

Non-Catalog Model

Frequency Mixer

GRA-6

Level 7 (LO Power +7 dBm)

Important Note

This is a non-catalog model and can be manufactured on specific request.
Pricing and delivery information can be supplied upon request.



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CASE STYLE : D09

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	0.003		100	MHz
	RF (fL to fU)	0.003		100	MHz
	IF	0		100	MHz
Conversion Loss	mid band		4.7	7.5	dB
	Total Range			8.5	dB
LO-RF Isolation	Low Range	50	60		dB
	Mid Range	30	45		dB
	Upper Range	25	35		dB
LO-IF Isolation	Low Range	45	60		dB
	Mid Range	25	40		dB
	Upper Range	20	30		dB
1 dB Comp. Input Power			+1		dBm

Notes: Low Range = [fL to 10fL]
mid band = [2fL to fU/2]

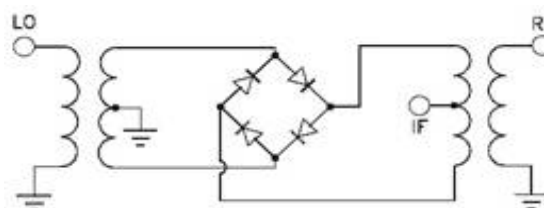
Mid Range = [10fL to fU/2]

Upper Range = [fU/2 to fU]

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
IF Current	40mA

PIN CONNECTIONS	
LO	1
RF	6
IF	4
GROUND	2, 3, 5

Electrical Schematics



Typical Performance Data

RF (MHz)	LO (MHz)	CONVERSION LOSS (dB)			LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
		@LO (dBm)				@LO (dBm)			@LO (dBm)		
		+4	+7	+10		+4	+7	+10	+4	+7	+10
0.003	30.0	6.43	6.08	5.85	0.003	64.0	61.9	60.0	64.0	63.9	62.8
0.10	30.1	6.22	5.90	5.63	0.10	64.0	62.4	60.3	64.0	64.0	63.0
0.20	30.2	6.22	5.92	5.52	0.20	64.0	62.4	60.5	64.0	64.2	63.2
0.50	30.5	6.22	5.87	5.59	0.50	64.0	62.7	60.5	64.0	64.1	63.5
0.80	30.8	6.19	5.87	5.54	0.80	64.0	62.7	60.5	64.0	64.2	63.2
1.00	31.0	6.12	5.82	5.46	1.00	64.0	62.5	60.5	64.0	64.1	63.4
2.00	32.0	6.20	5.85	5.42	2.00	64.0	62.3	60.3	64.0	63.7	63.2
5.00	35.0	6.23	5.93	5.58	5.00	64.0	61.6	59.6	64.0	63.4	61.6
10.00	40.0	6.28	5.96	5.62	10.00	58.7	56.6	55.2	59.3	56.7	55.6
20.00	50.0	6.43	6.13	5.67	20.00	50.4	49.5	49.5	50.4	49.6	49.8
22.23	52.2	6.43	6.08	5.56	22.23	49.0	48.5	48.6	48.7	48.5	48.8
29.63	59.6	6.45	6.15	5.62	29.63	44.5	44.7	45.3	43.6	44.0	44.6
37.04	7.0	6.43	6.11	6.04	37.04	41.8	42.6	43.6	42.3	43.1	44.1
44.45	14.5	6.52	6.17	6.09	44.45	40.5	41.3	42.1	40.3	41.4	42.5
50.00	20.0	6.55	6.25	6.26	50.00	38.9	40.0	41.1	39.2	40.4	41.7
62.96	33.0	6.77	6.42	6.46	62.96	34.6	35.8	37.0	36.7	38.0	39.1
70.37	40.4	6.81	6.51	6.18	70.37	33.0	34.7	36.6	34.4	35.5	36.1
77.78	47.8	7.13	6.81	6.43	77.78	32.2	34.1	35.6	32.2	32.4	32.6
85.19	55.2	7.43	7.08	6.83	85.19	32.5	33.6	34.7	31.6	31.3	31.0
92.59	62.6	7.43	7.13	6.78	92.59	34.0	34.1	34.1	32.7	32.0	30.6
100.00	70.0	7.56	7.24	6.87	100.00	36.5	36.4	35.0	33.8	32.9	30.9

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Typical Performance Data

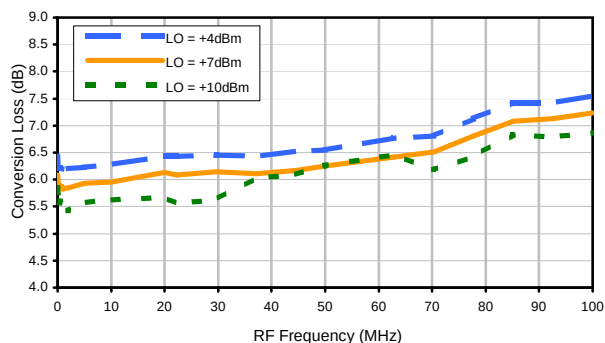
RF/LO (MHz)	RF VSWR (:1)			LO VSWR (:1)			IF (MHz)	IF VSWR (:1)			LO/RF (MHz)	max. DC output (mV)	DC Offset (mV)
	@LO (dBm)			@LO (dBm)				@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10		+4	+7	+10	+7		
5.00	1.35	1.25	1.15	1.85	2.77	4.14	5.00	1.73	1.60	1.44	0.003	-241.9	0.00
7.80	1.36	1.25	1.15	1.80	2.73	3.93	7.80	1.74	1.61	1.45	0.007	-236.4	0.02
10.00	1.35	1.25	1.15	1.79	2.68	3.84	10.00	1.75	1.61	1.46	0.01	-235.9	0.02
13.38	1.35	1.25	1.15	1.74	2.59	3.67	13.38	1.76	1.63	1.48	0.04	-235.4	0.02
18.97	1.33	1.24	1.15	1.82	2.60	3.72	18.97	1.79	1.66	1.51	0.07	-235.4	0.02
20.00	1.33	1.23	1.14	1.81	2.58	3.75	20.00	1.79	1.67	1.51	0.10	-231.3	0.01
27.35	1.30	1.21	1.12	1.78	2.63	3.66	27.35	1.85	1.72	1.57	0.30	-226.9	0.01
32.94	1.27	1.18	1.10	1.79	2.61	3.53	32.94	1.92	1.77	1.63	0.70	-227.6	0.01
38.53	1.23	1.15	1.08	1.81	2.55	3.51	38.53	1.99	1.84	1.70	1.00	-227.4	0.01
41.32	1.21	1.13	1.07	1.81	2.55	3.48	41.32	2.02	1.88	1.74	5.00	-226.7	0.01
46.91	1.17	1.10	1.06	1.79	2.56	3.47	46.91	2.10	1.97	1.81	14.33	-227.4	0.03
50.00	1.15	1.08	1.06	1.80	2.56	3.45	50.00	2.17	2.02	1.86	23.85	-228.7	0.07
52.50	1.13	1.07	1.07	1.81	2.56	3.44	52.50	2.20	2.07	1.90	33.37	-225.1	0.09
60.88	1.08	1.06	1.11	1.83	2.56	3.42	60.88	2.32	2.18	2.03	42.89	-220.8	0.12
66.47	1.06	1.08	1.14	1.84	2.55	3.36	66.47	2.40	2.28	2.13	50.00	-219.7	0.08
72.06	1.05	1.10	1.17	1.86	2.53	3.30	72.06	2.47	2.35	2.22	61.92	-212.2	0.46
80.44	1.06	1.13	1.19	1.93	2.57	3.33	80.44	2.52	2.42	2.30	70.00	-209.4	0.60
88.82	1.08	1.15	1.21	2.05	2.71	3.45	88.82	2.52	2.43	2.33	80.96	-204.7	1.05
94.41	1.08	1.15	1.20	2.09	2.79	3.60	94.41	2.51	2.40	2.32	90.48	-188.4	1.33
100.00	1.07	1.14	1.18	2.16	2.86	3.68	100.00	2.49	2.39	2.30	100.00	-170.6	2.08

Frequency Mixer

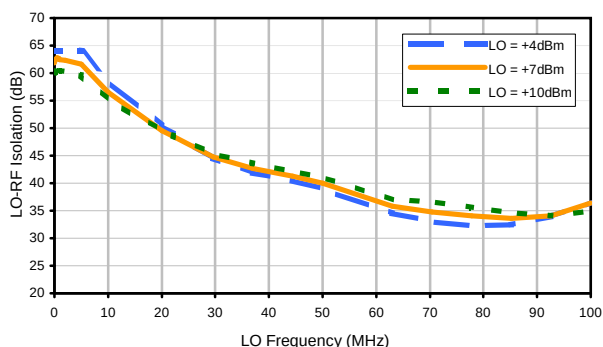
Typical Performance Curves

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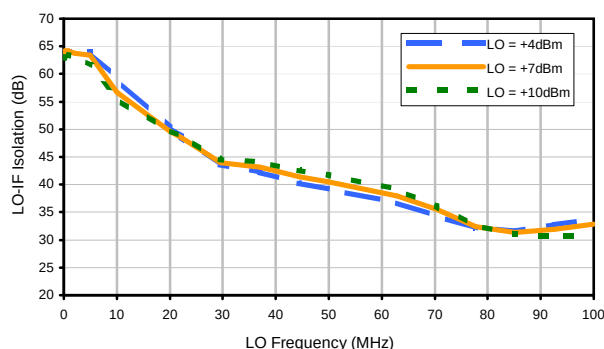
Conversion Loss



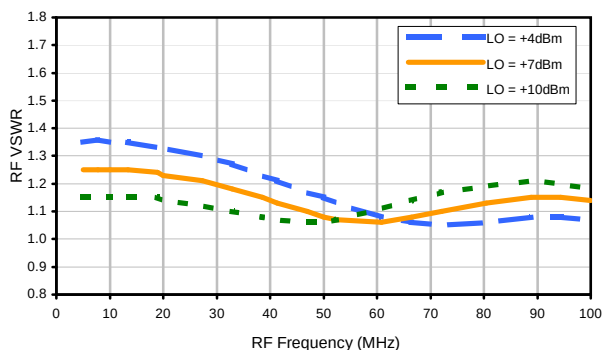
LO-RF Isolation



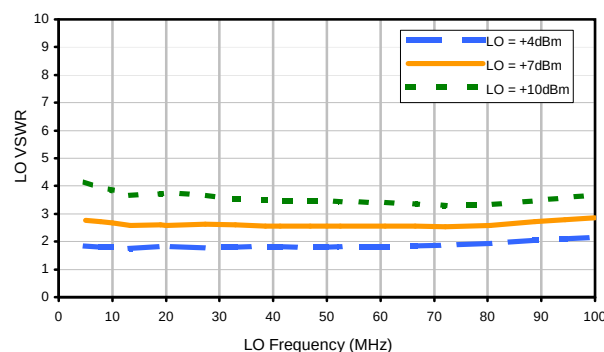
LO-IF Isolation



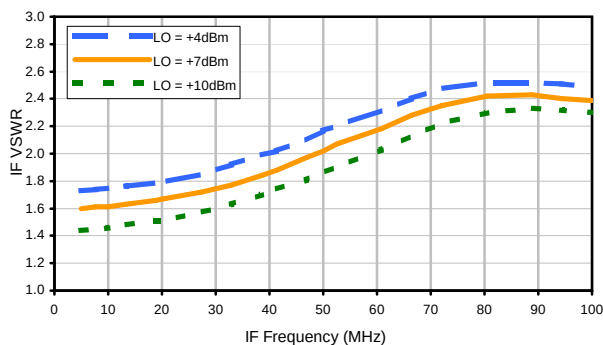
RF VSWR



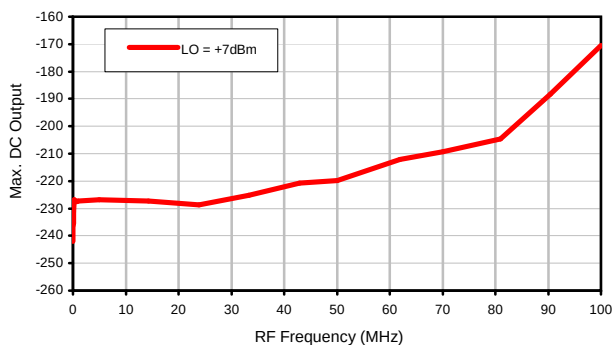
LO VSWR



IF VSWR



Max. DC Output



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Patent Pending

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