

Non-Catalog Model

Frequency Mixer

Level 17 (LO Power +17 dBm)

GRA-6H

Important Note

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



Please click "Back", and then click "Contact Us" for Applications support.

CASE STYLE : D09

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	0.01		50	MHz
	RF (fL to fU)	0.01		50	MHz
	IF	0		50	MHz
Conversion Loss	mid band		5.0	6.0	dB
	Total Range			7.0	dB
LO-RF Isolation	Low Range	45	50		dB
	Mid Range	30	45		dB
	Upper Range	25	35		dB
LO-IF Isolation	Low Range	40	50		dB
	Mid Range	35	47		dB
	Upper Range	25	32		dB
IP3 Input		+27.5	+30		dBm
1 dB Comp. Input Power			+10		dBm

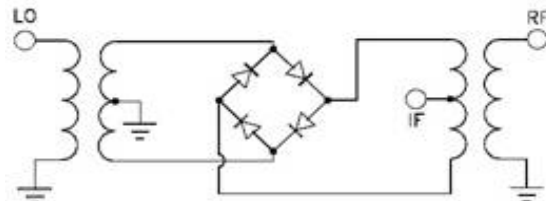
Notes: Low Range = [fL to 10fL] Mid Range = [10fL to fU/2] Upper Range = [fU/2 to fU]
mid band = [2fL to fU/2]

IP3 : RF Power = 0 dBm @ 200 MHz & 202 MHz , LO Power = +17 dBm @ 180 MHz

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

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

Electrical Schematics



Frequency Mixer

GRA-6H

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
0.01	10.0	5.92	5.62	5.42	0.01	43.3	46.6	49.3	46.9	51.1	54.8
0.05	10.1	5.73	5.43	5.23	0.05	42.6	45.6	48.2	46.8	51.5	56.3
1.00	11.0	5.50	5.12	4.91	1.00	42.6	45.6	48.1	47.0	51.7	56.5
2.00	12.0	5.61	5.21	5.02	2.00	42.6	45.5	48.0	47.1	51.7	56.6
5.18	15.2	5.54	5.17	4.96	5.18	42.3	45.3	47.5	46.9	51.9	55.6
8.63	18.6	5.44	5.12	4.94	8.63	42.0	44.7	46.0	46.7	50.8	50.8
10.35	20.4	5.33	4.99	4.86	10.35	42.0	44.6	45.3	46.8	50.7	47.9
12.08	22.1	5.46	5.14	4.98	12.08	41.4	43.0	42.1	46.7	47.7	45.2
15.52	25.5	5.54	5.22	5.04	15.52	41.1	43.0	42.8	45.6	47.4	45.0
18.97	29.0	5.56	5.23	5.06	18.97	40.7	41.4	40.6	43.9	42.5	41.1
20.70	30.7	5.46	5.15	5.00	20.70	40.7	41.9	42.2	43.1	42.0	41.1
24.14	34.1	5.33	5.09	4.98	24.14	40.5	40.5	39.7	40.7	39.6	38.9
29.32	19.3	5.42	5.11	4.98	29.32	39.4	39.4	38.1	39.9	38.6	37.6
31.04	21.0	5.43	5.15	5.02	31.04	38.0	38.0	36.6	38.3	37.4	36.4
34.49	24.5	5.32	5.06	4.95	34.49	37.4	38.0	37.2	37.3	37.2	36.9
37.93	27.9	5.31	5.10	5.02	37.93	36.6	36.8	36.5	36.1	35.5	36.0
41.38	31.4	5.37	5.14	5.06	41.38	35.3	35.5	34.7	35.3	34.7	34.0
44.83	34.8	5.41	5.19	5.11	44.83	33.7	34.2	34.0	34.1	33.9	33.7
46.55	36.6	5.45	5.20	5.11	46.55	32.4	32.8	32.3	33.0	32.7	32.4
50.00	40.0	5.49	5.28	5.17	50.00	32.2	32.4	31.4	32.6	32.1	31.7

REV. X1
GRA-6H
070509
Page 1 of 2



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



Frequency Mixer

GRA-6H

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	1.56	1.34	1.20	1.20	1.49	2.48	5.00	1.64	1.45	1.34	0.01	-951.0	-1.88
7.43	1.56	1.34	1.20	1.23	1.47	2.49	7.43	1.64	1.46	1.34	0.10	-976.2	-3.28
8.65	1.56	1.34	1.21	1.22	1.42	2.46	8.65	1.64	1.46	1.35	1.00	-978.6	-3.33
10.00	1.56	1.34	1.21	1.23	1.46	2.40	10.00	1.65	1.46	1.35	3.34	-980.3	-3.40
12.30	1.55	1.33	1.20	1.23	1.43	2.39	12.30	1.66	1.47	1.36	5.00	-977.3	-3.40
15.95	1.54	1.33	1.20	1.24	1.40	2.30	15.95	1.68	1.49	1.38	8.34	972.7	-3.39
18.38	1.53	1.32	1.20	1.27	1.39	2.27	18.38	1.69	1.50	1.39	10.00	-983.5	-3.50
20.81	1.52	1.32	1.19	1.25	1.40	2.24	20.81	1.71	1.52	1.40	11.67	-985.1	-3.64
23.24	1.51	1.30	1.18	1.25	1.40	2.22	23.24	1.72	1.53	1.43	15.01	-1006.1	-3.74
25.68	1.49	1.29	1.18	1.22	1.43	2.21	25.68	1.73	1.55	1.44	18.34	-1002.7	-3.19
28.11	1.48	1.28	1.17	1.20	1.45	2.24	28.11	1.75	1.56	1.46	21.67	-1023.0	-3.39
31.76	1.45	1.26	1.15	1.18	1.49	2.26	31.76	1.77	1.59	1.49	25.01	-1015.6	-3.74
35.41	1.43	1.25	1.15	1.19	1.52	2.28	35.41	1.81	1.63	1.53	28.34	-1010.0	-4.33
37.84	1.41	1.24	1.14	1.19	1.54	2.27	37.84	1.84	1.66	1.55	31.67	-1002.7	-4.53
39.05	1.40	1.23	1.14	1.18	1.55	2.30	39.05	1.85	1.68	1.57	35.00	-1008.7	-5.81
41.49	1.39	1.23	1.14	1.19	1.55	2.31	41.49	1.89	1.70	1.60	38.34	-1000.3	-6.67
45.14	1.36	1.21	1.14	1.21	1.56	2.32	45.14	1.95	1.75	1.65	41.67	-1000.5	-7.57
46.35	1.35	1.21	1.15	1.22	1.56	2.32	46.35	1.94	1.76	1.67	45.00	-993.3	-7.78
48.78	1.34	1.21	1.15	1.25	1.57	2.31	48.78	1.99	1.81	1.71	48.33	-982.3	-6.82
50.00	1.34	1.20	1.16	1.26	1.58	2.31	50.00	2.02	1.83	1.73	50.00	-975.3	-6.43

REV. X1
GRA-6H
070509

Page 2 of 2



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS9100 CERTIFIED RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

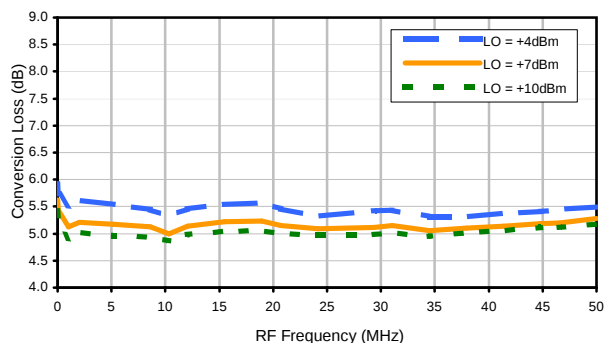


The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see

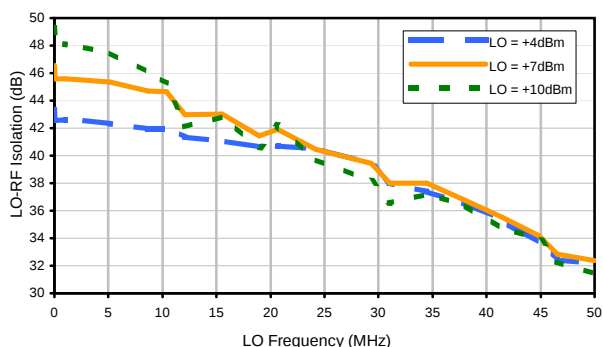


Typical Performance Curves

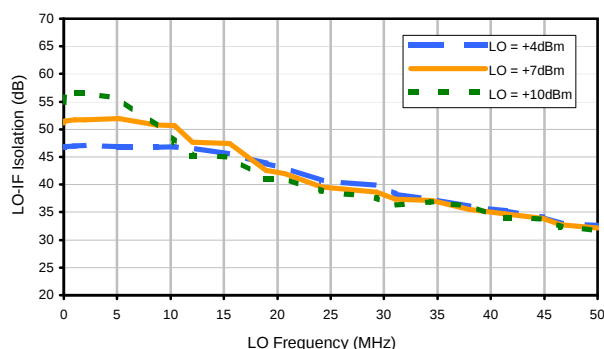
Conversion Loss



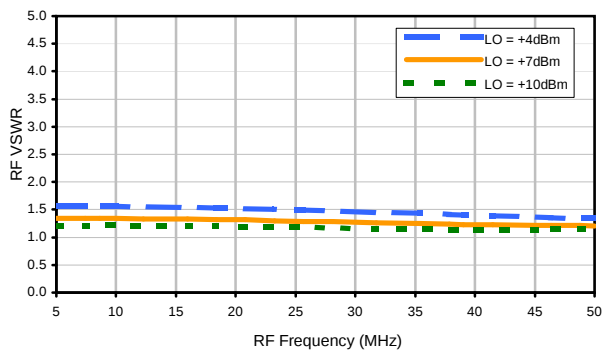
LO-RF Isolation



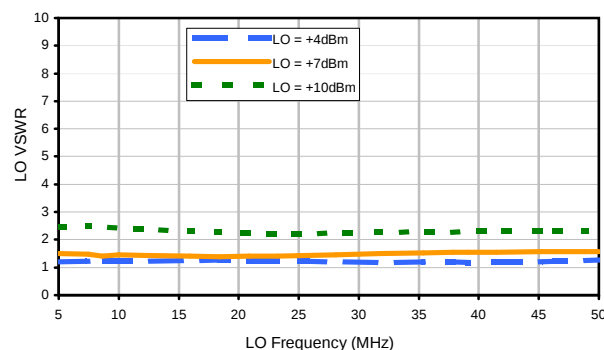
LO-IF Isolation



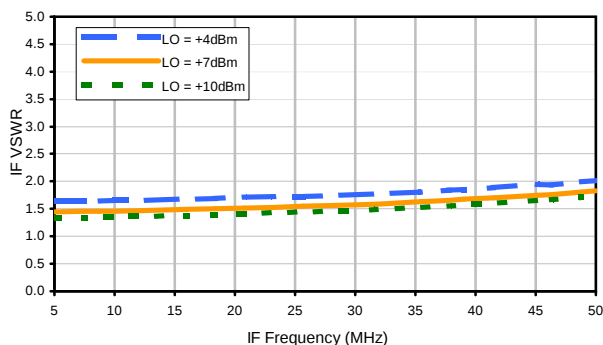
RF VSWR



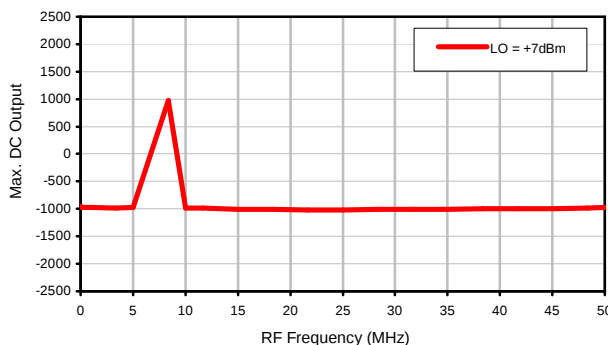
LO VSWR



IF VSWR



Max. DC Output



REV. X1

GRA-6H

070509

Page 1 of 1



IF/RF MICROWAVE COMPONENTS • ISO 9001 ISO 14001 AS 9100 CERTIFIED RoHS compliant

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661



The Design Engineers Search Engine finds the model you need, Instantly • For detailed performance specs & shopping online see



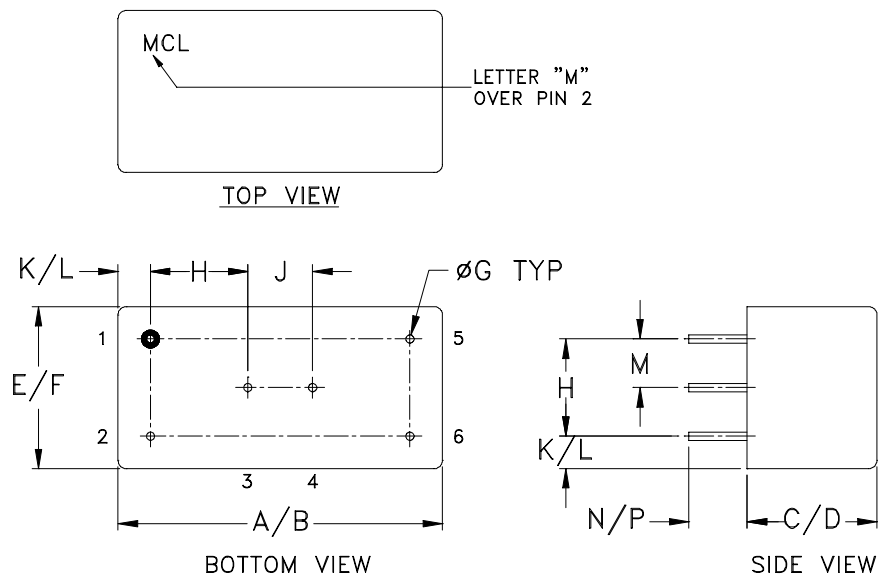
Case Style

D

D08

D09

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M
D08	1.000 (25.40)	1.025 (26.04)	.390 (9.91)	.430 (10.92)	.500 (12.70)	.525 (13.34)	.025 (.64)	.300 (7.62)	.200 (5.08)	.09 (2.29)	.13 (3.30)	.150 (3.81)
D09			.240 (6.10)	.280 (7.11)								

CASE#	N	P	WT.GRAMS
D08	.20 (5.08)	.14 (3.56)	8.5
D09			7.5

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3 Pl. $\pm .015$

Notes:

- Header material: C.R.S.
Pin material: #52 alloy.
Cover material: Cupro-Nickel.
- Pin finish: Electro Tin-Silver.
- Tolerance on pin diameter $\pm .005$ inch.
- Glass meniscus 0.015 inch max.
- Blue bead indicates Pin 1. Pin numbers do not appear on unit, for reference only.



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010

Mini-Circuits ISO 9001 & ISO 14001 Certified