Coaxial

Frequency Mixer

ZMY-3

Level 23 (LO Power +23 dBm) 0.07 to 200 MHz

HT-Series Tight Spot SMA Wrench From $24.95

Maximum Ratings

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

Permanent damage may occur if any of these limits are exceeded.

Coaxial Connections

LO	1
RF	3
IF	2

Features

- low conversion loss, 5.53 dB typ.
- high L-R & L-I isolation, 40 typ.
- rugged shielded case

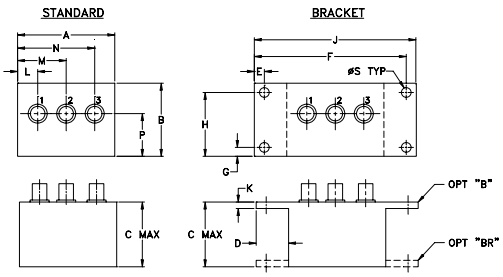
Applications

- VHF
- instrumentation
- FM radio

CASE STYLE: M21

Connectors	Model
SMA	ZMY-3
BRACKET (OPTION "B")	
BRACKET (OPTION "BR")	

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.50	1.13	1.00	.50	.155	2.345	.138	.987
38.10	28.70	25.40	12.70	3.94	59.56	3.51	25.07

J	K	L	M	N	P	S	wt
2.50	.10	.31	.75	1.19	.66	.150	grams
63.50	2.54	7.87	19.05	30.23	16.76	3.81	40.0

Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)					
LO/RF	IF	Mid-Band m			Total Range	L		M		U		L		M		U	
f_L-f_U		$\overline{X}$	σ	Max.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
0.07-200	DC-200	5.53	0.08	7.5	8.0	55	45	40	30	30	25	55	45	40	30	30	20

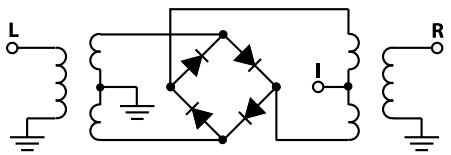
1 dB COMP.: +15 dBm typ.

L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/2] U = upper range [f_U/2 to f_U]
m= mid band [2f_L to f_U/2]

Typical Performance Data

Frequency (MHz)		Conversion Loss (dB)	Isolation L-R (dB)	Isolation L-I (dB)	VSWR RF Port (:1)	VSWR LO Port (:1)
RF	LO	LO +23dBm	LO +23dBm	LO +23dBm	LO +23dBm	LO +23dBm
0.07	30.07	5.77	55.55	56.68	1.17	2.42
0.20	30.20	5.58	53.15	57.09	1.18	2.40
1.00	31.00	5.29	52.74	57.07	1.18	2.23
5.00	35.00	5.23	52.57	56.88	1.17	2.21
20.00	50.00	5.27	52.28	56.59	1.17	2.19
34.54	64.54	5.24	51.27	54.69	1.16	2.20
48.33	78.33	5.26	48.91	51.06	1.15	2.20
62.12	92.12	5.28	46.28	47.85	1.15	2.27
69.01	99.01	5.29	44.38	45.65	1.14	2.27
82.80	52.80	5.28	42.67	43.88	1.13	2.28
96.59	66.59	5.28	41.29	41.90	1.13	2.25
103.48	73.48	5.25	39.95	40.89	1.13	2.14
117.27	87.27	5.28	39.22	39.90	1.12	2.10
131.06	101.06	5.29	39.37	39.78	1.12	2.17
144.85	114.85	5.34	38.04	37.10	1.12	2.25
158.63	128.63	5.43	36.70	33.79	1.12	2.29
165.53	135.53	5.47	36.49	31.41	1.13	2.22
179.32	149.32	5.47	36.22	30.50	1.14	2.16
193.10	163.10	5.54	36.47	29.43	1.16	2.18
200.00	170.00	5.51	36.43	29.00	1.16	2.21

Electrical Schematic



Notes

A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
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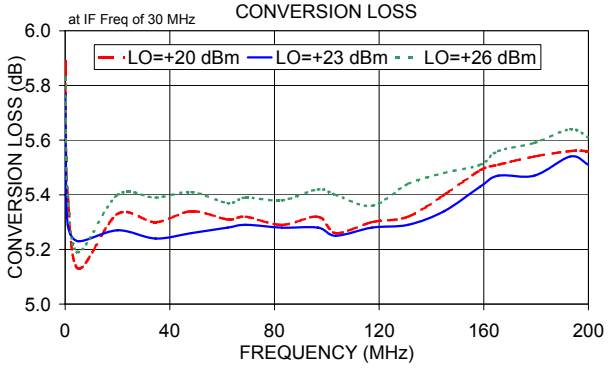
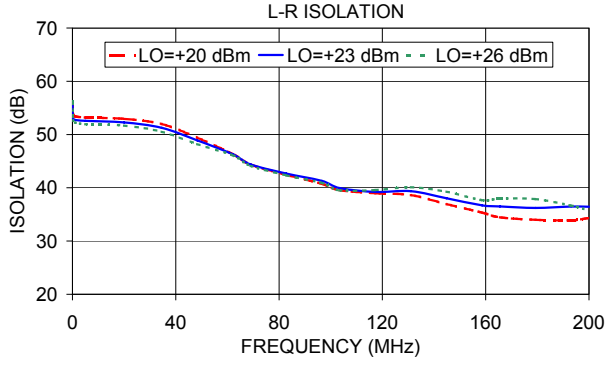
Performance Charts

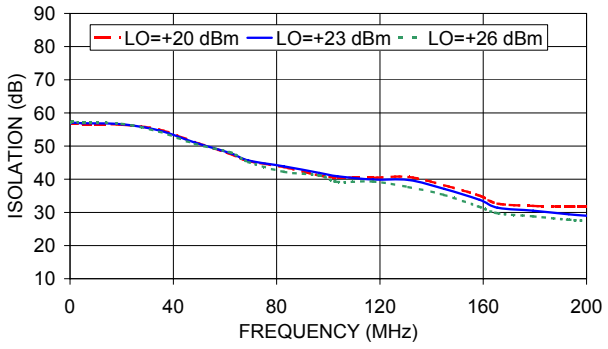
ZMY-3
CONVERSION LOSS
at IF Freq of 30 MHz



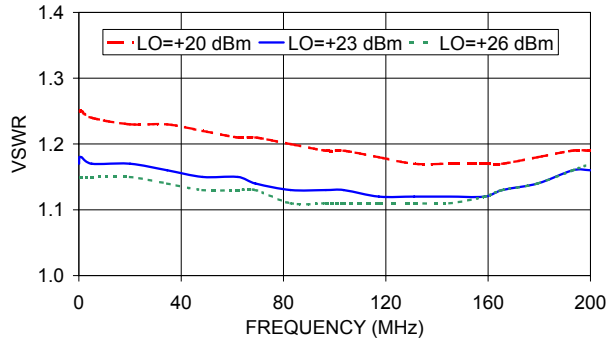
ZMY-3
L-R ISOLATION



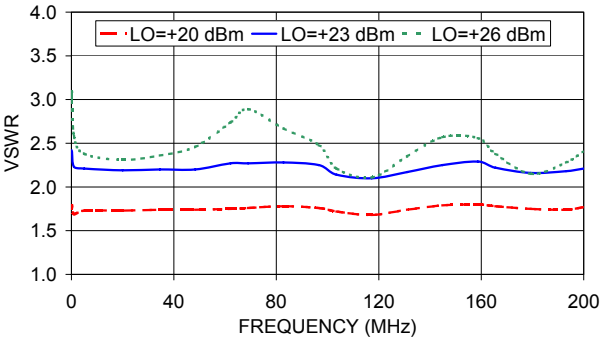
ZMY-3
L-I ISOLATION



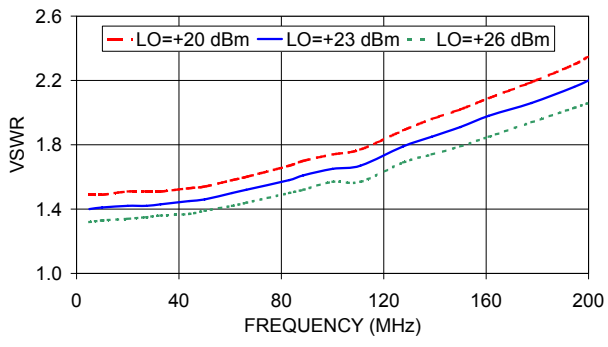
ZMY-3
RF VSWR



ZMY-3
LO VSWR



ZMY-3
IF VSWR



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Frequency Mixer ZMY-3

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB) @LO (dBm)		
		+20	+23	+26
0.1	30.1	5.89	5.77	5.83
0.2	30.2	5.65	5.58	5.67
1.0	31.0	5.40	5.29	5.40
5.0	35.0	5.13	5.23	5.19
10.1	40.1	4.93	4.83	4.78
22.7	52.7	4.88	4.82	4.79
35.2	65.2	4.91	4.84	4.81
47.8	77.8	4.91	4.85	4.82
60.4	90.4	4.89	4.84	4.82
72.9	102.9	4.91	4.85	4.82
85.5	115.5	4.93	4.89	4.86
98.0	128.0	4.98	4.92	4.91
110.6	140.6	4.94	4.89	4.88
123.2	153.2	4.97	4.93	4.93
148.3	178.3	5.10	4.99	4.95
160.9	190.9	5.20	5.10	5.02
173.4	203.4	5.22	5.16	5.15
186.0	216.0	5.29	5.25	5.27
198.6	228.6	5.34	5.36	5.43
211.1	241.1	5.48	5.47	5.49
223.7	253.7	5.58	5.53	5.52
248.8	278.8	5.84	5.62	5.56
261.4	291.4	6.12	5.72	5.51
273.9	303.9	6.28	5.88	5.62
286.5	316.5	6.29	5.99	5.84
299.1	329.1	6.43	6.22	6.14
311.6	341.6	6.69	6.41	6.30
324.2	354.2	6.80	6.56	6.41
349.3	379.3	6.71	6.55	6.34
361.9	391.9	6.84	6.67	6.49
374.5	404.5	7.09	6.99	6.92
387.0	417.0	7.21	7.20	7.26
399.6	429.6	7.32	7.36	7.53
412.2	442.2	7.64	7.71	7.94
424.7	454.7	8.16	8.27	8.53
437.3	467.3	8.48	8.66	8.88
449.8	479.8	8.71	8.90	9.11
475.0	505.0	9.73	9.84	10.02
487.5	517.5	10.24	10.31	10.45
500.1	530.1	10.57	10.57	10.64

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+20	+23	+26
10.1	40.1	33.36	32.21	33.61
22.7	52.7	29.70	31.63	34.32
35.2	65.2	29.29	36.54	29.99
47.8	77.8	29.67	32.76	28.74
60.4	90.4	42.35	28.51	27.12
72.9	102.9	31.18	26.91	26.63
85.5	115.5	30.70	27.29	26.54
98.0	128.0	27.17	25.18	25.05
110.6	140.6	24.02	23.15	23.48
123.2	153.2	24.33	23.68	24.23
135.7	165.7	24.76	23.92	25.09
148.3	178.3	24.69	24.55	25.70
160.9	190.9	22.91	22.59	23.58
173.4	203.4	24.45	23.07	23.41
186.0	216.0	23.14	21.99	24.33
198.6	228.6	21.29	22.63	25.47
211.1	241.1	21.41	23.08	24.93
223.7	253.7	21.47	22.91	23.57
236.3	266.3	20.72	22.21	23.43
248.8	278.8	18.81	22.36	25.06
261.4	291.4	15.59	20.29	25.49
273.9	303.9	14.71	17.61	22.45
286.5	316.5	15.44	17.06	20.64
299.1	329.1	15.59	16.52	18.41
311.6	341.6	16.56	17.63	18.73
324.2	354.2	17.15	18.76	20.00
336.8	366.8	17.44	19.50	22.64
349.3	379.3	18.35	21.73	27.23
361.9	391.9	20.12	26.80	26.68
374.5	404.5	22.88	28.16	23.90
387.0	417.0	25.65	25.45	22.42
399.6	429.6	24.49	23.63	22.80
412.2	442.2	23.89	24.11	24.48
424.7	454.7	22.87	23.83	24.26
437.3	467.3	21.52	22.66	23.96
449.8	479.8	21.20	22.19	23.96
462.4	492.4	20.32	21.42	22.68
475.0	505.0	20.47	21.63	22.79
487.5	517.5	20.22	21.24	22.40
500.1	530.1	21.20	21.05	21.79

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB) @LO (dBm)		
		+20	+23	+26
10.1	40.1	1.07	1.12	0.90
22.7	52.7	1.14	1.35	1.14
35.2	65.2	1.16	1.00	0.76
47.8	77.8	1.18	0.90	0.68
60.4	90.4	1.16	0.83	0.62
72.9	102.9	1.09	0.71	0.55
85.5	115.5	1.12	0.56	0.39
98.0	128.0	1.06	0.54	0.40
110.6	140.6	0.94	0.58	0.47
123.2	153.2	0.91	0.44	0.33
135.7	165.7	0.91	0.44	0.33
148.3	178.3	0.91	0.36	0.25
160.9	190.9	0.95	0.36	0.26
173.4	203.4	1.07	0.43	0.30
186.0	216.0	1.22	0.47	0.28
198.6	228.6	1.41	0.49	0.29
211.1	241.1	1.54	0.69	0.54
223.7	253.7	1.70	0.85	0.66
236.3	266.3	1.77	0.91	0.66
248.8	278.8	1.81	1.04	0.73
261.4	291.4	1.81	1.20	0.85
273.9	303.9	1.82	1.27	0.95
286.5	316.5	1.78	1.35	1.03
299.1	329.1	1.68	1.43	1.12
311.6	341.6	1.56	1.48	1.24
324.2	354.2	1.47	1.34	1.22
336.8	366.8	1.47	1.27	1.27
349.3	379.3	1.63	1.35	1.45
361.9	391.9	1.73	1.29	1.47
374.5	404.5	1.81	1.21	1.39
387.0	417.0	1.82	1.15	1.36
399.6	429.6	1.74	1.20	1.34
412.2	442.2	1.68	1.13	1.17
424.7	454.7	1.71	0.85	0.85
437.3	467.3	1.73	0.59	0.64
449.8	479.8	1.71	0.49	0.57
462.4	492.4	1.65	0.49	0.60
475.0	505.0	1.58	0.53	0.71
487.5	517.5	1.50	0.53	0.80
500.1	530.1	1.37	0.62	1.03

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=100.1MHz (dB)
		@LO (dBm)
		+23
0.5	99.6	4.89
0.6	99.5	4.88
0.7	99.4	4.86
0.7	99.4	4.85
0.9	99.2	4.83
1.0	99.1	4.83
1.1	99.0	4.82
1.3	98.8	4.82
1.5	98.6	4.82
1.7	98.4	4.82
1.9	98.2	4.81
2.2	97.9	4.81
2.5	97.6	4.80
2.8	97.3	4.80
3.2	96.9	4.80
3.7	96.4	4.79
4.2	95.9	4.79
4.8	95.3	4.80
5.5	94.6	4.80
6.3	93.8	4.81
7.2	92.9	4.82
8.2	91.9	4.80
9.4	90.7	4.81
10.7	89.4	4.80
12.2	87.9	4.80
14.0	86.1	4.80
15.9	84.2	4.80
18.2	81.9	4.82
20.8	79.3	4.82
23.8	76.3	4.83
27.2	72.9	4.84
31.0	69.1	4.86
35.4	64.7	4.86
40.5	59.6	4.88
46.2	53.9	4.87
52.8	47.3	4.87
60.4	39.7	4.91
69.0	31.1	4.93
78.8	21.3	4.97
90.0	10.1	5.05

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm)
		+23
0.5	10.6	4.80
0.6	10.7	4.78
0.7	10.8	4.76
0.8	10.9	4.74
0.9	11.0	4.74
1.1	11.2	4.72
1.2	11.3	4.72
1.5	11.6	4.72
1.7	11.8	4.72
2.0	12.1	4.71
2.3	12.4	4.71
2.7	12.8	4.70
3.1	13.2	4.72
3.6	13.7	4.72
4.2	14.3	4.73
4.9	15.0	4.72
5.7	15.8	4.72
6.7	16.8	4.72
7.8	17.9	4.73
9.0	19.1	4.73
10.5	20.6	4.74
12.2	22.3	4.74
14.3	24.4	4.74
16.6	26.7	4.76
19.3	29.4	4.76
22.5	32.6	4.77
26.2	36.3	4.78
30.5	40.6	4.80
35.6	45.7	4.80
41.4	51.5	4.80
48.2	58.3	4.84
56.2	66.3	4.86
65.4	75.5	4.87
76.2	86.3	4.90
88.7	98.8	4.93
103.3	113.4	5.01
120.3	130.4	5.13
140.1	150.2	5.08
163.2	173.3	5.20
190.0	200.1	5.55

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=200.1MHz (dB)
		@LO (dBm)
		+23
0.5	199.6	5.28
0.6	199.5	5.26
0.7	199.4	5.25
0.8	199.3	5.23
0.9	199.2	5.22
1.1	199.0	5.21
1.2	198.9	5.21
1.5	198.6	5.21
1.7	198.4	5.21
2.0	198.1	5.20
2.3	197.8	5.20
2.7	197.4	5.19
3.1	197.0	5.20
3.6	196.5	5.20
4.2	195.9	5.20
4.9	195.2	5.20
5.7	194.4	5.20
6.7	193.4	5.21
7.8	192.3	5.21
9.0	191.1	5.21
10.5	189.6	5.23
12.2	187.9	5.24
14.3	185.8	5.28
16.6	183.5	5.26
19.3	180.8	5.26
22.5	177.6	5.24
26.2	173.9	5.24
30.5	169.6	5.26
35.6	164.5	5.28
41.4	158.7	5.30
48.2	151.9	5.30
56.2	143.9	5.25
65.4	134.7	5.26
76.2	123.9	5.25
88.7	111.4	5.30
103.3	96.8	5.34
120.3	79.8	5.40
140.1	60.0	5.43
163.2	36.9	5.54
190.0	10.1	5.78

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+20	+23	+26	+20	+23	+26
0.1	55.50	55.55	56.16	56.70	56.68	56.98
0.2	53.87	53.15	52.66	56.88	57.09	57.21
1.0	53.43	52.74	52.25	56.80	57.07	57.32
5.0	53.20	52.57	51.95	56.66	56.88	57.11
10.1	75.42	75.64	81.10	67.26	65.43	64.69
22.7	69.15	69.18	75.05	62.79	61.36	61.68
35.2	65.33	65.21	71.10	57.84	58.40	59.83
47.8	62.72	62.82	70.06	55.63	57.58	58.92
60.4	61.26	61.49	66.50	52.68	54.62	55.97
72.9	59.11	59.22	66.18	51.78	53.19	53.87
85.5	59.46	59.62	65.69	50.52	51.66	51.81
98.0	58.97	59.08	66.90	47.56	48.48	49.05
110.6	54.81	54.83	58.90	48.64	49.24	48.69
123.2	55.36	55.36	57.68	46.35	47.42	46.99
148.3	53.82	53.91	50.53	45.12	45.75	45.42
160.9	51.89	51.85	48.72	44.37	44.83	42.59
173.4	46.67	46.68	52.43	43.92	43.59	41.61
186.0	46.43	46.49	55.18	41.42	40.47	38.73
198.6	46.24	46.25	50.99	39.29	38.35	36.89
211.1	44.71	44.77	45.37	39.41	37.09	34.69
223.7	45.23	45.30	40.51	38.85	35.37	33.60
248.8	47.98	48.04	37.10	36.67	33.22	32.29
261.4	55.75	55.72	49.35	36.90	32.86	31.29
273.9	53.31	53.33	41.90	36.32	31.63	29.49
286.5	50.56	50.66	40.45	35.77	30.65	27.85
299.1	44.67	44.80	39.40	32.37	29.02	26.31
311.6	42.11	42.15	37.71	31.57	28.11	24.70
324.2	42.11	42.11	37.71	31.62	28.22	25.13
349.3	46.49	46.52	37.65	31.10	26.00	23.12
361.9	40.60	40.63	31.88	29.00	23.62	20.67
374.5	35.40	35.43	28.06	25.08	20.59	17.95
387.0	31.56	31.58	25.69	21.61	17.93	15.87
399.6	28.93	28.96	24.05	19.25	16.25	14.45
412.2	27.67	27.70	23.35	18.28	15.55	13.83
424.7	27.70	27.74	24.47	18.65	15.97	14.50
437.3	27.52	27.55	24.76	19.10	16.43	14.96
449.8	26.52	26.53	23.48	18.93	16.33	14.75
475.0	22.83	22.85	19.69	16.27	14.24	12.77
487.5	20.69	20.71	18.13	14.61	12.85	11.61
500.1	19.29	19.31	17.16	13.53	11.98	10.84

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+20	+23	+26
10.1	40.1	35.61	33.91	30.85
22.7	52.7	30.62	29.88	27.84
35.2	65.2	28.69	28.46	28.17
47.8	77.8	26.96	27.05	27.20
60.4	90.4	25.61	25.75	26.23
72.9	102.9	25.02	25.19	25.59
85.5	115.5	25.43	25.58	25.78
98.0	128.0	25.17	25.70	26.09
110.6	140.6	24.61	25.08	25.08
123.2	153.2	24.89	25.58	26.15
135.7	165.7	25.22	25.93	26.80
148.3	178.3	25.45	26.11	26.80
160.9	190.9	25.67	26.23	26.81
173.4	203.4	24.59	25.37	26.38
186.0	216.0	22.52	23.05	23.55
198.6	228.6	20.21	20.49	21.22
211.1	241.1	18.63	18.82	19.79
223.7	253.7	17.25	17.36	17.52
236.3	266.3	16.50	16.63	16.58
248.8	278.8	15.93	16.10	16.17
261.4	291.4	15.61	15.90	16.18
273.9	303.9	15.79	16.24	16.58
286.5	316.5	15.49	16.15	17.05
299.1	329.1	14.92	15.33	16.06
311.6	341.6	15.05	15.26	15.40
324.2	354.2	15.23	15.37	15.27
336.8	366.8	14.76	14.84	14.57
349.3	379.3	14.31	14.14	13.85
361.9	391.9	13.64	13.23	12.94
374.5	404.5	12.55	12.09	11.73
387.0	417.0	11.43	11.00	10.58
399.6	429.6	10.61	10.13	9.36
412.2	442.2	9.93	9.39	8.72
424.7	454.7	9.08	8.62	8.19
437.3	467.3	8.39	7.98	7.66
449.8	479.8	7.74	7.45	7.18
462.4	492.4	7.15	6.98	6.80
475.0	505.0	6.67	6.59	6.51
487.5	517.5	6.33	6.28	6.26
500.1	530.1	6.28	6.19	6.17

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+20	+23	+26
5.0	35.0	1.25	1.17	1.15
10.0	40.0	1.25	1.18	1.15
22.7	52.7	1.22	1.15	1.10
35.2	65.2	1.22	1.15	1.09
47.8	77.8	1.18	1.11	1.07
60.4	90.4	1.15	1.08	1.04
72.9	102.9	1.14	1.07	1.02
85.5	115.5	1.09	1.04	1.03
98.0	128.0	1.08	1.03	1.05
110.6	140.6	1.09	1.06	1.08
123.2	153.2	1.09	1.07	1.09
135.7	165.7	1.09	1.11	1.14
148.3	178.3	1.07	1.12	1.18
160.9	190.9	1.08	1.14	1.21
173.4	203.4	1.14	1.20	1.26
186.0	216.0	1.21	1.29	1.33
198.6	228.6	1.29	1.36	1.39
211.1	241.1	1.37	1.41	1.43
223.7	253.7	1.38	1.40	1.39
236.3	266.3	1.34	1.35	1.33
248.8	278.8	1.34	1.36	1.33
261.4	291.4	1.34	1.33	1.28
273.9	303.9	1.31	1.26	1.18
286.5	316.5	1.25	1.20	1.17
299.1	329.1	1.26	1.21	1.17
311.6	341.6	1.28	1.18	1.08
324.2	354.2	1.21	1.12	1.09
336.8	366.8	1.13	1.09	1.13
349.3	379.3	1.12	1.11	1.16
361.9	391.9	1.22	1.21	1.25
374.5	404.5	1.35	1.34	1.39
387.0	417.0	1.40	1.42	1.51
399.6	429.6	1.46	1.47	1.61
412.2	442.2	1.57	1.60	1.72
424.7	454.7	1.71	1.73	1.85
437.3	467.3	1.76	1.77	1.88
449.8	479.8	1.77	1.78	1.86
475.0	505.0	1.87	1.85	1.90
487.5	517.5	1.91	1.90	1.93
500.1	530.1	1.92	1.89	1.91

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+20	+23	+26
35.0	1.79	2.42	3.01
40.0	1.79	2.40	3.09
22.7	1.59	2.14	2.55
35.2	1.47	1.85	2.09
47.8	1.45	1.84	2.10
60.4	1.59	2.11	2.50
72.9	1.80	2.63	3.36
85.5	1.94	2.99	4.09
98.0	1.88	2.78	3.68
110.6	1.72	2.33	2.81
123.2	1.60	2.04	2.30
135.7	1.58	1.98	2.25
148.3	1.70	2.18	2.52
160.9	1.96	2.70	3.28
173.4	2.20	3.19	4.28
186.0	2.19	3.11	4.04
198.6	2.04	2.73	3.26
211.1	1.90	2.43	2.77
223.7	1.84	2.32	2.65
236.3	1.91	2.42	2.78
248.8	2.17	2.87	3.37
261.4	2.49	3.43	4.43
273.9	2.61	3.51	4.38
286.5	2.54	3.30	3.90
299.1	2.43	3.08	3.52
311.6	2.37	2.95	3.34
324.2	2.39	2.96	3.34
336.8	2.52	3.13	3.48
349.3	2.69	3.38	3.91
361.9	2.79	3.52	4.11
374.5	2.85	3.58	4.16
387.0	2.91	3.63	4.15
399.6	2.92	3.58	4.00
412.2	2.76	3.34	3.70
424.7	2.48	2.91	3.15
437.3	2.40	2.75	2.93
449.8	2.52	2.93	3.25
475.0	3.02	3.58	4.01
487.5	3.16	3.70	4.01
500.1	2.85	3.26	3.48

IF (OUT) (MHz)	IF VSWR @LO=200.1MHz (:1) @LO (dBm)		
	+20	+23	+26
0.5	1.49	1.41	1.33
0.6	1.47	1.37	1.27
0.7	1.48	1.38	1.25
0.8	1.51	1.40	1.26
0.9	1.59	1.46	1.30
1.1	1.65	1.50	1.34
1.3	1.70	1.55	1.38
1.5	1.73	1.58	1.40
1.7	1.76	1.60	1.42
2.0	1.77	1.62	1.43
2.3	1.77	1.61	1.43
2.7	1.76	1.60	1.43
3.2	1.74	1.59	1.41
3.7	1.72	1.57	1.40
4.3	1.70	1.56	1.38
5.0	1.69	1.55	1.37
5.8	1.68	1.52	1.36
6.8	1.66	1.51	1.35
7.9	1.65	1.51	1.35
9.3	1.65	1.51	1.34
10.8	1.65	1.50	1.33
12.6	1.65	1.51	1.34
14.7	1.65	1.51	1.34
17.1	1.66	1.52	1.35
20.0	1.66	1.51	1.35
23.3	1.67	1.53	1.36
27.1	1.68	1.53	1.36
31.7	1.70	1.55	1.37
36.9	1.71	1.56	1.38
43.0	1.73	1.58	1.40
50.2	1.76	1.60	1.42
58.5	1.80	1.63	1.44
68.2	1.83	1.68	1.49
79.6	1.88	1.72	1.54
92.8	1.94	1.78	1.59
108.2	2.04	1.87	1.67
126.1	2.15	1.96	1.77
147.1	2.31	2.12	1.89
171.5	2.49	2.31	2.09
200.0	2.78	2.61	2.38

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	34	18	29	20	38	26	55	35	55
1	-	20	+0	28	12	39	17	36	31	42	60	48
2	98	60	50	59	50	61	51	61	59	76	76	76
3	111	61	52	62	53	66	54	63	65	66	63	76
4	>125	81	81	81	77	82	77	82	75	105	85	87
5	>125	86	79	82	79	82	80	85	81	83	88	86
6	>126	103	97	106	96	103	94	99	95	96	94	100
7	>126	109	103	107	113	102	109	102	100	106	99	104
8	>125	117	111	108	103	109	102	105	102	106	104	105
9	>125	119	123	117	112	118	110	114	109	>115	111	118
10	>126	>129	125	>126	121	118	116	116	113	115	113	120
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:
RF IN: 100.1 MHz; .02.00 dBm.
LO IN: 130.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -5 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	28	45	29	40	31	48	37	68	46	72
1	-	21	+0	28	12	37	18	39	30	45	45	50
2	89	58	52	58	53	57	55	59	63	82	64	76
3	100	48	42	53	41	52	41	51	47	51	57	58
4	119	72	62	75	60	73	60	71	59	71	67	77
5	>121	73	54	64	56	62	56	60	57	59	62	66
6	>121	81	70	77	73	75	71	77	74	76	74	90
7	121	79	75	78	67	74	64	78	65	73	65	79
8	>121	88	85	83	82	86	82	84	80	86	79	82
9	>121	88	80	83	87	80	79	78	81	81	79	79
10	>120	107	108	101	105	94	96	95	88	94	87	101
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

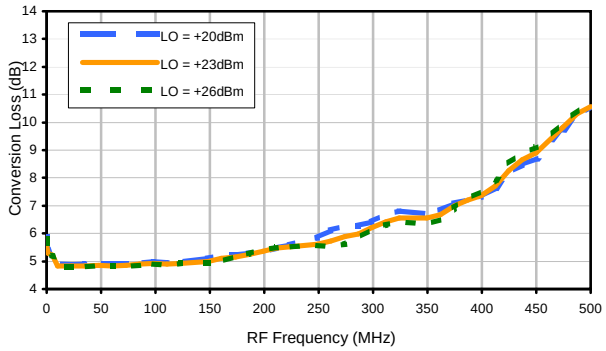
Test conditions:
RF IN: 100.1 MHz; 10.00 dBm.
LO IN: 130.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 5.01 dBm

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.

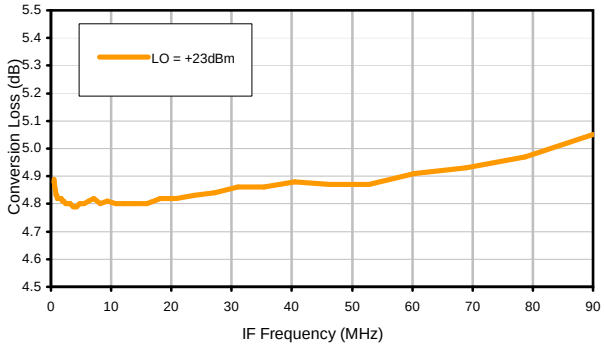
Frequency Mixer ZMY-3

Typical Performance Curves

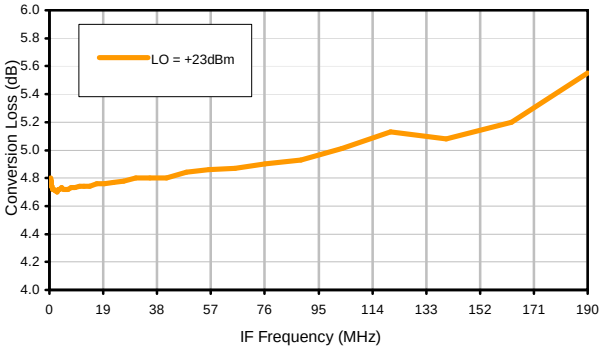
Conversion Loss @ IF=30MHz



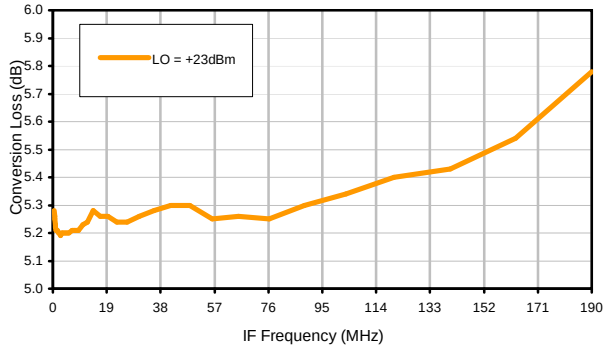
Conversion Loss vs. IF @ RF=100.1MHz



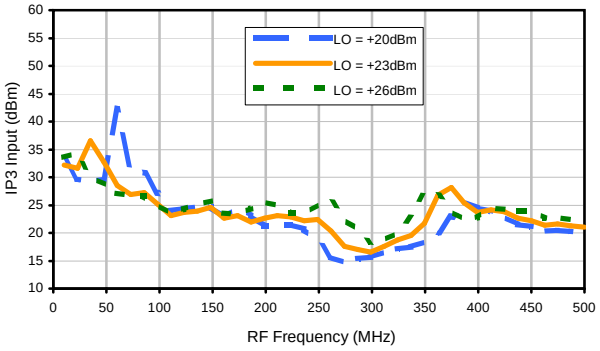
Conversion Loss vs. IF @ RF=10.1MHz



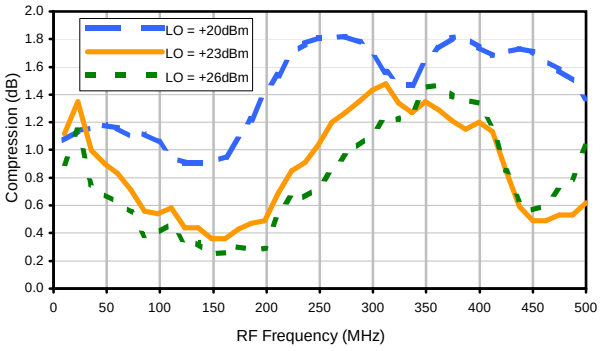
Conversion Loss vs. IF @ RF=200.1MHz



IP3 Input

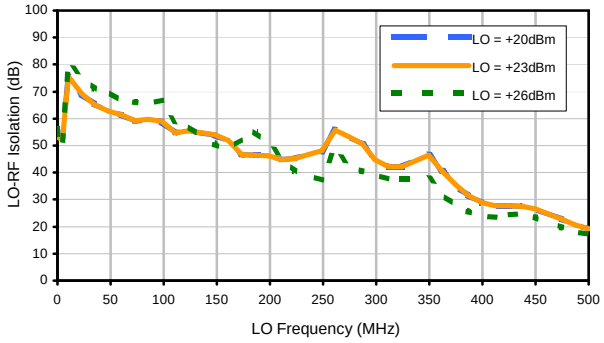


Compression @ RF IN=+15dBm

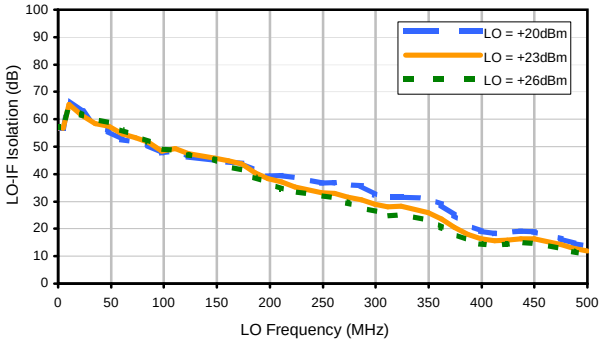


Typical Performance Curves

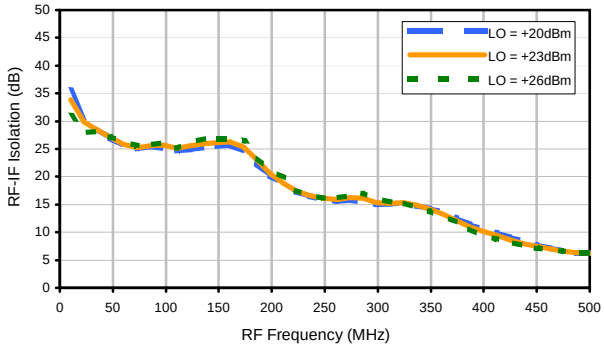
LO-RF Isolation



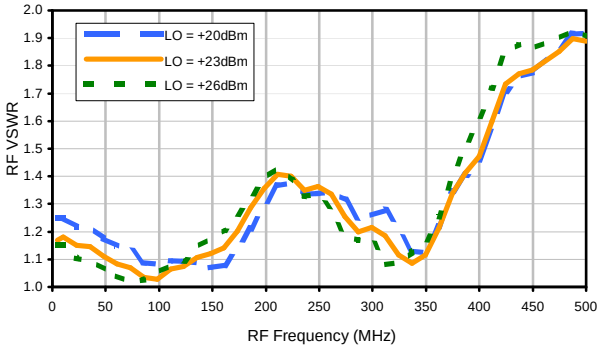
LO-IF Isolation



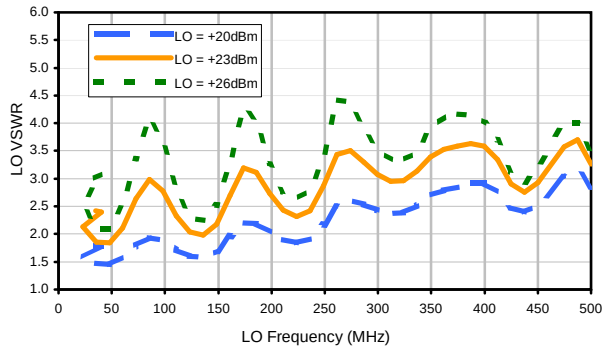
RF-IF Isolation



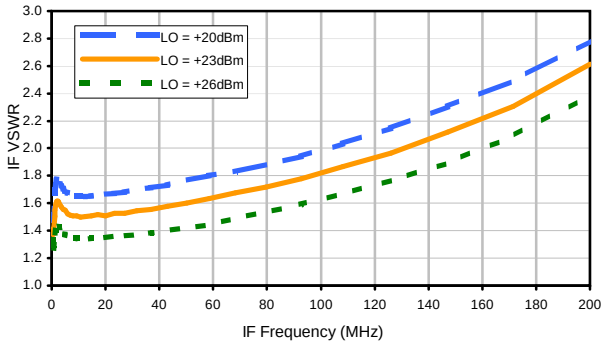
RF VSWR



LO VSWR



IF VSWR



Frequency Mixer ZMY-3

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	34	18	29	20	38	26	55	35	55
1	-	20	+0	28	12	39	17	36	31	42	60	48
2	98	60	50	59	50	61	51	61	59	76	76	76
3	111	61	52	62	53	66	54	63	65	66	63	76
4	>125	81	81	81	77	82	77	82	75	105	85	87
5	>125	86	79	82	79	82	80	85	81	83	88	86
6	>126	103	97	106	96	103	94	99	95	96	94	100
7	>126	109	103	107	113	102	109	102	100	106	99	104
8	>125	117	111	108	103	109	102	105	102	106	104	105
9	>125	119	123	117	112	118	110	114	109	>115	111	118
10	>126	>129	125	>126	121	118	116	116	113	115	113	120
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 100.1 MHz; .02.00 dBm.
LO IN: 130.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -5 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	28	45	29	40	31	48	37	68	46	72
1	-	21	+0	28	12	37	18	39	30	45	45	50
2	89	58	52	58	53	57	55	59	63	82	64	76
3	100	48	42	53	41	52	41	51	47	51	57	58
4	119	72	62	75	60	73	60	71	59	71	67	77
5	>121	73	54	64	56	62	56	60	57	59	62	66
6	>121	81	70	77	73	75	71	77	74	76	74	90
7	121	79	75	78	67	74	64	78	65	73	65	79
8	>121	88	85	83	82	86	82	84	80	86	79	82
9	>121	88	80	83	87	80	79	78	81	81	79	79
10	>120	107	108	101	105	94	96	95	88	94	87	101
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

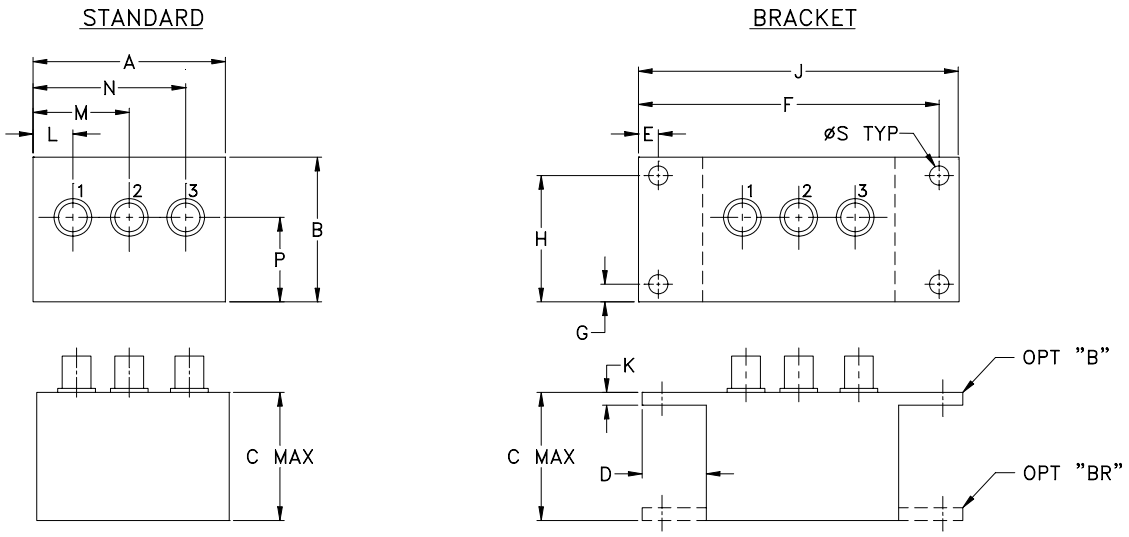
RF IN: 100.1 MHz; 10.00 dBm.
LO IN: 130.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 5.01 dBm

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.

Case Style M

Outline Dimensions

M21
M22
M23



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
M21	1.50 (38.10)	1.13 (28.70)	1.00 (25.40)	.50 (12.70)	.155 (3.94)	2.345 (59.56)	.138 (3.51)	.987 (25.07)	2.50 (63.50)	.10 (2.54)	.31 (7.87)	.75 (19.05)	1.19 (30.23)
M22	2.25 (57.15)	1.38 (35.05)	1.24 (31.50)		.150 (3.81)	3.100 (78.74)		1.238 (31.45)	3.25 (82.55)		.40 (10.16)	1.15 (29.21)	1.86 (47.24)
M23	2.25 (57.15)	1.38 (35.05)	1.24 (31.50)		.150 (3.81)	3.100 (78.74)		1.238 (31.45)	3.25 (82.55)		.63 (16.00)	1.06 (26.92)	1.63 (41.40)

CASE#	P	Q	R	S	WT. GRAMS
M21	.66 (16.76)	-- --	-- --	.150 (3.81)	40.0
M22	.64 (16.26)	-- --	-- --		74.0
M23	.69 (17.53)	-- --	-- --		70.0

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

Notes:

1. Case material: Aluminum alloy.
2. Case finish:
   For RoHS Case Styles: Clear chemical conversion coating, non-chrome or trivalent chrome based.

   For Non-RoHS Case Styles: Yellow hexavalent chrome based conversion coating.
   Due to transition from non-RoHS to RoHS, models will be supplied with either case style finish until the non-RoHS case inventory is depleted.
3. Mounting bracket available on request. For bracket mounted on connector end add suffix B to part number and add $5.00 to unit cost. For bracket mounted on the rear, add suffix BR to part number and add $1.50 to unit cost.

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Environmental Specifications ENV28

All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-55° to 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D
Humidity	90% RH, 65°C Units may require bake-out after humidity to restore full performance.	MIL-STD-202, Method 103
Thermal Shock	-65° to 125°C, 5 cycles	MIL-STD-202, Method 107, Condition B
Vibration (High Frequency)	20g peak, 10-2000 Hz, 12 times in each of three perpendicular directions (total 36)	MIL-STD-202, Method 204, Condition D
Mechanical Shock	100g, 6ms sawtooth, 3 shocks each direction 3 axes (total 18)	MIL-STD-202, Method 213, Condition I