Coaxial

Frequency Mixer

Level 23 (LO Power +23 dBm) 0.1 to 1000 MHz

ZFY-2+
ZFY-2

Generic photo used for illustration purposes only

CASE STYLE: K18

Connectors	Model
BNC	ZFY-2
SMA	ZFY-2-S+
BRACKET (OPTION "B")	

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

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	2
IF	3

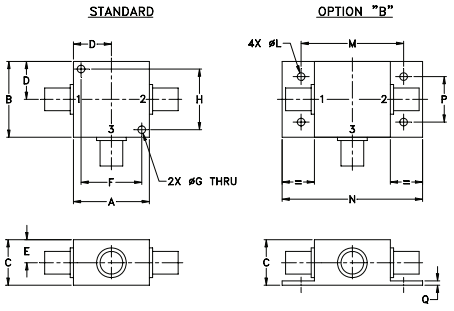
Features

- low conversion loss, 5.40 dB typ.
- good L-R & L-I isolation, 40 dB typ.
- rugged shielded case

Applications

- VHF/UHF
- instrumentation
- cellular

Outline Drawing



Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
1.25	1.25	.75	.63	.38	1.00	.125	1.000
31.75	31.75	19.05	16.00	9.65	25.40	3.18	25.40

J	K	L	M	N	P	Q	wt
--	--	.125	1.688	2.18	.75	.07	grams
--	--	3.18	42.88	55.37	19.05	1.78	70.0

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.
0.1-1000	0.01-500*	5.40	0.24	7.5	9.5	40	20	40	30	30	25	37	23	40	25	25	15

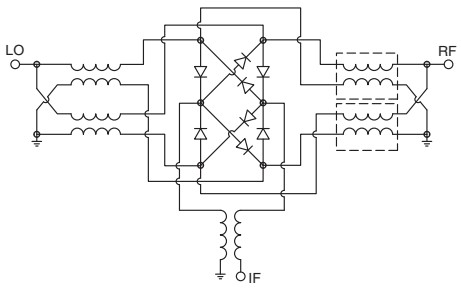
1 dB COMP.: +20 dBm typ.
*IF response from 0.1 to 0.01 MHz falls off 3 dB.

L = low range [f_L to 10 f_L] M = mid range [10 f_L to f_U/_] 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
0.10	30.10	6.00	24.85	23.85	1.20	1.25
0.50	30.50	6.04	36.68	35.77	1.21	1.28
5.00	35.00	5.85	41.65	42.30	1.22	1.21
20.00	50.00	5.23	62.70	48.55	1.21	1.25
50.00	80.00	5.27	68.47	47.81	1.22	1.30
100.00	70.00	5.41	69.04	47.05	1.26	1.22
142.94	112.94	5.59	65.49	47.18	1.30	1.23
214.37	184.37	5.62	63.14	46.03	1.35	1.19
250.08	220.08	5.85	62.33	45.83	1.43	1.14
321.50	291.50	5.73	60.72	44.37	1.60	1.11
392.92	362.92	5.85	56.12	42.97	1.83	1.31
464.34	434.34	6.34	47.61	43.68	2.10	1.51
535.77	505.77	6.82	41.48	42.23	2.21	1.70
571.48	541.48	6.64	40.17	39.59	2.26	1.73
642.90	612.90	7.21	38.48	36.34	2.49	2.06
714.32	684.32	6.76	36.93	34.82	2.62	2.20
785.74	755.74	6.76	36.93	34.82	2.73	1.95
857.16	827.16	6.90	35.86	33.15	2.72	1.37
928.59	898.59	7.11	36.31	32.34	2.59	1.19
1000.00	970.00	7.47	39.75	38.54	2.40	1.57

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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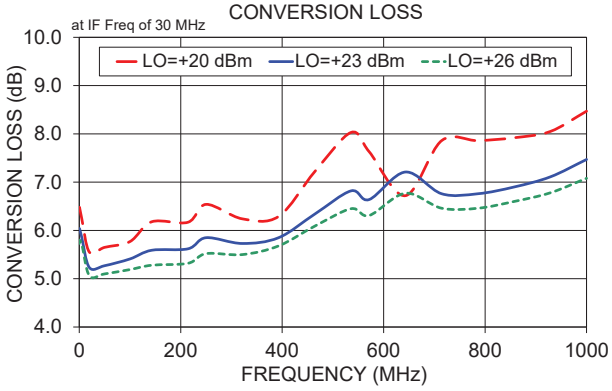
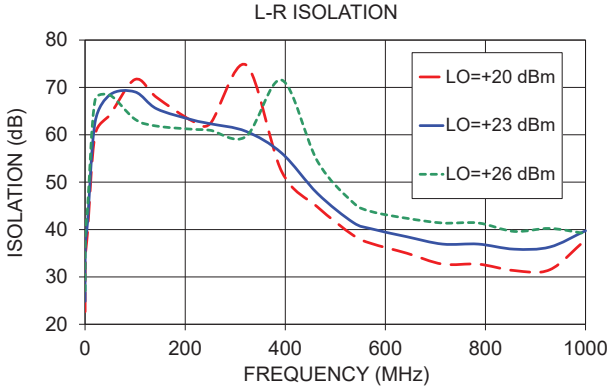
Performance Charts

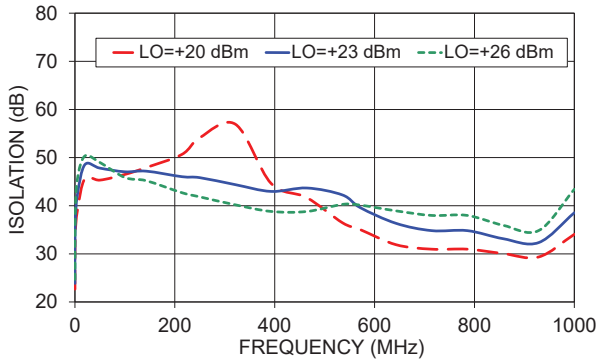
ZFY-2-S+
CONVERSION LOSS



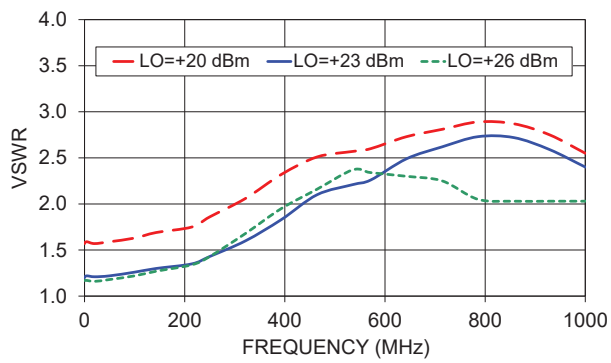
ZFY-2-S+
L-R ISOLATION



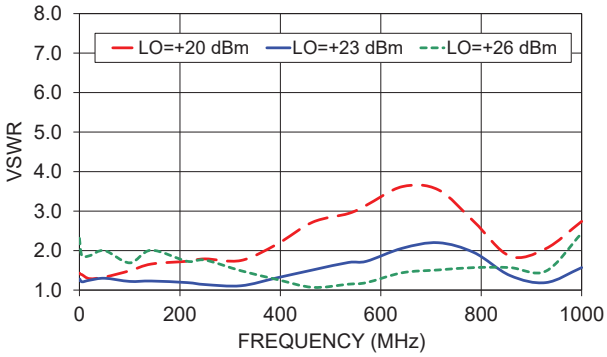
ZFY-2-S+
L-I ISOLATION



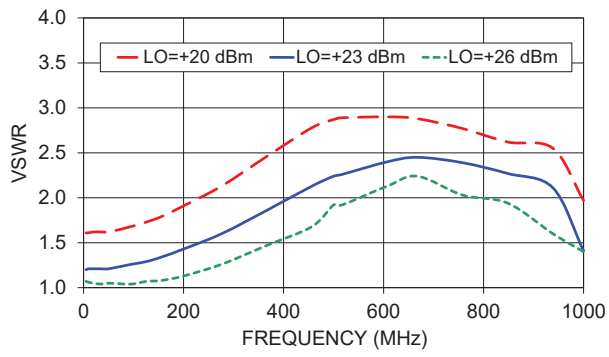
ZFY-2-S+
RF VSWR



ZFY-2-S+
LO VSWR



ZFY-2-S+
IF VSWR



Frequency Mixer ZFY-2+

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	6.43	6.00	5.73
0.5	30.5	6.48	6.04	5.80
5.0	35.0	6.24	5.85	5.72
10.1	40.1	5.68	5.34	5.15
20.1	50.1	5.55	5.23	5.06
30.1	60.1	5.63	5.27	5.07
40.1	70.1	5.63	5.26	5.08
50.1	80.1	5.65	5.27	5.10
90.1	120.1	5.98	5.55	5.29
110.1	140.1	5.77	5.41	5.19
130.1	160.1	5.92	5.49	5.22
150.1	180.1	6.18	5.59	5.28
170.1	200.1	6.18	5.62	5.34
190.1	220.1	6.34	5.80	5.45
220.1	250.1	6.17	5.62	5.32
250.1	280.1	6.54	5.85	5.52
280.1	310.1	6.36	5.82	5.57
310.1	340.1	6.24	5.73	5.50
340.1	370.1	6.67	5.95	5.70
400.1	430.1	6.29	5.85	5.68
450.1	480.1	7.22	6.34	6.09
500.1	530.1	7.12	6.34	6.07
550.1	580.1	8.03	6.82	6.45
600.1	630.1	7.63	6.64	6.31
650.1	680.1	8.72	7.21	6.77
700.1	730.1	7.86	6.76	6.46
800.1	830.1	7.92	6.90	6.60
900.1	930.1	8.05	7.11	6.78
1000.1	1030.1	8.47	7.47	7.08
1100.1	1130.1	8.27	7.44	7.10
1200.1	1230.1	8.12	7.42	7.13
1300.1	1330.1	8.20	7.52	7.24
1400.1	1430.1	8.35	7.65	7.37
1500.1	1530.1	8.45	7.77	7.50
1600.1	1630.1	8.65	7.93	7.63
1800.1	1830.1	9.41	8.62	8.33
1900.1	1930.1	9.87	9.02	8.68
2000.1	2030.1	10.61	9.65	9.16
2100.1	2130.1	11.23	10.18	9.73
2200.1	2230.1	11.08	10.19	9.74

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm) @LO (dBm)		
		+20	+23	+26
10.1	40.1	33.31	33.10	33.74
20.1	50.1	36.00	36.71	37.28
30.1	60.1	36.57	37.08	37.49
40.1	70.1	36.00	36.81	37.13
50.1	80.1	35.21	35.30	36.22
70.1	100.1	32.52	34.59	33.85
90.1	120.1	31.27	34.02	34.06
110.1	140.1	36.06	35.55	35.09
130.1	160.1	31.32	33.75	34.67
150.1	180.1	29.28	32.94	35.72
170.1	200.1	31.24	32.06	33.30
190.1	220.1	28.59	31.22	33.00
220.1	250.1	30.75	33.37	32.70
250.1	280.1	30.43	33.09	33.54
280.1	310.1	30.29	31.67	34.85
310.1	340.1	31.38	32.14	35.28
340.1	370.1	31.97	33.61	38.21
370.1	400.1	32.38	35.02	34.97
400.1	430.1	34.04	37.00	35.18
450.1	480.1	34.60	39.20	34.81
500.1	530.1	32.91	41.89	34.49
550.1	580.1	36.38	38.44	35.97
600.1	630.1	33.19	40.26	37.01
650.1	680.1	30.24	40.03	32.38
700.1	730.1	32.97	34.62	34.37
800.1	830.1	31.23	34.49	34.99
900.1	930.1	29.42	34.72	33.87
1000.1	1030.1	30.71	32.23	34.67
1100.1	1130.1	29.36	31.99	35.65
1200.1	1230.1	30.16	31.02	36.89
1300.1	1330.1	29.65	33.16	35.33
1400.1	1430.1	28.06	30.05	36.69
1500.1	1530.1	27.29	28.95	34.95
1600.1	1630.1	27.77	30.22	39.74
1700.1	1730.1	26.29	30.73	40.04
1800.1	1830.1	25.50	29.67	44.34
1900.1	1930.1	25.50	34.18	32.30
2000.1	2030.1	28.67	35.28	30.97
2100.1	2130.1	31.88	32.25	31.73
2200.1	2230.1	27.39	31.02	33.06

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+19.97dBm (dB) @LO (dBm)		
		+20	+23	+26
10.1	40.1	1.11	0.61	0.35
20.1	50.1	1.33	0.81	0.51
30.1	60.1	1.47	0.89	0.54
40.1	70.1	1.41	0.84	0.49
50.1	80.1	1.38	0.75	0.41
70.1	100.1	1.00	0.50	0.23
90.1	120.1	0.90	0.50	0.26
110.1	140.1	1.17	0.70	0.40
130.1	160.1	1.26	0.82	0.49
150.1	180.1	1.23	0.79	0.45
170.1	200.1	0.97	0.51	0.23
190.1	220.1	0.79	0.50	0.30
220.1	250.1	1.25	0.80	0.49
250.1	280.1	1.08	0.60	0.32
280.1	310.1	0.79	0.47	0.22
310.1	340.1	1.13	0.68	0.38
340.1	370.1	1.17	0.59	0.28
370.1	400.1	0.66	0.29	0.11
400.1	430.1	0.97	0.47	0.24
450.1	480.1	0.66	0.24	0.09
500.1	530.1	0.56	0.34	0.16
550.1	580.1	0.25	0.10	-0.01
600.1	630.1	0.44	0.24	0.11
650.1	680.1	0.10	0.04	-0.01
700.1	730.1	0.71	0.33	0.16
800.1	830.1	0.88	0.40	0.19
900.1	930.1	0.96	0.41	0.20
1000.1	1030.1	1.05	0.42	0.19
1100.1	1130.1	1.17	0.48	0.21
1200.1	1230.1	1.32	0.56	0.24
1300.1	1330.1	1.35	0.64	0.28
1400.1	1430.1	1.34	0.72	0.33
1500.1	1530.1	1.32	0.68	0.30
1600.1	1630.1	1.17	0.59	0.28
1700.1	1730.1	1.15	0.54	0.28
1800.1	1830.1	1.11	0.45	0.22
1900.1	1930.1	1.07	0.56	0.35
2000.1	2030.1	0.93	0.53	0.43
2100.1	2130.1	0.91	0.61	0.41
2200.1	2230.1	1.35	0.85	0.49

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=500.1MHz (dB) @LO (dBm) +23
0.5	499.6	6.48
0.8	499.4	6.46
1.0	499.1	6.45
2.0	498.1	6.39
3.0	497.1	6.36
4.0	496.1	6.36
5.0	495.1	6.34
6.0	494.1	6.33
8.0	492.1	6.30
10.0	490.1	6.32
15.0	485.1	6.30
20.0	480.1	6.33
25.0	475.1	6.40
30.0	470.1	6.45
35.0	465.1	6.48
40.0	460.1	6.46
50.0	450.1	6.40
60.0	440.1	6.41
70.0	430.1	6.39
90.0	410.1	6.45
110.0	390.1	6.45
130.0	370.1	6.63
150.0	350.1	6.55
170.0	330.1	6.55
190.0	310.1	6.67
210.0	290.1	6.59
230.0	270.1	6.78
250.0	250.1	7.04
270.0	230.1	6.90
290.0	210.1	6.96
310.0	190.1	7.14
330.0	170.1	6.95
350.0	150.1	7.09
370.0	130.1	7.13
390.0	110.1	6.87
410.0	90.1	6.94
430.0	70.1	6.76
450.0	50.1	6.68
470.0	30.1	6.64
490.0	10.1	6.47

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB) @LO (dBm) +23
0.5	10.6	5.37
0.8	10.9	5.35
1.0	11.1	5.34
2.0	12.1	5.29
3.0	13.1	5.28
4.0	14.1	5.27
5.0	15.1	5.28
6.0	16.1	5.29
8.0	18.1	5.30
10.0	20.1	5.30
15.0	25.1	5.33
20.0	30.1	5.37
25.0	35.1	5.38
30.0	40.1	5.33
35.0	45.1	5.25
40.0	50.1	5.28
50.0	60.1	5.39
65.0	75.1	5.37
80.0	90.1	5.38
100.0	110.1	5.33
120.0	130.1	5.45
140.0	150.1	5.37
160.0	170.1	5.32
180.0	190.1	5.36
200.0	210.1	5.30
220.0	230.1	5.22
240.0	250.1	5.27
260.0	270.1	5.21
280.0	290.1	5.13
300.0	310.1	5.19
320.0	330.1	5.12
340.0	350.1	5.17
360.0	370.1	5.24
380.0	390.1	5.17
400.0	410.1	5.20
420.0	430.1	5.17
440.0	450.1	5.25
460.0	470.1	5.33
480.0	490.1	5.30
500.0	510.1	5.33

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB) @LO (dBm) +23
0.5	999.6	7.43
0.8	999.4	7.41
1.0	999.1	7.41
2.0	998.1	7.35
3.0	997.1	7.34
4.0	996.1	7.33
5.0	995.1	7.34
6.0	994.1	7.33
8.0	992.1	7.33
10.0	990.1	7.34
15.0	985.1	7.35
20.0	980.1	7.35
25.0	975.1	7.35
30.0	970.1	7.36
35.0	965.1	7.38
40.0	960.1	7.40
50.0	950.1	7.35
65.0	935.1	7.20
80.0	920.1	7.07
100.0	900.1	7.08
120.0	880.1	7.05
140.0	860.1	7.09
160.0	840.1	6.97
180.0	820.1	6.87
200.0	800.1	6.87
220.0	780.1	6.89
240.0	760.1	6.97
260.0	740.1	6.90
280.0	720.1	6.85
300.0	700.1	6.93
320.0	680.1	7.09
340.0	660.1	7.28
360.0	640.1	7.16
380.0	620.1	7.27
400.0	600.1	7.24
420.0	580.1	7.35
440.0	560.1	7.47
460.0	540.1	7.31
480.0	520.1	7.26
500.0	500.1	7.33

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	22.68	24.85	27.10	22.66	23.85	24.69
0.5	33.97	36.68	39.29	33.35	35.77	37.61
5.0	39.61	41.65	44.65	39.03	42.30	45.57
10.1	58.28	60.49	65.55	45.44	49.07	50.88
20.1	60.03	62.70	67.35	45.64	48.55	50.34
30.1	60.90	64.43	68.90	45.10	47.90	49.61
40.1	62.91	65.76	67.59	45.02	47.58	49.15
50.1	64.27	68.47	68.34	45.32	47.81	48.99
90.1	67.38	73.04	64.42	45.76	47.17	46.47
110.1	71.69	69.04	63.26	46.50	47.05	45.86
130.1	72.29	67.30	62.51	46.30	46.67	45.68
150.1	67.89	65.49	61.84	47.94	47.18	45.19
170.1	67.97	64.45	60.08	48.81	46.74	43.79
190.1	65.33	64.83	59.38	49.09	46.12	42.75
220.1	62.90	63.14	61.17	50.67	46.03	42.70
250.1	62.37	62.33	60.95	54.14	45.83	41.84
280.1	64.31	60.63	57.99	66.82	45.31	40.16
310.1	74.75	60.72	59.64	56.92	44.37	40.18
340.1	56.36	58.46	66.02	50.61	44.93	40.31
400.1	52.22	56.12	71.55	44.62	42.97	38.81
450.1	44.76	47.61	54.40	41.68	43.68	38.80
500.1	40.90	43.80	48.71	40.64	42.67	38.85
550.1	38.78	41.48	45.67	36.45	42.23	40.28
600.1	37.07	40.17	43.81	35.03	39.59	40.12
650.1	35.00	38.48	42.37	31.90	36.34	38.93
700.1	32.70	36.93	41.38	30.97	34.82	37.98
800.1	31.35	35.86	39.60	30.07	33.15	35.94
900.1	31.52	36.31	40.23	29.35	32.34	34.84
1000.1	37.84	39.75	39.15	34.06	38.54	43.41
1100.1	33.71	36.99	39.54	26.80	28.65	30.89
1200.1	32.58	36.88	40.72	25.56	27.13	29.24
1300.1	32.26	36.41	39.98	26.28	27.65	29.64
1400.1	30.93	34.54	37.31	27.79	28.91	30.86
1500.1	29.99	33.04	35.11	29.21	30.31	32.24
1600.1	29.03	31.43	32.93	30.06	31.18	33.18
1800.1	28.59	30.89	32.61	34.56	36.29	39.12
1900.1	29.88	33.63	37.28	38.94	41.34	36.60
2000.1	31.80	38.40	43.92	49.83	38.21	32.19
2100.1	28.07	31.60	33.74	39.12	32.54	28.70
2200.1	23.27	26.48	29.41	35.49	30.59	27.57

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+20	+23	+26
10.1	40.1	43.60	44.48	48.65
20.1	50.1	43.03	44.52	49.16
30.1	60.1	42.12	43.60	45.67
40.1	70.1	42.52	43.44	43.94
50.1	80.1	42.74	43.70	43.47
70.1	100.1	43.22	44.01	43.79
90.1	120.1	42.67	44.15	45.54
110.1	140.1	44.48	46.12	53.44
130.1	160.1	44.78	45.96	47.66
150.1	180.1	43.12	44.90	46.32
170.1	200.1	44.35	46.27	48.65
190.1	220.1	45.08	46.42	53.16
220.1	250.1	47.11	47.92	49.11
250.1	280.1	48.24	52.05	50.63
280.1	310.1	49.96	55.45	52.40
310.1	340.1	48.88	54.14	51.73
340.1	370.1	50.15	53.57	52.31
370.1	400.1	51.13	53.31	52.61
400.1	430.1	52.50	56.75	54.63
450.1	480.1	51.50	57.31	55.76
500.1	530.1	47.37	50.37	47.80
550.1	580.1	43.74	46.33	45.17
600.1	630.1	37.94	40.99	41.38
650.1	680.1	37.18	41.40	41.65
700.1	730.1	37.53	39.95	39.80
800.1	830.1	33.84	38.66	40.09
900.1	930.1	32.22	37.72	40.76
1000.1	1030.1	40.91	41.17	39.87
1100.1	1130.1	33.17	36.30	35.21
1200.1	1230.1	33.32	35.28	33.81
1300.1	1330.1	35.80	36.20	34.72
1400.1	1430.1	41.91	38.87	36.13
1500.1	1530.1	49.37	40.31	37.36
1600.1	1630.1	59.38	40.17	37.15
1700.1	1730.1	42.86	38.58	36.95
1800.1	1830.1	38.27	36.92	36.38
1900.1	1930.1	37.58	36.71	36.67
2000.1	2030.1	35.47	34.77	34.74
2100.1	2130.1	31.98	32.44	32.62
2200.1	2230.1	33.58	33.58	33.50

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+20	+23	+26
5.0	35.0	1.57	1.20	1.17
10.0	40.0	1.58	1.21	1.17
20.1	50.1	1.66	1.47	1.35
30.1	60.1	1.78	1.54	1.38
40.1	70.1	1.74	1.51	1.37
50.1	80.1	1.73	1.51	1.38
90.1	120.1	1.83	1.59	1.43
110.1	140.1	1.78	1.57	1.42
130.1	160.1	1.95	1.67	1.49
150.1	180.1	2.01	1.67	1.48
170.1	200.1	1.95	1.65	1.49
190.1	220.1	2.05	1.76	1.56
220.1	250.1	2.12	1.79	1.60
250.1	280.1	2.18	1.81	1.63
280.1	310.1	2.11	1.82	1.67
310.1	340.1	2.20	1.90	1.74
340.1	370.1	2.37	1.97	1.80
370.1	400.1	2.29	1.98	1.84
400.1	430.1	2.39	2.08	1.93
450.1	480.1	2.78	2.29	2.08
500.1	530.1	2.99	2.52	2.27
550.1	580.1	3.34	2.69	2.42
600.1	630.1	3.54	2.88	2.58
650.1	680.1	4.03	3.16	2.77
700.1	730.1	3.90	3.10	2.75
800.1	830.1	3.94	3.14	2.79
900.1	930.1	3.30	2.82	2.61
1000.1	1030.1	2.63	2.35	2.25
1100.1	1130.1	1.96	1.89	1.89
1200.1	1230.1	1.44	1.50	1.57
1300.1	1330.1	1.13	1.25	1.34
1400.1	1430.1	1.10	1.07	1.15
1500.1	1530.1	1.18	1.08	1.10
1600.1	1630.1	1.07	1.07	1.14
1700.1	1730.1	1.25	1.24	1.27
1800.1	1830.1	1.79	1.69	1.65
1900.1	1930.1	2.67	2.44	2.33
2000.1	2030.1	3.88	3.45	3.19
2100.1	2130.1	4.01	3.67	3.48
2200.1	2230.1	3.09	3.03	3.00

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+20	+23	+26
5.0	1.43	1.25	2.31
10.0	1.41	1.28	2.24
20.1	1.27	1.25	2.07
50.1	1.23	1.20	1.76
100.1	1.34	1.25	2.01
140.1	1.33	1.21	1.89
180.1	1.42	1.26	2.34
220.1	1.34	1.21	1.71
260.1	1.46	1.24	1.85
300.1	1.51	1.21	1.91
350.1	1.52	1.20	2.12
400.1	1.47	1.18	1.66
500.1	1.49	1.12	1.57
600.1	1.57	1.10	1.62
700.1	1.58	1.12	1.41
800.1	1.79	1.19	1.44
900.1	1.99	1.25	1.44
1000.1	2.18	1.33	1.32
1100.1	2.74	1.47	1.31
1200.1	2.94	1.57	1.16
1300.1	3.65	1.77	1.07
1400.1	3.77	1.90	1.19
1500.1	3.61	1.96	1.37
1600.1	3.62	2.06	1.57
1700.1	3.29	2.04	1.74
1800.1	3.11	2.15	2.14
1900.1	2.66	2.12	2.39
2000.1	2.59	2.27	2.65
2100.1	2.25	2.22	2.69
2250.1	1.76	2.00	2.70
2400.1	1.49	1.99	3.18
2550.1	1.26	1.78	2.83
2700.1	1.09	1.43	1.90
2850.1	1.15	1.29	1.71
3000.1	1.36	1.15	1.59
3200.1	1.70	1.12	1.27
3400.1	1.84	1.38	1.31
3600.1	2.00	1.72	1.89
3800.1	2.21	2.13	2.54
4000.1	2.17	2.22	2.67

IF (OUT) (MHz)	IF VSWR @LO=1000.1MHz (:1) @LO (dBm)		
	+20	+23	+26
0.5	1.32	1.19	1.18
0.8	1.37	1.17	1.05
1.0	1.47	1.24	1.10
2.0	1.59	1.34	1.19
3.0	1.58	1.33	1.18
4.0	1.56	1.32	1.17
5.0	1.55	1.30	1.16
6.0	1.53	1.29	1.15
8.0	1.52	1.28	1.14
10.0	1.52	1.28	1.14
15.0	1.52	1.28	1.14
20.0	1.52	1.28	1.14
25.0	1.52	1.28	1.14
30.0	1.53	1.29	1.14
35.0	1.53	1.29	1.15
40.0	1.53	1.29	1.15
50.0	1.54	1.30	1.15
65.0	1.55	1.30	1.15
80.0	1.55	1.31	1.16
100.0	1.56	1.31	1.16
120.0	1.58	1.32	1.17
140.0	1.58	1.33	1.17
160.0	1.60	1.34	1.18
180.0	1.61	1.35	1.19
200.0	1.62	1.35	1.19
220.0	1.64	1.37	1.20
240.0	1.65	1.37	1.20
260.0	1.65	1.37	1.20
280.0	1.67	1.38	1.21
300.0	1.68	1.39	1.21
320.0	1.67	1.38	1.21
340.0	1.68	1.39	1.21
360.0	1.67	1.38	1.21
380.0	1.66	1.38	1.20
400.0	1.66	1.38	1.20
420.0	1.65	1.37	1.20
440.0	1.63	1.36	1.19
460.0	1.62	1.35	1.19
480.0	1.61	1.34	1.18
500.0	1.59	1.33	1.17

Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	29	36	35	41	38	46	50	59	60	58
1	-	32	+0	42	16	39	29	40	35	51	51	55
2	73	48	48	48	65	52	49	50	42	51	45	53
3	86	52	46	53	81	50	42	46	41	46	48	52
4	112	64	64	66	70	71	67	61	63	61	53	73
5	>119	61	58	64	58	64	55	66	54	67	55	60
6	>119	70	62	67	65	63	70	64	76	66	74	65
7	>119	70	63	65	69	68	74	67	73	64	80	64
8	>120	74	73	73	71	73	72	72	74	70	77	74
9	>119	77	81	74	78	71	84	74	85	78	91	78
10	>121	84	85	82	82	79	89	81	87	80	84	77
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 15.01.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 8.8 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	25	22	27	27	28	31	29	33	34
1	-	33	+0	39	17	33	32	33	31	35	38	41
2	84	60	53	67	59	53	61	53	48	58	50	67
3	101	92	63	66	59	69	51	68	52	63	59	73
4	>123	87	71	79	71	73	74	73	89	75	80	88
5	>123	81	80	85	81	88	80	82	80	80	79	83
6	>123	91	97	92	102	101	89	105	86	95	89	90
7	>121	110	99	100	93	95	93	95	98	97	98	107
8	>121	>117	110	108	110	106	111	108	105	114	103	105
9	>121	>120	>121	>120	111	114	109	110	110	112	115	115
10	>121	>120	>122	>119	>121	>121	>122	>122	>122	>122	>120	>120
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

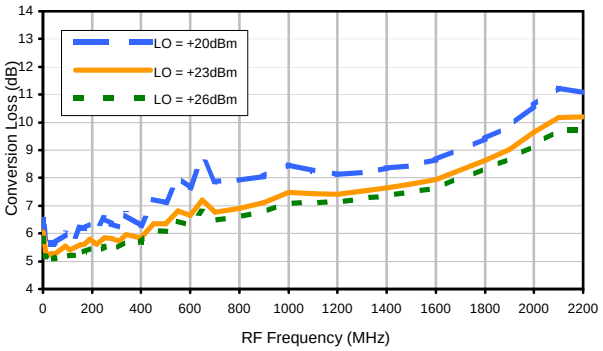
LO HARMONICS ORDER

Test conditions: RF IN: 500.1 MHz; 4.94.00 dBm.
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -1.21 dBm

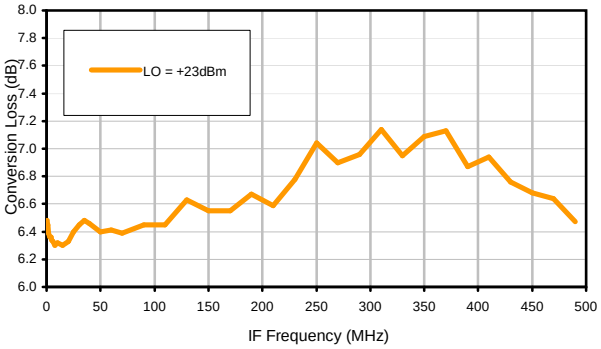
Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

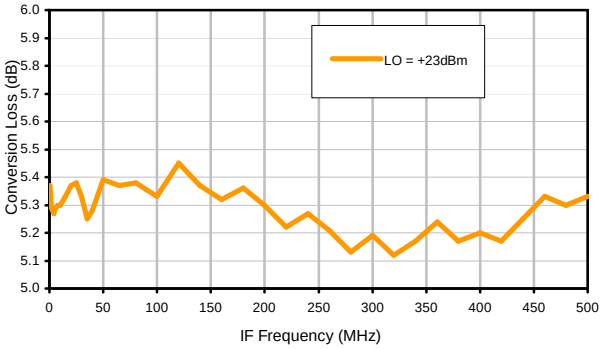
Conversion Loss @ IF=30MHz



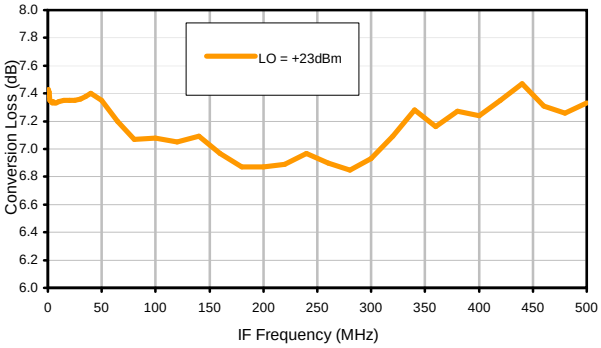
Conversion Loss vs. IF @ RF=500.1MHz



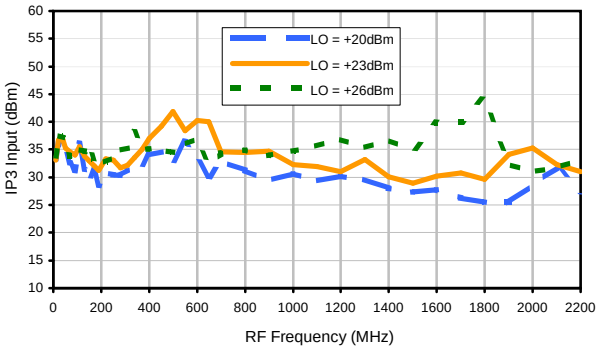
Conversion Loss vs. IF @ RF=10.1MHz



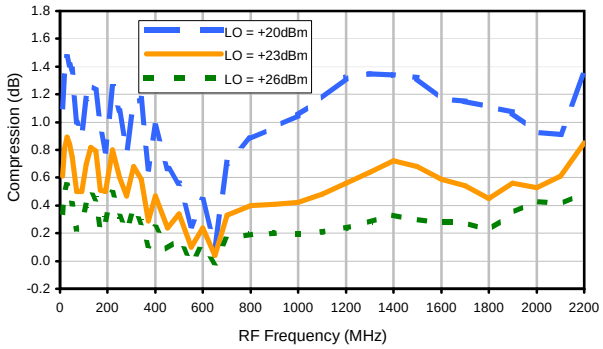
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input

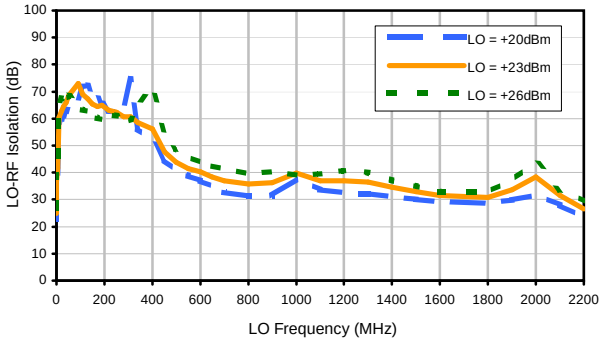


Compression @ RF IN=+19.97dBm

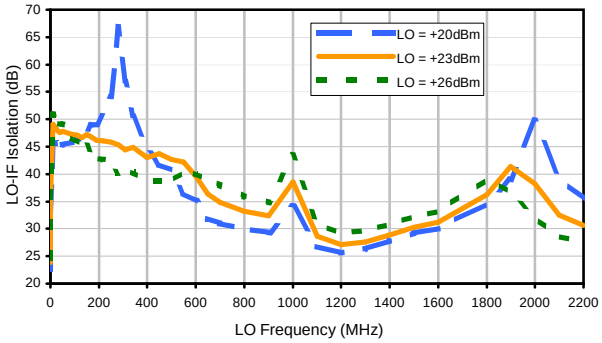


Typical Performance Curves

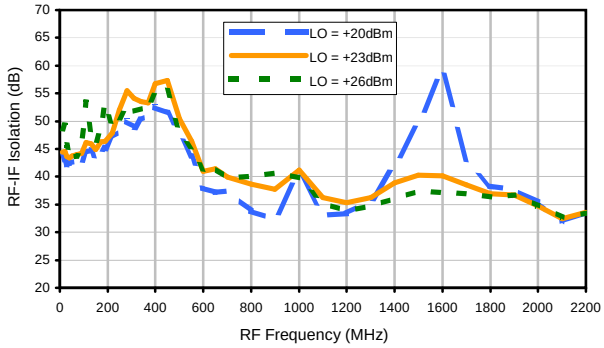
LO-RF Isolation



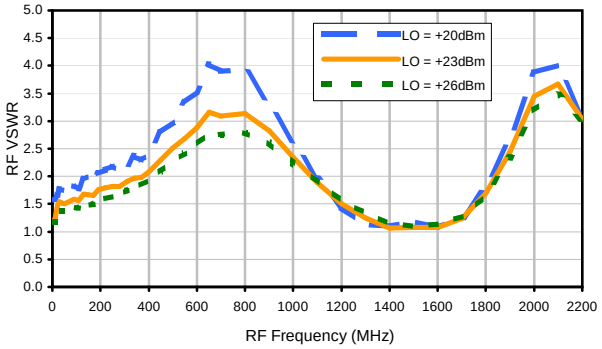
LO-IF Isolation



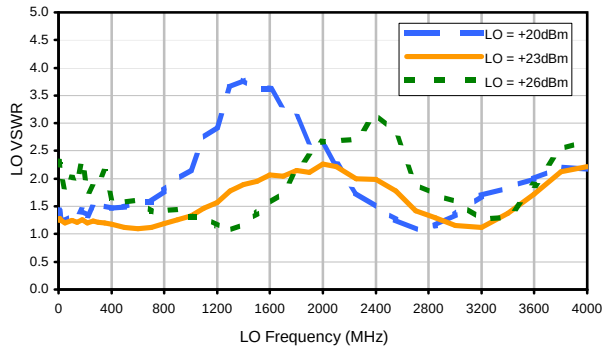
RF-IF Isolation



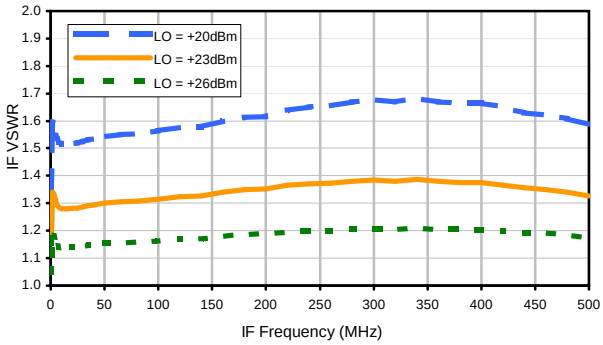
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	29	36	35	41	38	46	50	59	60	58
1	-	32	+0	42	16	39	29	40	35	51	51	55
2	73	48	48	48	65	52	49	50	42	51	45	53
3	86	52	46	53	81	50	42	46	41	46	48	52
4	112	64	64	66	70	71	67	61	63	61	53	73
5	>119	61	58	64	58	64	55	66	54	67	55	60
6	>119	70	62	67	65	63	70	64	76	66	74	65
7	>119	70	63	65	69	68	74	67	73	64	80	64
8	>120	74	73	73	71	73	72	72	74	70	77	74
9	>119	77	81	74	78	71	84	74	85	78	91	78
10	>121	84	85	82	82	79	89	81	87	80	84	77
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: **RF IN: 500.1 MHz; 15.01.00 dBm.**
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; 8.8 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	-	-	19	25	22	27	27	28	31	29	33	34
1	-	33	+0	39	17	33	32	33	31	35	38	41
2	84	60	53	67	59	53	61	53	48	58	50	67
3	101	92	63	66	59	69	51	68	52	63	59	73
4	>123	87	71	79	71	73	74	73	89	75	80	88
5	>123	81	80	85	81	88	80	82	80	80	79	83
6	>123	91	97	92	102	101	89	105	86	95	89	90
7	>121	110	99	100	93	95	93	95	98	97	98	107
8	>121	>117	110	108	110	106	111	108	105	114	103	105
9	>121	>120	>121	>120	111	114	109	110	110	112	115	115
10	>121	>120	>122	>119	>121	>121	>122	>122	>122	>122	>120	>120
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

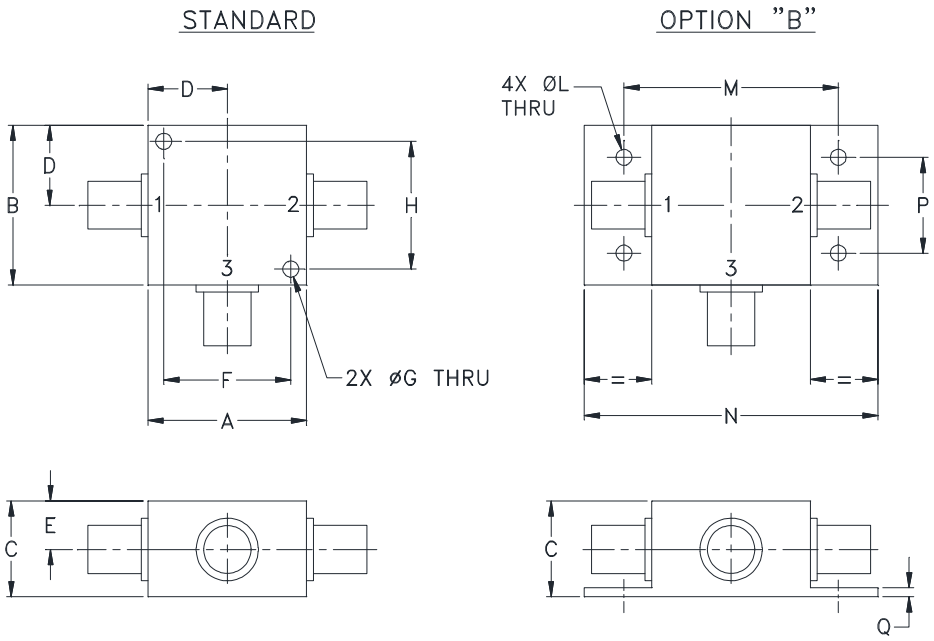
Test conditions: **RF IN: 500.1 MHz; 4.94.00 dBm.**
LO IN: 530.01 MHz; +23.00 dBm
IF OUT: 29.91 MHz; -1.21 dBm

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 K

K18

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
K18	1.25 (31.75	1.25 (31.75)	.75 (19.05)	.63 (16.00)	.38 (9.65)	1.000 (25.40)	.125 (3.18)	1.000 (25.40)	-- --	-- --	.125 (3.18)	1.688 (42.88)	2.18 (55.37)

CASE#	P	Q	WT. GRAMS
K18	.75 (19.05)	.07 (1.78)	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.
3. Mounting bracket available on request. Add suffix B to part number.
4. For port marking 1, 2, and 3 see specifications data sheet.
5. For bracket version, option B, dimension "C" changes from .75 to .94 inches when connectors are type N.
6. Refer to the individual model data sheet for the type of connectors available.

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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