

Non-Catalog Model

Frequency Mixer

Level 23 (LO Power +23 dBm)

RAY-2+ RAY-2

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 : A01

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	10		1000	MHz
	RF (fL to fU)	10		1000	MHz
	IF	0		1000	MHz
Conversion Loss	mid band		6.9	8.5	dB
	Total Range			10.0	dB
LO-RF Isolation	Low Range	35	50		dB
	Mid Range	30	40		dB
	Upper Range	25	35		dB
LO-IF Isolation	Low Range	35	50		dB
	Mid Range	25	35		dB
	Upper Range	20	25		dB
1 dB Comp. Input Power			+15		dBm

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

Mid Range = [10fL to fU/2]

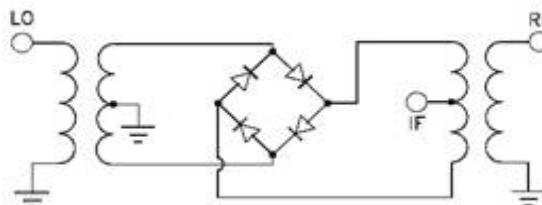
Upper Range = [fU/2 to fU]

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	350mW
IF Current	40mA

PIN CONNECTIONS	
LO	8
RF	1
IF	3, 4 ^
GROUND	2, 5, 6, 7

^ - pins must be connected together externally

Electrical Schematics



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090903

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Notes: 1. Performance and quality attributes and conditions not expressly stated in this specification sheet are intended to be excluded and do not form a part of this specification sheet. 2. Electrical specifications and performance data contained herein are based on Mini-Circuit's applicable established test performance criteria and measurement instructions. 3. The parts covered by this specification sheet are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCStore/terms.jsp.

Frequency Mixer

RAY-2

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	6.20	6.01	5.91
20.1	50.1	6.10	5.96	5.90
30.1	60.1	6.19	6.04	5.97
40.1	70.1	6.22	6.07	6.01
60.1	90.1	6.21	6.11	6.07
80.1	110.1	6.27	6.16	6.11
100.1	130.1	6.28	6.16	6.11
125.1	155.1	6.27	6.19	6.15
150.1	180.1	6.33	6.25	6.21
175.1	205.1	6.37	6.27	6.22
200.1	230.1	6.34	6.25	6.20
225.1	255.1	6.32	6.24	6.20
250.1	280.1	6.41	6.33	6.29
275.1	305.1	6.47	6.35	6.29
300.1	330.1	6.47	6.33	6.27
325.1	355.1	6.48	6.37	6.28
350.1	380.1	6.58	6.47	6.40
400.1	430.1	6.58	6.47	6.43
450.1	480.1	6.87	6.70	6.58
500.1	530.1	7.06	6.84	6.68
550.1	580.1	6.94	6.70	6.54
600.1	630.1	6.93	6.70	6.57
650.1	680.1	7.07	6.69	6.47
700.1	730.1	7.56	6.99	6.70
750.1	780.1	8.61	7.57	6.89
800.1	830.1	9.04	8.25	7.50
850.1	880.1	9.13	8.26	7.72
900.1	930.1	8.81	8.17	7.87
950.1	980.1	8.52	8.14	7.94
1000.1	1030.1	8.83	8.60	8.45
1050.1	1080.1	9.14	8.86	8.69
1100.1	1130.1	9.79	9.55	9.39
1150.1	1180.1	10.17	9.89	9.69
1200.1	1230.1	10.85	10.60	10.41
1250.1	1280.1	11.10	10.88	10.72
1300.1	1330.1	11.87	11.64	11.46
1350.1	1380.1	12.36	12.15	11.99
1400.1	1430.1	13.20	13.03	12.91
1450.1	1480.1	13.46	13.28	13.17
1500.1	1530.1	14.16	14.01	13.92

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	28.96	30.91	30.54
20.1	50.1	30.43	29.58	37.34
30.1	60.1	27.99	28.37	41.13
40.1	70.1	28.54	30.04	30.62
60.1	90.1	28.98	29.89	29.83
80.1	110.1	33.29	27.66	29.79
100.1	130.1	32.48	26.98	28.99
125.1	155.1	26.44	27.75	29.13
150.1	180.1	25.79	28.17	29.33
175.1	205.1	25.57	27.93	28.96
200.1	230.1	25.44	26.86	28.32
225.1	255.1	25.70	27.20	29.01
250.1	280.1	24.93	26.03	28.33
275.1	305.1	25.42	26.55	29.77
300.1	330.1	24.44	26.85	30.35
325.1	355.1	24.43	25.79	28.42
350.1	380.1	26.13	26.46	29.24
400.1	430.1	26.14	28.60	32.26
450.1	480.1	20.58	22.83	26.77
500.1	530.1	21.57	23.42	25.99
550.1	580.1	24.36	27.28	32.24
600.1	630.1	26.79	31.19	35.10
650.1	680.1	25.08	31.32	31.44
700.1	730.1	24.57	29.44	29.33
750.1	780.1	19.18	23.53	27.59
800.1	830.1	20.78	23.18	26.10
850.1	880.1	18.54	22.46	25.43
900.1	930.1	22.86	26.18	25.92
950.1	980.1	30.71	29.16	28.17
1000.1	1030.1	32.23	31.78	30.47
1050.1	1080.1	30.32	32.85	35.21
1100.1	1130.1	28.39	30.61	33.08
1150.1	1180.1	29.49	29.18	33.03
1200.1	1230.1	32.90	31.05	33.03
1250.1	1280.1	32.78	33.68	33.06
1300.1	1330.1	35.21	36.03	35.62
1350.1	1380.1	32.23	33.13	34.22
1400.1	1430.1	31.59	32.16	33.78
1450.1	1480.1	33.64	33.85	34.51
1500.1	1530.1	36.16	38.17	40.10

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	0.23	0.13	0.05
20.1	50.1	0.27	0.12	0.03
30.1	60.1	0.24	0.14	0.05
40.1	70.1	0.23	0.10	0.02
60.1	90.1	0.16	0.05	0.00
80.1	110.1	0.14	0.01	-0.03
100.1	130.1	0.15	0.04	-0.01
125.1	155.1	0.14	0.04	0.00
150.1	180.1	0.15	0.06	0.03
175.1	205.1	0.13	0.05	0.03
200.1	230.1	0.11	0.05	0.02
225.1	255.1	0.14	0.08	0.04
250.1	280.1	0.16	0.11	0.08
275.1	305.1	0.16	0.12	0.08
300.1	330.1	0.16	0.12	0.09
325.1	355.1	0.15	0.12	0.09
350.1	380.1	0.24	0.19	0.14
400.1	430.1	0.38	0.23	0.14
450.1	480.1	0.59	0.41	0.23
500.1	530.1	0.76	0.55	0.36
550.1	580.1	0.91	0.69	0.48
600.1	630.1	1.08	0.83	0.58
650.1	680.1	1.10	0.85	0.60
700.1	730.1	1.16	0.95	0.71
750.1	780.1	0.10	0.46	0.53
800.1	830.1	0.13	0.23	0.39
850.1	880.1	-0.33	0.01	0.10
900.1	930.1	0.31	0.34	0.21
950.1	980.1	0.26	0.17	0.10
1000.1	1030.1	0.30	0.15	0.05
1050.1	1080.1	0.10	0.06	0.03
1100.1	1130.1	0.04	0.01	0.00
1150.1	1180.1	-0.04	-0.03	-0.01
1200.1	1230.1	-0.02	-0.03	-0.02
1250.1	1280.1	-0.03	-0.04	-0.05
1300.1	1330.1	-0.01	-0.01	-0.02
1350.1	1380.1	-0.07	-0.06	-0.05
1400.1	1430.1	-0.05	-0.05	-0.05
1450.1	1480.1	-0.07	-0.06	-0.06
1500.1	1530.1	-0.04	-0.04	-0.04

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Frequency Mixer

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+23			+23			+23
0.5	499.6	6.91	0.5	10.6	6.11	0.5	999.6	8.39
0.8	499.4	6.86	1.0	11.1	6.03	1.0	999.1	8.31
1.0	499.1	6.83	2.0	12.1	6.01	2.0	998.1	8.30
2.0	498.1	6.81	5.0	15.1	6.02	5.0	995.1	8.32
3.0	497.1	6.81	10.0	20.1	6.03	10.0	990.1	8.35
4.0	496.1	6.80	20.0	30.1	6.07	20.0	980.1	8.44
5.0	495.1	6.80	30.0	40.1	6.08	30.0	970.1	8.52
6.0	494.1	6.80	40.0	50.1	6.03	40.0	960.1	8.63
8.0	492.1	6.82	50.0	60.1	6.07	50.0	950.1	8.67
10.0	490.1	6.82	70.0	80.1	6.06	70.0	930.1	8.66
15.0	485.1	6.82	90.0	100.1	6.10	90.0	910.1	8.85
20.0	480.1	6.83	110.0	120.1	6.07	110.0	890.1	9.22
25.0	475.1	6.82	130.0	140.1	6.11	130.0	870.1	9.50
30.0	470.1	6.80	150.0	160.1	6.11	150.0	850.1	9.53
35.0	465.1	6.79	175.0	185.1	6.09	175.0	825.1	9.15
40.0	460.1	6.78	200.0	210.1	6.10	200.0	800.1	9.13
45.0	455.1	6.76	225.0	235.1	6.14	225.0	775.1	9.02
50.0	450.1	6.77	250.0	260.1	6.16	250.0	750.1	8.78
70.0	430.1	6.74	275.0	285.1	6.14	275.0	725.1	8.42
90.0	410.1	6.73	300.0	310.1	6.14	300.0	700.1	8.41
110.0	390.1	6.79	330.0	340.1	6.21	330.0	670.1	8.44
130.0	370.1	6.84	360.0	370.1	6.28	360.0	640.1	8.39
150.0	350.1	6.81	390.0	400.1	6.25	390.0	610.1	8.16
170.0	330.1	6.80	420.0	430.1	6.29	420.0	580.1	8.41
190.0	310.1	6.76	450.0	460.1	6.38	450.0	550.1	8.69
210.0	290.1	6.78	480.0	490.1	6.32	480.0	520.1	8.83
230.0	270.1	6.84	510.0	520.1	6.33	510.0	490.1	8.82
250.0	250.1	6.51	540.0	550.1	6.24	540.0	460.1	8.72
270.0	230.1	6.81	570.0	580.1	6.12	570.0	430.1	8.46
290.0	210.1	6.75	600.0	610.1	6.05	600.0	400.1	8.52
310.0	190.1	6.75	630.0	640.1	6.02	630.0	370.1	9.19
330.0	170.1	6.77	660.0	670.1	6.04	660.0	340.1	9.05
350.0	150.1	6.74	690.0	700.1	6.01	690.0	310.1	8.79
370.0	130.1	6.70	720.0	730.1	6.08	720.0	280.1	9.05
390.0	110.1	6.70	750.0	760.1	6.14	750.0	250.1	9.02
410.0	90.1	6.64	790.0	800.1	6.23	790.0	210.1	9.07
430.0	70.1	6.61	840.0	850.1	6.39	840.0	160.1	9.26
450.0	50.1	6.65	890.0	900.1	6.51	890.0	110.1	9.07
470.0	30.1	6.77	940.0	950.1	6.83	940.0	60.1	8.93
490.0	10.1	6.85	990.0	1000.1	7.23	990.0	10.1	8.65

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+20	+23	+26	+20	+23	+26
10.1	85.80	85.20	85.49	62.70	61.55	60.85
20.1	79.79	79.60	84.61	57.43	56.52	55.77
30.1	76.70	76.48	82.15	54.40	53.61	53.00
40.1	74.32	74.32	75.26	52.23	51.53	51.19
60.1	71.07	71.06	71.69	48.93	48.17	48.01
80.1	68.95	68.93	77.82	46.17	45.53	44.92
100.1	67.84	67.78	85.64	44.27	43.61	42.87
125.1	65.71	65.68	73.17	43.93	43.23	42.31
150.1	63.17	63.10	63.53	43.66	42.77	42.32
175.1	62.15	62.09	74.92	42.27	41.14	39.91
200.1	62.60	62.56	86.66	40.67	39.36	37.96
225.1	61.19	61.15	69.65	40.73	39.45	38.08
250.1	61.95	61.90	62.29	40.00	39.01	38.38
275.1	61.79	61.76	73.71	39.59	38.44	36.84
300.1	61.80	61.75	70.54	37.46	36.49	35.06
325.1	59.48	59.41	64.08	36.78	35.67	34.85
350.1	57.26	57.19	58.43	37.99	36.99	36.12
400.1	59.83	59.79	63.59	34.91	34.01	32.78
450.1	61.60	61.51	67.47	33.73	33.16	33.13
500.1	58.56	58.50	60.27	35.02	33.51	31.43
550.1	58.31	58.23	61.10	34.90	35.01	33.26
600.1	52.59	52.54	54.00	31.36	31.12	30.23
650.1	49.77	49.69	59.12	29.70	30.81	30.77
700.1	47.85	47.77	49.96	28.19	28.94	29.10
750.1	46.18	46.12	53.48	28.46	28.71	29.28
800.1	46.66	46.64	49.34	30.97	29.97	28.74
850.1	46.49	46.46	48.53	32.62	35.82	34.61
900.1	47.54	47.54	53.00	32.79	37.90	34.45
950.1	46.88	46.87	46.57	33.74	37.96	37.15
1000.1	48.78	48.77	51.92	34.34	37.48	37.60
1050.1	46.36	46.33	44.49	34.05	38.38	41.24
1100.1	48.73	48.71	49.51	35.05	40.46	45.22
1150.1	47.08	47.07	43.61	36.47	43.13	55.33
1200.1	49.23	49.22	48.46	39.10	49.79	49.68
1250.1	46.81	46.78	44.47	44.95	53.40	42.39
1300.1	48.17	48.15	48.22	52.95	42.08	37.30
1350.1	46.27	46.25	44.46	41.39	35.94	33.12
1400.1	47.71	47.69	47.63	38.44	33.88	31.56
1450.1	45.36	45.36	44.11	32.50	29.85	28.13
1500.1	46.48	46.47	46.69	32.25	29.64	27.93

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+20	+23	+26
10.1	40.1	55.59	48.31	38.74
20.1	50.1	49.41	44.46	36.67
30.1	60.1	46.81	44.20	38.22
40.1	70.1	44.58	43.68	42.95
60.1	90.1	41.74	41.66	42.22
80.1	110.1	39.50	39.36	39.69
100.1	130.1	37.73	37.41	36.42
125.1	155.1	35.93	35.65	33.28
150.1	180.1	35.27	35.56	35.82
175.1	205.1	34.33	34.55	34.90
200.1	230.1	34.07	34.05	33.36
225.1	255.1	33.89	34.00	33.43
250.1	280.1	33.66	34.05	34.57
275.1	305.1	33.36	33.88	34.43
300.1	330.1	33.58	33.99	33.95
325.1	355.1	33.52	33.94	34.09
350.1	380.1	33.78	34.22	34.41
400.1	430.1	34.56	35.98	37.66
450.1	480.1	31.82	32.39	32.21
500.1	530.1	29.86	30.47	31.36
550.1	580.1	27.77	27.43	26.85
600.1	630.1	26.56	26.52	26.95
650.1	680.1	25.62	25.18	24.64
700.1	730.1	25.61	25.39	25.67
750.1	780.1	25.75	24.98	24.22
800.1	830.1	26.25	25.92	25.72
850.1	880.1	26.50	26.14	24.99
900.1	930.1	25.16	24.82	24.63
950.1	980.1	24.00	23.75	23.25
1000.1	1030.1	22.44	22.33	22.20
1050.1	1080.1	21.89	21.77	21.68
1100.1	1130.1	20.82	20.66	20.54
1150.1	1180.1	20.40	20.20	20.08
1200.1	1230.1	19.37	19.22	19.11
1250.1	1280.1	18.92	18.82	18.80
1300.1	1330.1	18.02	17.94	17.90
1350.1	1380.1	17.43	17.34	17.32
1400.1	1430.1	16.87	16.81	16.78
1450.1	1480.1	16.27	16.19	16.15
1500.1	1530.1	15.94	15.87	15.84

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+20	+23	+26		+20	+23	+26		+20	+23	+26
10.1	40.1	1.06	1.10	1.15	10.1	1.68	2.58	3.86	0.5	1.32	1.34	1.37
20.1	50.1	1.05	1.11	1.16	20.1	1.59	2.27	2.97	1.0	1.19	1.08	1.05
30.1	60.1	1.03	1.10	1.16	30.1	1.51	2.05	2.38	2.0	1.28	1.15	1.09
40.1	70.1	1.05	1.12	1.18	40.1	1.47	1.96	2.21	5.0	1.23	1.11	1.06
60.1	90.1	1.11	1.17	1.22	60.1	1.55	2.17	2.61	10.0	1.19	1.08	1.03
80.1	110.1	1.13	1.20	1.23	80.1	1.71	2.67	3.95	20.0	1.19	1.08	1.02
100.1	130.1	1.13	1.20	1.24	100.1	1.66	2.54	3.72	30.0	1.20	1.09	1.02
125.1	155.1	1.17	1.22	1.26	125.1	1.48	1.99	2.23	40.0	1.21	1.09	1.03
150.1	180.1	1.19	1.24	1.28	150.1	1.53	2.09	2.52	50.0	1.22	1.10	1.04
175.1	205.1	1.20	1.26	1.30	175.1	1.71	2.66	4.03	70.0	1.23	1.11	1.06
200.1	230.1	1.22	1.27	1.31	200.1	1.59	2.29	2.84	90.0	1.24	1.12	1.07
225.1	255.1	1.25	1.30	1.33	225.1	1.49	1.97	2.25	110.0	1.25	1.14	1.09
250.1	280.1	1.25	1.30	1.33	250.1	1.64	2.33	3.10	130.0	1.25	1.14	1.10
275.1	305.1	1.26	1.31	1.35	275.1	1.78	2.71	3.93	150.0	1.26	1.15	1.12
300.1	330.1	1.28	1.33	1.36	300.1	1.60	2.16	2.42	175.0	1.28	1.17	1.13
325.1	355.1	1.29	1.33	1.37	325.1	1.56	2.06	2.43	200.0	1.29	1.18	1.15
350.1	380.1	1.32	1.37	1.40	350.1	1.80	2.67	3.94	225.0	1.30	1.20	1.16
400.1	430.1	1.37	1.41	1.43	400.1	1.62	2.13	2.46	250.0	1.30	1.20	1.17
450.1	480.1	1.31	1.35	1.38	450.1	1.91	2.79	3.85	275.0	1.31	1.21	1.18
500.1	530.1	1.28	1.31	1.33	500.1	1.67	2.17	2.55	300.0	1.32	1.22	1.19
550.1	580.1	1.34	1.37	1.40	550.1	1.94	2.71	3.33	330.0	1.31	1.22	1.20
600.1	630.1	1.55	1.57	1.59	600.1	1.77	2.31	2.70	360.0	1.31	1.22	1.20
650.1	680.1	1.84	1.86	1.88	650.1	2.01	2.70	3.21	390.0	1.30	1.21	1.20
700.1	730.1	2.28	2.28	2.27	700.1	1.98	2.56	3.01	420.0	1.28	1.20	1.19
750.1	780.1	2.95	2.87	2.83	750.1	2.17	2.82	3.33	450.0	1.26	1.18	1.18
800.1	830.1	3.70	3.60	3.50	800.1	2.20	2.84	3.42	480.0	1.25	1.16	1.16
850.1	880.1	4.63	4.41	4.29	850.1	2.29	3.00	3.60	510.0	1.22	1.13	1.15
900.1	930.1	5.36	5.10	4.98	900.1	2.21	2.83	3.35	540.0	1.19	1.10	1.13
950.1	980.1	5.79	5.59	5.47	950.1	2.37	3.20	4.08	570.0	1.16	1.07	1.12
1000.1	1030.1	6.35	6.17	6.03	1000.1	2.23	2.89	3.41	600.0	1.14	1.03	1.12
1050.1	1080.1	6.89	6.66	6.51	1050.1	2.43	3.30	4.12	630.0	1.12	1.02	1.13
1100.1	1130.1	7.20	7.00	6.83	1100.1	2.41	3.09	3.51	660.0	1.12	1.06	1.16
1150.1	1180.1	7.53	7.28	7.11	1150.1	2.46	3.11	3.61	690.0	1.13	1.11	1.20
1200.1	1230.1	7.60	7.38	7.20	1200.1	2.74	3.48	4.09	720.0	1.16	1.17	1.26
1250.1	1280.1	8.08	7.87	7.73	1250.1	2.44	2.88	3.19	750.0	1.21	1.24	1.32
1300.1	1330.1	8.43	8.20	7.97	1300.1	3.16	4.09	5.47	790.0	1.28	1.34	1.43
1350.1	1380.1	9.04	8.81	8.64	1350.1	2.48	2.78	3.00	840.0	1.41	1.49	1.59
1400.1	1430.1	8.95	8.72	8.55	1400.1	3.69	4.77	6.91	890.0	1.56	1.67	1.78
1450.1	1480.1	8.77	8.51	8.39	1450.1	2.69	2.89	3.02	940.0	1.74	1.87	2.00
1500.1	1530.1	8.35	8.16	8.01	1500.1	4.16	5.03	6.21	990.0	1.92	2.07	2.22

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	21	12	45	7	37	25	43	41	46
1	-	24	+0	41	12	39	35	54	33	59	38	64
2	94	60	49	60	48	62	64	87	56	76	62	83
3	105	74	55	71	54	71	56	81	70	88	67	85
4	>123	107	94	100	83	94	80	91	94	102	99	99
5	>122	111	114	105	94	98	91	97	91	111	101	118
6	>122	>122	110	>125	106	110	99	109	98	110	114	121
7	>120	>124	>125	>124	>127	>126	>120	>122	116	>121	120	>127
8	>122	124	>124	>126	>126	125	>124	>122	>119	>120	>118	>125
9	>121	>122	>125	>125	>126	>125	>125	>127	>122	>121	>123	>122
10	>120	>125	>123	>125	>125	>124	>124	>125	>126	>122	>122	>122
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; .05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -6.76 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	32	22	58	18	46	37	50	51	56
1	-	24	+0	38	12	39	38	52	39	57	42	70
2	87	50	38	51	37	54	63	72	44	67	56	71
3	97	55	35	55	35	55	37	64	52	71	50	70
4	110	84	78	71	59	65	52	65	69	82	66	80
5	>119	83	81	85	64	77	56	71	55	76	67	97
6	>122	88	85	95	89	75	70	72	64	73	79	86
7	>121	94	87	91	93	99	78	79	70	74	70	87
8	>120	105	107	101	105	108	90	86	79	84	73	82
9	>121	109	98	112	95	108	117	96	90	105	86	92
10	>122	112	108	106	113	103	104	107	97	96	97	92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 10.05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 3.25 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

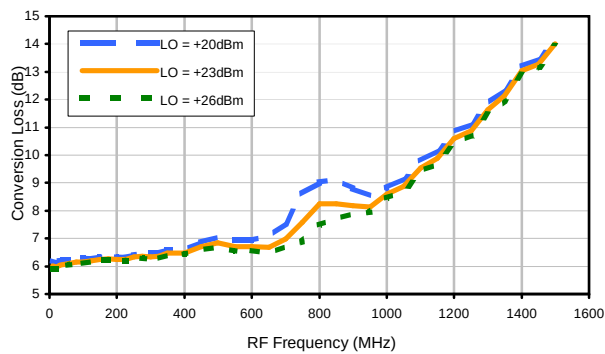
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Frequency Mixer

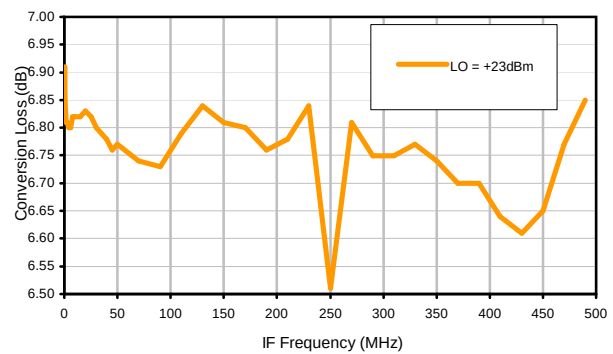
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Typical Performance Curves

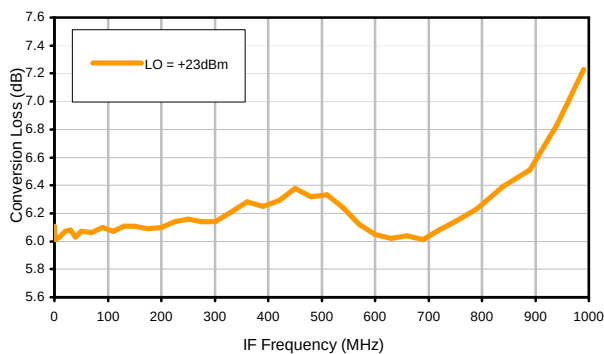
Conversion Loss @ IF=30MHz



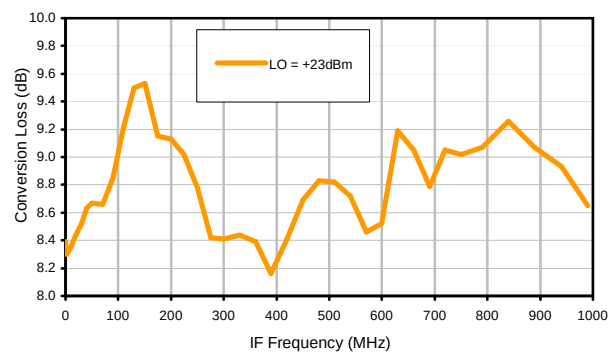
Conversion Loss vs. IF @ RF=500.1MHz



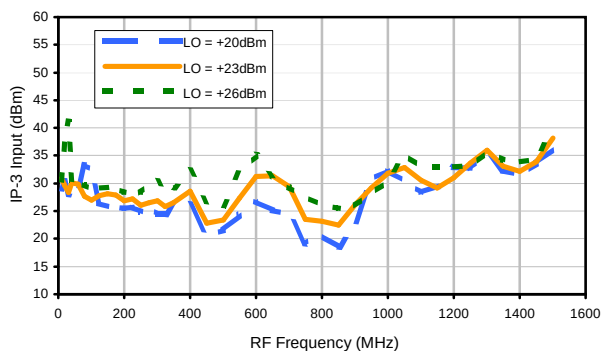
Conversion Loss vs. IF @ RF=10.1MHz



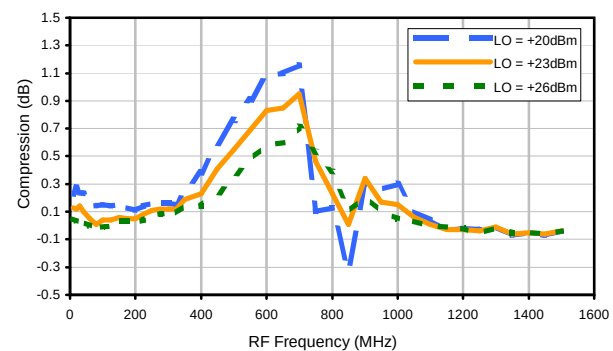
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input



Compression @ RF IN=+15dBm



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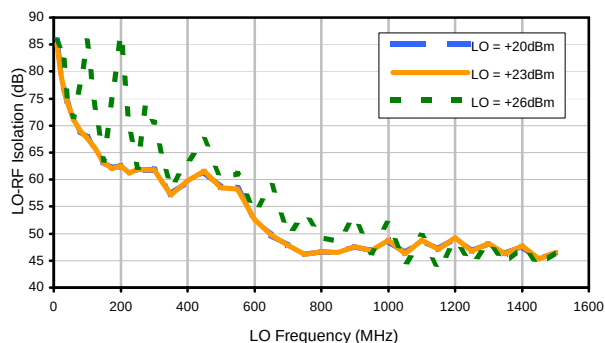


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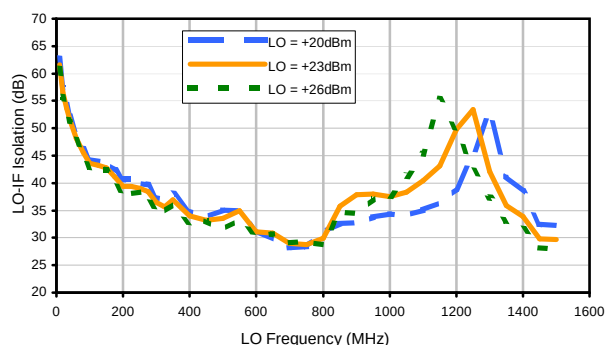


Typical Performance Curves

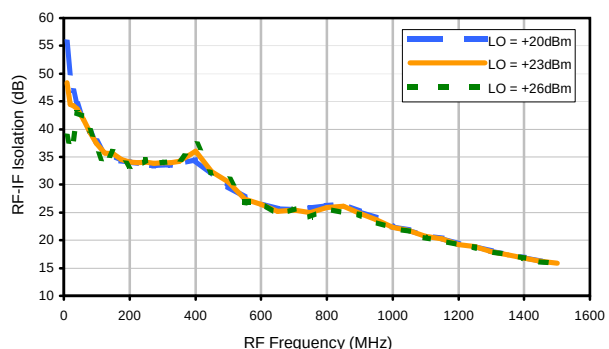
LO-RF Isolation



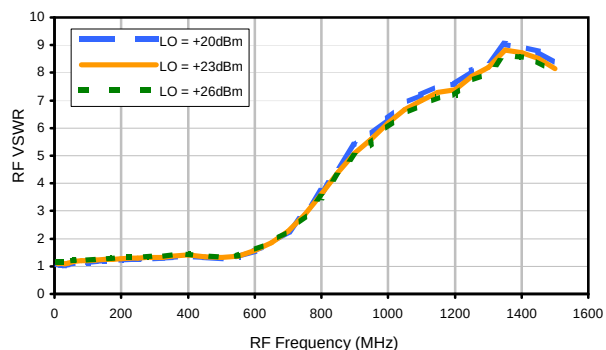
LO-IF Isolation



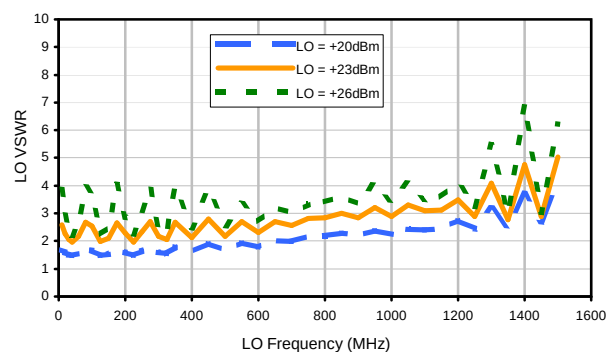
RF-IF Isolation



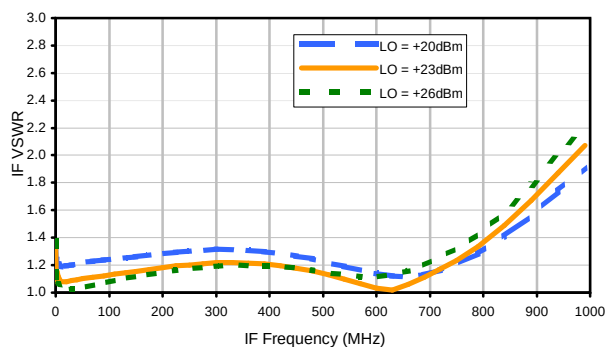
RF VSWR



LO VSWR



IF VSWR



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	7	21	12	45	7	37	25	43	41	46
1	-	24	+0	41	12	39	35	54	33	59	38	64
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3	105	74	55	71	54	71	56	81	70	88	67	85
4	>123	107	94	100	83	94	80	91	94	102	99	99
5	>122	111	114	105	94	98	91	97	91	111	101	118
6	>122	>122	110	>125	106	110	99	109	98	110	114	121
7	>120	>124	>125	>124	>127	>126	>120	>122	116	>121	120	>127
8	>122	124	>124	>126	>126	125	>124	>122	>119	>120	>118	>125
9	>121	>122	>125	>125	>126	>125	>125	>127	>122	>121	>123	>122
10	>120	>125	>123	>125	>125	>124	>124	>125	>126	>122	>122	>122
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; .05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -6.76 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	16	32	22	58	18	46	37	50	51	56
1	-	24	+0	38	12	39	38	52	39	57	42	70
2	87	50	38	51	37	54	63	72	44	67	56	71
3	97	55	35	55	35	55	37	64	52	71	50	70
4	110	84	78	71	59	65	52	65	69	82	66	80
5	>119	83	81	85	64	77	56	71	55	76	67	97
6	>122	88	85	95	89	75	70	72	64	73	79	86
7	>121	94	87	91	93	99	78	79	70	74	70	87
8	>120	105	107	101	105	108	90	86	79	84	73	82
9	>121	109	98	112	95	108	117	96	90	105	86	92
10	>122	112	108	106	113	103	104	107	97	96	97	92
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

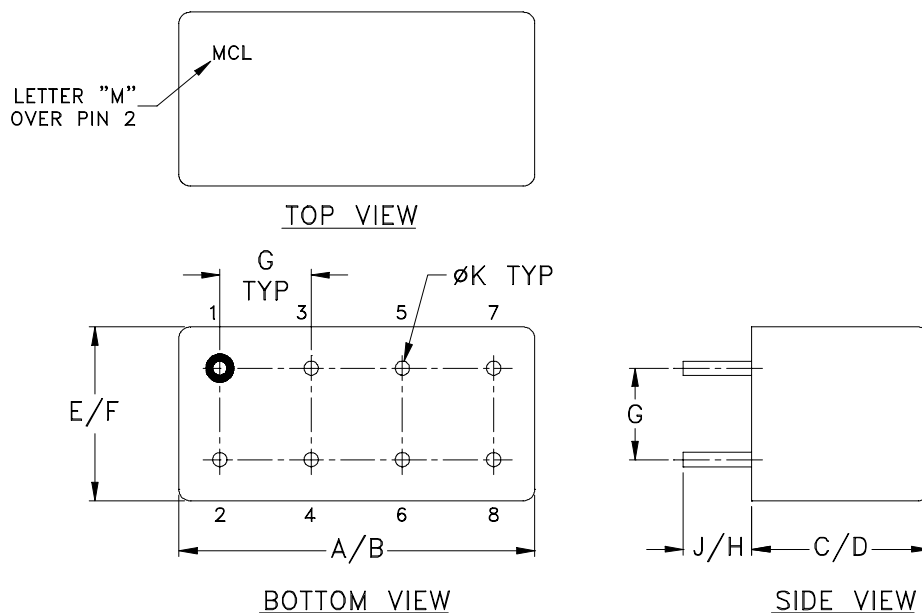
Test conditions: RF IN: 500.1 MHz; 10.05.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 3.25 dBm

- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

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A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01	.770 (19.56)	.800 (20.32)	.385 (9.78)	.400 (10.16)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	5.2
A04			.200 (5.08)	.210 (5.33)							3.7
A05			.240 (6.10)	.250 (6.35)							3.7
A06			.285 (7.24)	.310 (7.87)							5.2

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.
- Insulated spacer available. Request P/N B14-045-01.
- 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.

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