
4	/	/	/	101	102
Test conditions: RF=18.1GHz@-10dBm, LO=18GHz@15dBm, all values are relative values of 1*RF-1*LO(P_IF,dBm), unit: dBc .					

	nLO				
mRF	0	1	2	3	4
0	×××	-1	/	/	/
1	37	0	40	/	/
2	/	61	97	78	/
3	/	/	98	78	97
4	/	/	/	/	101
Test conditions: RF = 28.1GHz@-10dBm , LO = 28GHz @ 15dBm , all values are relative values of 1*RF-1*LO(P_IF,dBm), unit is dBc .					

GaAs MMIC Mixer Chip, 6GHz-26GHz

Up-conversion combined spurious suppression

	nLO				
iF	0	1	2	3	4
0	×××	20	6	twenty three	12
1	15	0	20	11	29
2	49	56	53	55	55
3	68	58	68	68	76
4	105	112	104	99	/
Test conditions: RF=2.3GHz@-10dBm, LO=10GHz@15dBm, all values are relative values of 1*LO-1*IF(P_RF,c unit: dBc .					
	nLO				
iF	0	1	2	3	4
0	×××	13	26	/	/
1	10	0	27	twenty three	/
2	45	55	52	64	/
3	70	61	70	65	/
4	98	108	100	/	/
Test conditions: RF=4.3GHz@-10dBm, LO=18GHz@15dBm, all values are relative values of 1*LO-1*IF(P_RF,dBm), unit: dBc .					

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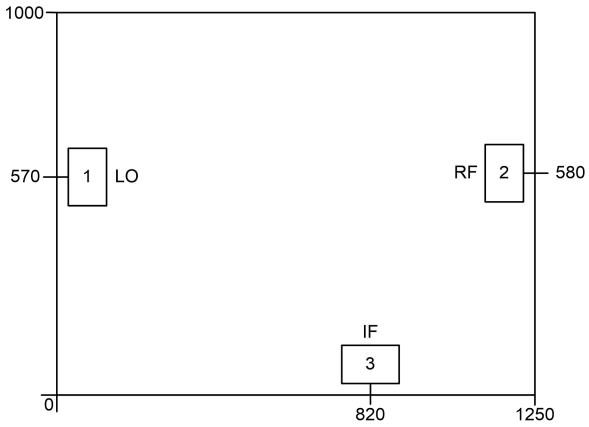
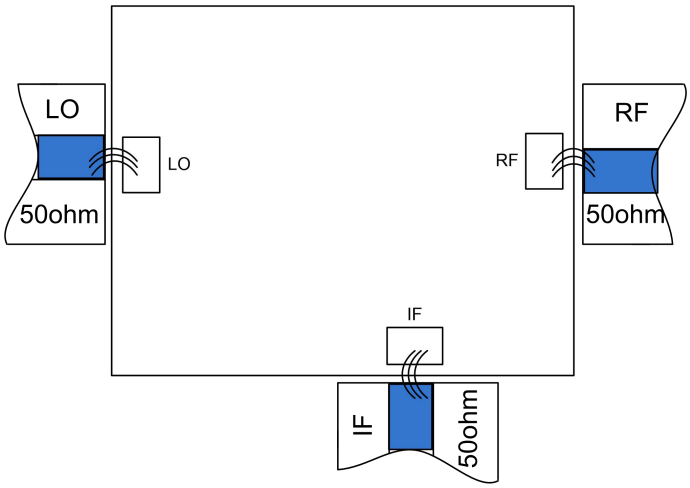
Appearance structure [2]



【2】The units in the figure are all micrometers (dimensional tolerance: ±50um.)

Recommended assembly drawing



Bonding point definition		
Bonding point number	Function Symbol	Functional Description
1	LO	The local oscillator signal terminal requires an external DC blocking capacitor
2	RF	RF signal end, requires external DC blocking capacitor
3	IF	Intermediate frequency signal end, requires external DC blocking capacitor
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC
Note 1: LO and RF ports can be used interchangeably, but the electrical performance indicators may vary. Note 2: It is recommended to solder three gold bonding wires to the pad.		