

Plug-In Frequency Mixer

VAY-1+

Level 27 (LO Power +27 dBm) 0.5 to 500 MHz



Generic photo used for illustration purposes only

CASE STYLE: A01

+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	500mW
IF Current	40mA

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

Pin Connections

LO	8
RF	1
IF	3
GROUND	2,5,6,7
CASE GROUND	2,5,6,7
NOT USED	4

Features

- good conversion loss, 5.79 dB typ.
- high L-R & L-I isolation, 46 dB typ.
- rugged welded construction
- hermetically sealed

Applications

- VHF/UHF
- FM radio
- defense & federal communications

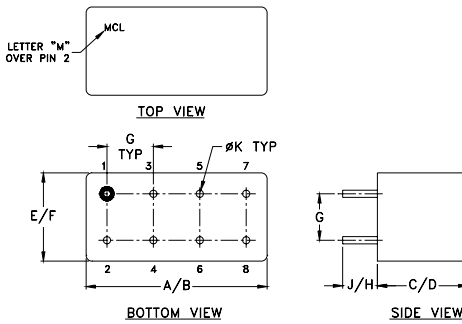
Electrical Specifications

FREQUENCY (MHz)		CONVERSION LOSS (dB)				LO-RF ISOLATION (dB)						LO-IF ISOLATION (dB)					
LO/RF f_L - f_U	IF	Mid-Band m		Total Range Max.	Total Range Max.	L		M		U		L		M		U	
		\bar{X}	σ			Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
0.5-500	0.02-500	5.79	0.15	7.5	8.5	47	40	46	35	35	25	35	28	46	35	35	25

1 dB COMP: +24 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 [$2 f_L$ to $f_U/2$]

Outline Drawing



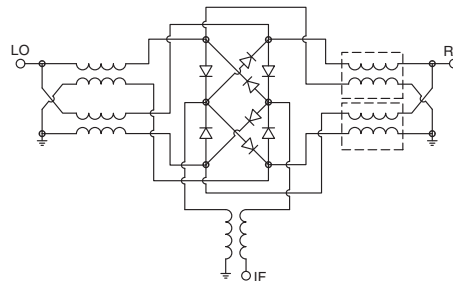
Outline Dimensions (inch/mm)

A	B	C	D	E	F
.770	.800	.385	.400	.370	.400
19.56	20.32	9.78	10.16	9.40	10.16
G	H	J	K	wt	
.200	.20	.14	.031	grams	
5.08	5.08	3.56	0.79	5.2	

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 +27dBm	LO +27dBm	LO +27dBm	LO +27dBm	LO +27dBm
0.05	30.05	6.73	45.06	44.77	1.46	1.14
0.10	30.10	5.90	46.53	46.31	1.46	1.14
0.20	30.20	5.71	46.84	46.41	1.47	1.11
0.50	30.50	5.47	46.89	46.31	1.47	1.19
1.00	31.00	5.47	46.31	45.50	1.48	1.23
17.91	47.91	5.34	45.35	44.81	1.49	1.22
35.76	65.76	5.35	44.40	44.31	1.51	1.18
53.62	83.62	5.37	43.31	43.11	1.54	1.20
125.04	95.04	6.02	42.44	41.42	1.59	1.23
142.89	112.89	6.06	40.80	39.25	1.65	1.18
196.46	166.46	6.19	39.78	38.66	1.68	1.25
232.17	202.17	6.31	40.08	38.07	1.75	1.22
250.02	220.02	6.42	40.67	37.72	1.77	1.21
285.73	255.73	6.42	40.68	36.54	1.86	1.25
321.44	291.44	6.30	41.05	34.78	1.92	1.29
357.15	327.15	6.37	41.32	34.37	2.02	1.47
392.86	362.86	6.31	38.74	35.82	2.09	1.52
446.43	416.43	6.72	35.92	36.76	2.17	1.70
464.28	434.28	6.85	34.39	38.34	2.27	1.96
500.00	470.00	7.04	33.75	35.90	2.27	1.95

Electrical Schematic



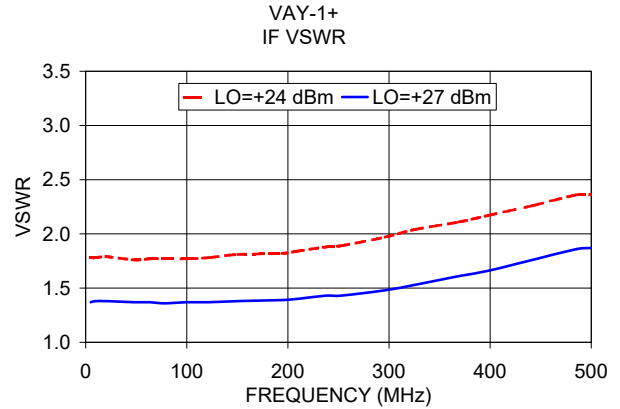
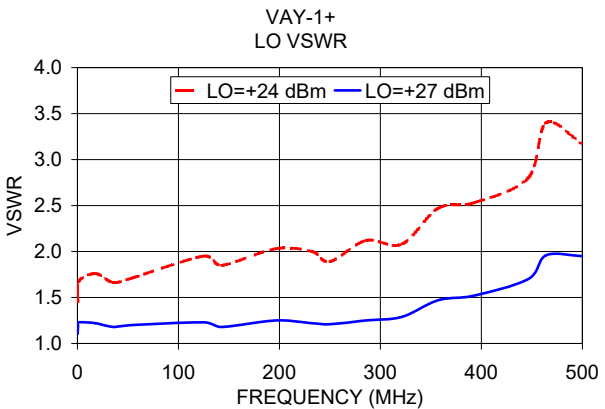
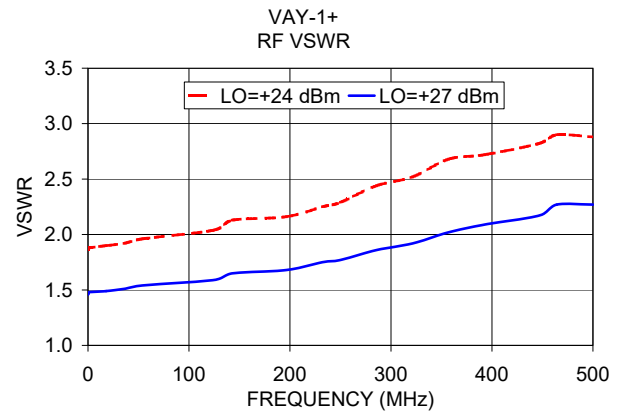
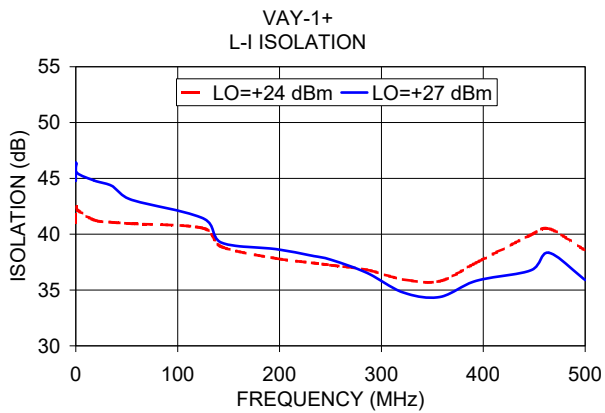
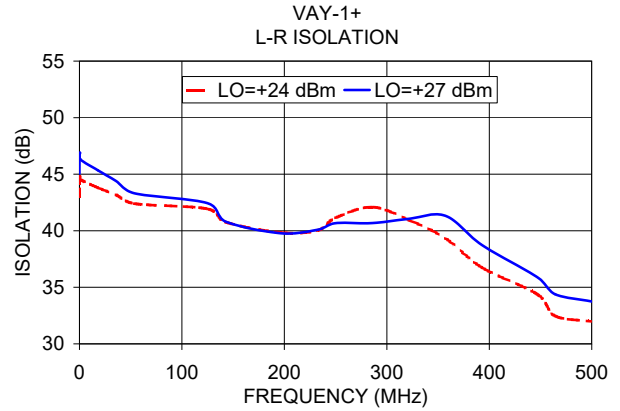
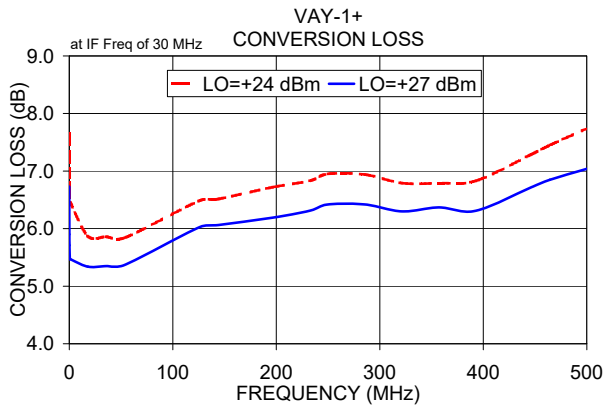
Notes

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- The parts covered by this specification document 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/MCLStore/terms.jsp



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Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+24dBm (dB)	
		@LO (dBm)				@LO (dBm)				@LO (dBm)	
		+24	+27			+24	+27			+24	+27
10.1	40.1	5.75	5.24	10.1	40.1	39.13	40.60	10.1	40.1	0.86	0.47
15.1	45.1	5.71	5.20	15.1	45.1	39.70	42.70	15.1	45.1	0.91	0.57
20.1	50.1	5.70	5.18	20.1	50.1	37.62	39.90	20.1	50.1	0.93	0.60
25.1	55.1	5.70	5.20	25.1	55.1	36.85	38.70	25.1	55.1	0.98	0.65
30.1	60.1	5.70	5.20	30.1	60.1	36.64	37.69	30.1	60.1	0.99	0.69
35.1	65.1	5.71	5.21	35.1	65.1	38.80	38.02	35.1	65.1	1.07	0.73
40.1	70.1	5.76	5.23	40.1	70.1	37.60	39.76	40.1	70.1	1.01	0.71
45.1	75.1	5.83	5.30	45.1	75.1	35.83	36.25	45.1	75.1	0.95	0.63
50.1	80.1	5.80	5.28	50.1	80.1	37.89	37.16	50.1	80.1	0.93	0.61
55.1	85.1	5.79	5.28	55.1	85.1	36.48	37.46	55.1	85.1	0.93	0.63
60.1	90.1	5.81	5.30	60.1	90.1	35.88	36.46	60.1	90.1	0.91	0.65
70.1	100.1	5.83	5.30	70.1	100.1	35.58	36.07	70.1	100.1	0.95	0.67
80.1	110.1	5.80	5.31	80.1	110.1	35.29	35.08	80.1	110.1	0.94	0.67
90.1	120.1	5.88	5.36	90.1	120.1	34.54	34.97	90.1	120.1	0.87	0.57
100.1	130.1	5.94	5.40	100.1	130.1	34.69	34.82	100.1	130.1	1.11	0.75
110.1	140.1	5.86	5.35	110.1	140.1	35.45	35.07	110.1	140.1	0.99	0.69
120.1	150.1	5.95	5.39	120.1	150.1	32.68	34.20	120.1	150.1	0.81	0.59
130.1	160.1	5.94	5.39	130.1	160.1	33.99	34.04	130.1	160.1	0.86	0.56
140.1	170.1	5.97	5.43	140.1	170.1	33.76	33.72	140.1	170.1	0.99	0.75
150.1	180.1	6.11	5.53	150.1	180.1	32.07	33.25	150.1	180.1	1.11	0.88
160.1	190.1	6.01	5.47	160.1	190.1	33.63	33.49	160.1	190.1	0.90	0.69
170.1	200.1	6.05	5.49	170.1	200.1	32.33	33.56	170.1	200.1	0.71	0.58
180.1	210.1	6.10	5.50	180.1	210.1	32.73	33.16	180.1	210.1	0.87	0.66
190.1	220.1	6.09	5.50	190.1	220.1	32.47	32.88	190.1	220.1	0.79	0.68
200.1	230.1	6.17	5.54	200.1	230.1	31.85	32.78	200.1	230.1	0.89	0.69
220.1	250.1	6.12	5.56	220.1	250.1	31.70	32.52	220.1	250.1	0.99	0.77
240.1	270.1	6.19	5.62	240.1	270.1	32.86	32.37	240.1	270.1	0.82	0.64
260.1	290.1	6.26	5.62	260.1	290.1	32.13	31.57	260.1	290.1	0.98	0.73
280.1	310.1	6.29	5.67	280.1	310.1	31.03	30.89	280.1	310.1	0.79	0.52
300.1	330.1	6.20	5.67	300.1	330.1	32.33	30.81	300.1	330.1	0.90	0.70
320.1	350.1	6.22	5.64	320.1	350.1	32.34	30.39	320.1	350.1	0.73	0.64
340.1	370.1	6.56	5.80	340.1	370.1	31.28	29.94	340.1	370.1	0.90	0.69
360.1	390.1	6.44	5.76	360.1	390.1	31.17	30.17	360.1	390.1	0.76	0.60
380.1	410.1	6.27	5.74	380.1	410.1	30.90	30.54	380.1	410.1	0.72	0.59
400.1	430.1	6.51	5.87	400.1	430.1	30.67	30.07	400.1	430.1	0.47	0.39
420.1	450.1	6.69	5.88	420.1	450.1	30.67	29.99	420.1	450.1	0.92	0.66
440.1	470.1	6.70	5.97	440.1	470.1	30.27	31.00	440.1	470.1	0.59	0.41
460.1	490.1	6.58	5.98	460.1	490.1	29.85	31.12	460.1	490.1	0.49	0.41
480.1	510.1	6.64	6.05	480.1	510.1	30.14	31.50	480.1	510.1	0.52	0.48
500.1	530.1	7.05	6.19	500.1	530.1	30.59	32.29	500.1	530.1	0.70	0.51



Frequency Mixer

VAY-1+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=250.1MHz (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)=500.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+27			+27			+27
0.5	249.6	5.87	0.5	10.6	5.33	0.5	499.6	6.33
1.0	249.1	5.77	0.8	10.9	5.28	0.8	499.4	6.28
1.5	248.6	5.70	1.0	11.1	5.25	1.0	499.1	6.24
2.0	248.1	5.67	2.0	12.1	5.18	2.0	498.1	6.16
2.5	247.6	5.63	3.0	13.1	5.15	3.0	497.1	6.12
3.0	247.1	5.61	4.0	14.1	5.14	4.0	496.1	6.12
4.0	246.1	5.58	5.0	15.1	5.14	5.0	495.1	6.09
5.0	245.1	5.55	6.0	16.1	5.15	6.0	494.1	6.08
6.0	244.1	5.53	8.0	18.1	5.18	8.0	492.1	6.13
8.0	242.1	5.50	10.0	20.1	5.18	10.0	490.1	6.12
10.0	240.1	5.53	15.0	25.1	5.26	15.0	485.1	6.07
15.0	235.1	5.73	20.0	30.1	5.18	20.0	480.1	6.07
20.0	230.1	5.75	25.0	35.1	5.26	25.0	475.1	6.16
25.0	225.1	5.51	30.0	40.1	5.25	30.0	470.1	6.25
30.0	220.1	5.48	35.0	45.1	5.16	35.0	465.1	6.21
35.0	215.1	5.54	40.0	50.1	5.11	40.0	460.1	6.16
40.0	210.1	5.70	45.0	55.1	5.18	45.0	455.1	6.17
45.0	205.1	5.72	50.0	60.1	5.20	50.0	450.1	6.16
50.0	200.1	5.59	70.0	80.1	5.27	70.0	430.1	6.10
55.0	195.1	5.49	90.0	100.1	5.16	90.0	410.1	6.20
60.0	190.1	5.64	110.0	120.1	5.16	110.0	390.1	6.30
65.0	185.1	5.74	130.0	140.1	5.11	130.0	370.1	6.22
70.0	180.1	5.62	150.0	160.1	5.22	150.0	350.1	6.14
80.0	170.1	5.51	170.0	180.1	5.19	170.0	330.1	6.27
90.0	160.1	5.69	190.0	200.1	5.12	190.0	310.1	6.47
100.0	150.1	5.67	210.0	220.1	5.13	210.0	290.1	6.19
110.0	140.1	5.59	230.0	240.1	5.05	230.0	270.1	6.19
120.0	130.1	5.58	250.0	260.1	5.25	250.0	250.1	6.26
130.0	120.1	5.49	270.0	280.1	5.09	270.0	230.1	6.55
140.0	110.1	5.62	290.0	300.1	4.99	290.0	210.1	6.38
150.0	100.1	5.57	310.0	320.1	5.05	310.0	190.1	6.26
160.0	90.1	5.53	330.0	340.1	5.12	330.0	170.1	6.17
170.0	80.1	5.53	350.0	360.1	5.26	350.0	150.1	6.30
180.0	70.1	5.45	370.0	380.1	5.09	370.0	130.1	6.30
190.0	60.1	5.53	390.0	400.1	5.01	390.0	110.1	6.25
200.0	50.1	5.43	410.0	420.1	5.07	410.0	90.1	6.22
210.0	40.1	5.47	430.0	440.1	5.21	430.0	70.1	6.06
220.0	30.1	5.39	450.0	460.1	5.18	450.0	50.1	5.98
230.0	20.1	5.39	470.0	480.1	5.12	470.0	30.1	5.98
240.0	10.1	5.35	490.0	500.1	5.14	490.0	10.1	5.85

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Frequency Mixer

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)		LO-IF ISOLATION (dB)		RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)	
	@LO (dBm)		@LO (dBm)				@LO (dBm)	
	+24	+27	+24	+27			+24	+27
10.1	60.14	66.78	43.71	48.07	10.1	40.1	25.34	25.16
15.1	62.57	68.79	44.00	48.55	15.1	45.1	25.45	25.21
20.1	64.91	70.33	43.96	48.51	20.1	50.1	25.39	25.10
25.1	67.33	70.82	43.92	48.25	25.1	55.1	25.15	24.80
30.1	69.48	71.13	43.70	48.01	30.1	60.1	25.08	24.73
35.1	71.39	68.91	43.60	47.79	35.1	65.1	25.04	24.65
40.1	72.77	67.23	43.54	47.50	40.1	70.1	25.05	24.75
45.1	71.03	66.18	43.50	47.28	45.1	75.1	25.06	24.89
50.1	68.40	65.55	43.47	47.00	50.1	80.1	25.08	24.97
55.1	65.67	65.53	43.43	46.76	55.1	85.1	24.94	24.82
60.1	63.70	65.54	43.50	46.59	60.1	90.1	24.90	24.84
70.1	61.98	64.08	43.30	46.07	70.1	100.1	25.21	25.20
80.1	61.99	63.60	43.36	45.64	80.1	110.1	25.17	25.17
90.1	61.21	62.65	43.18	45.02	90.1	120.1	25.11	25.16
100.1	60.60	61.06	43.02	44.53	100.1	130.1	25.40	25.31
110.1	59.42	59.54	43.07	44.10	110.1	140.1	25.59	25.38
120.1	58.86	58.94	42.60	43.55	120.1	150.1	25.87	25.63
130.1	57.81	57.72	42.51	43.06	130.1	160.1	26.00	25.42
140.1	56.12	56.44	42.50	42.64	140.1	170.1	25.72	25.08
150.1	56.35	56.25	41.94	42.00	150.1	180.1	26.12	25.17
160.1	54.77	55.64	42.32	41.96	160.1	190.1	26.41	25.84
170.1	54.35	55.21	42.24	41.82	170.1	200.1	26.60	26.15
180.1	54.42	55.10	41.88	41.54	180.1	210.1	26.93	26.49
190.1	53.44	54.88	42.30	41.43	190.1	220.1	26.68	26.12
200.1	54.03	55.44	41.97	41.14	200.1	230.1	26.65	26.52
220.1	53.64	56.78	42.02	40.58	220.1	250.1	26.94	26.31
240.1	52.71	56.24	41.78	40.18	240.1	270.1	27.44	26.97
260.1	53.14	56.59	41.69	39.60	260.1	290.1	28.69	29.25
280.1	52.76	55.38	41.54	38.80	280.1	310.1	30.61	32.50
300.1	51.52	52.59	41.11	38.39	300.1	330.1	31.30	34.87
320.1	51.01	51.84	40.45	37.73	320.1	350.1	31.47	36.35
340.1	50.03	51.25	40.13	37.20	340.1	370.1	32.06	39.93
360.1	49.33	50.13	40.68	37.00	360.1	390.1	34.22	42.28
380.1	47.92	49.18	40.39	36.99	380.1	410.1	33.13	40.29
400.1	46.34	49.57	39.92	37.15	400.1	430.1	31.60	39.21
420.1	45.49	48.74	41.77	37.96	420.1	450.1	30.14	35.88
440.1	45.01	47.22	43.80	38.82	440.1	470.1	32.01	36.12
460.1	44.21	45.69	44.15	39.33	460.1	490.1	29.94	32.95
480.1	41.91	44.18	42.61	39.41	480.1	510.1	29.16	32.25
500.1	40.97	42.24	38.20	38.19	500.1	530.1	28.24	28.77

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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=500.1MHz (:1)	
		@LO (dBm)			@LO (dBm)			@LO (dBm)	
		+24	+27		+24	+27		+24	+27
10.1	40.1	1.64	1.38	10.1	1.20	1.26	0.5	1.20	1.11
15.1	45.1	1.66	1.39	15.1	1.21	1.27	0.8	1.25	1.04
20.1	50.1	1.67	1.39	20.1	1.23	1.31	1.0	1.33	1.11
25.1	55.1	1.68	1.41	25.1	1.26	1.32	2.0	1.43	1.18
30.1	60.1	1.69	1.41	30.1	1.28	1.34	3.0	1.42	1.17
35.1	65.1	1.68	1.41	35.1	1.29	1.35	4.0	1.41	1.16
40.1	70.1	1.71	1.42	40.1	1.30	1.36	5.0	1.39	1.15
45.1	75.1	1.75	1.46	45.1	1.31	1.36	6.0	1.38	1.14
50.1	80.1	1.71	1.43	50.1	1.30	1.36	8.0	1.38	1.13
55.1	85.1	1.70	1.42	55.1	1.30	1.34	10.0	1.38	1.13
60.1	90.1	1.72	1.45	60.1	1.32	1.33	15.0	1.39	1.14
70.1	100.1	1.74	1.45	70.1	1.29	1.33	20.0	1.39	1.14
80.1	110.1	1.71	1.45	80.1	1.35	1.33	25.0	1.40	1.15
90.1	120.1	1.73	1.46	90.1	1.36	1.34	30.0	1.40	1.15
100.1	130.1	1.76	1.48	100.1	1.38	1.32	35.0	1.41	1.16
110.1	140.1	1.73	1.46	110.1	1.39	1.35	40.0	1.43	1.17
120.1	150.1	1.83	1.52	120.1	1.36	1.28	50.0	1.42	1.17
130.1	160.1	1.81	1.50	130.1	1.44	1.29	65.0	1.44	1.18
140.1	170.1	1.80	1.51	140.1	1.41	1.28	80.0	1.47	1.21
150.1	180.1	1.87	1.55	150.1	1.49	1.28	100.0	1.47	1.22
160.1	190.1	1.81	1.52	160.1	1.52	1.34	120.0	1.50	1.24
170.1	200.1	1.84	1.54	170.1	1.46	1.22	140.0	1.52	1.26
180.1	210.1	1.86	1.54	180.1	1.52	1.24	160.0	1.56	1.29
190.1	220.1	1.85	1.54	190.1	1.46	1.17	180.0	1.58	1.31
200.1	230.1	1.90	1.56	200.1	1.55	1.18	200.0	1.60	1.34
220.1	250.1	1.93	1.60	220.1	1.65	1.19	220.0	1.64	1.36
240.1	270.1	1.92	1.59	240.1	1.63	1.14	240.0	1.66	1.38
260.1	290.1	1.96	1.60	260.1	1.60	1.10	260.0	1.69	1.40
280.1	310.1	2.03	1.65	280.1	1.75	1.12	280.0	1.71	1.42
300.1	330.1	1.97	1.64	300.1	1.92	1.16	300.0	1.74	1.44
320.1	350.1	2.03	1.67	320.1	1.92	1.16	320.0	1.75	1.45
340.1	370.1	2.19	1.73	340.1	1.82	1.15	340.0	1.77	1.47
360.1	390.1	2.13	1.72	360.1	2.01	1.18	360.0	1.77	1.47
380.1	410.1	2.08	1.75	380.1	2.40	1.28	380.0	1.78	1.48
400.1	430.1	2.24	1.83	400.1	2.49	1.32	400.0	1.79	1.49
420.1	450.1	2.42	1.90	420.1	1.94	1.24	420.0	1.79	1.49
440.1	470.1	2.38	1.93	440.1	2.06	1.23	440.0	1.77	1.48
460.1	490.1	2.36	1.98	460.1	2.71	1.34	460.0	1.77	1.48
480.1	510.1	2.42	2.05	480.1	2.92	1.45	480.0	1.76	1.47
500.1	530.1	2.68	2.16	500.1	2.00	1.27	500.0	1.63	1.33

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	40	26	52	37	55	56	56	61	63
1	-	35	+0	46	13	42	29	41	38	46	36	59
2	74	59	51	65	51	64	52	57	61	78	50	72
3	91	57	39	54	39	59	52	59	40	51	42	52
4	109	70	59	82	65	72	63	80	61	71	69	77
5	>119	63	49	66	50	62	48	61	50	59	49	60
6	>119	78	64	84	60	75	64	72	64	75	63	81
7	>118	89	65	74	65	72	73	74	65	66	68	63
8	>120	80	78	81	72	79	67	77	69	78	69	78
9	>120	84	74	80	77	71	89	71	72	74	68	75
10	>119	86	82	103	81	94	75	86	74	86	76	86
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 19.05.00 dBm.
 LO IN: 280.01 MHz; +26.9.00 dBm
 IF OUT: 29.91 MHz; 13.56 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	30	15	36	25	52	35	51	34	43
1	-	32	+0	46	13	39	27	34	26	36	25	46
2	88	66	49	61	50	65	48	65	57	60	51	58
3	102	56	53	55	52	57	51	59	49	64	50	63
4	>121	74	60	86	63	80	65	71	74	76	72	78
5	>122	74	70	65	65	68	66	67	63	66	74	75
6	>122	90	83	84	77	87	86	84	83	76	77	84
7	>121	85	81	79	76	75	78	78	80	75	88	76
8	>121	96	95	97	91	89	92	89	92	89	88	86
9	>122	94	97	94	95	87	89	85	89	87	93	86
10	>120	105	101	104	107	107	102	94	101	96	98	97
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 9.00 dBm.
 LO IN: 280.01 MHz; +26.9.00 dBm
 IF OUT: 29.91 MHz; 3.39 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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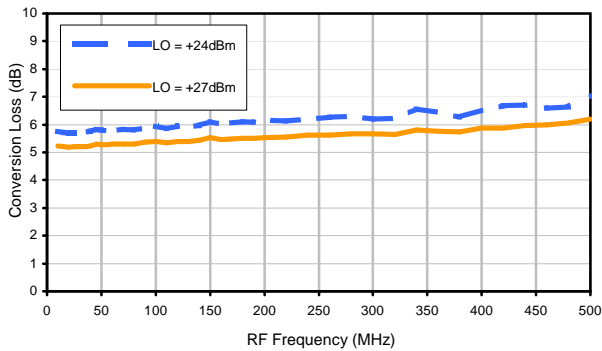
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Frequency Mixer

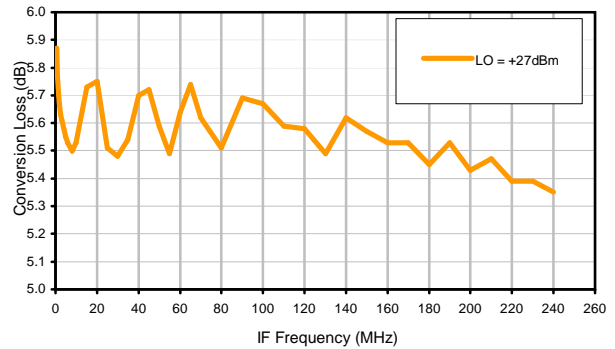
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Typical Performance Curves

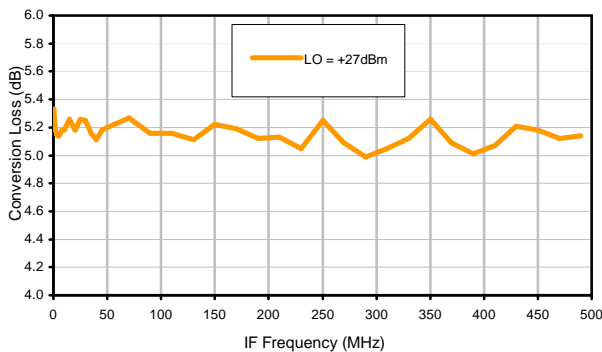
Conversion Loss @ IF=30MHz



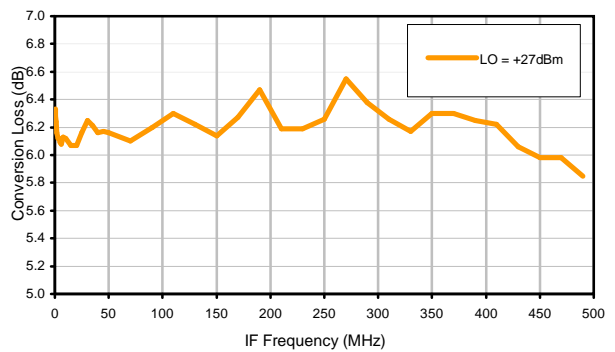
Conversion Loss vs. IF @ RF=250.1MHz



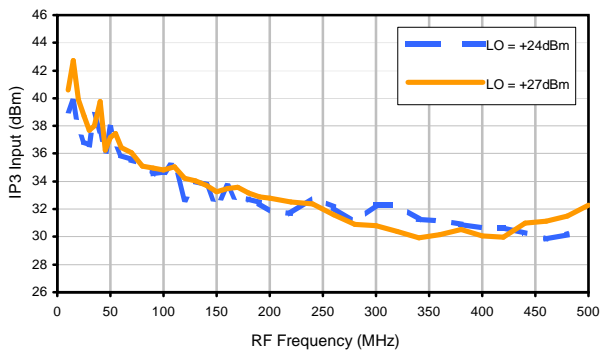
Conversion Loss vs. IF @ RF=10.1MHz



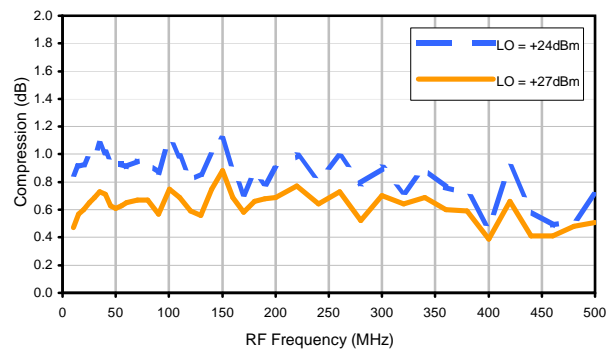
Conversion Loss vs. IF @ RF=500.1MHz



IP3 Input



Compression @ RF IN=+24dBm



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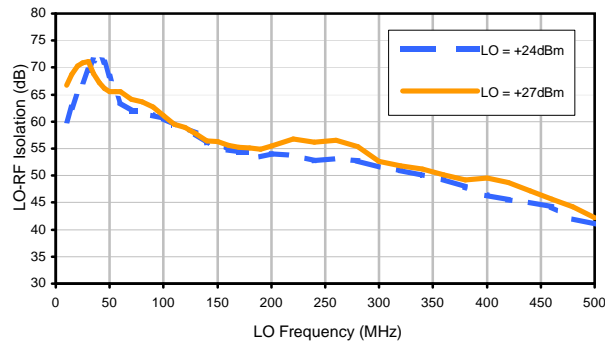


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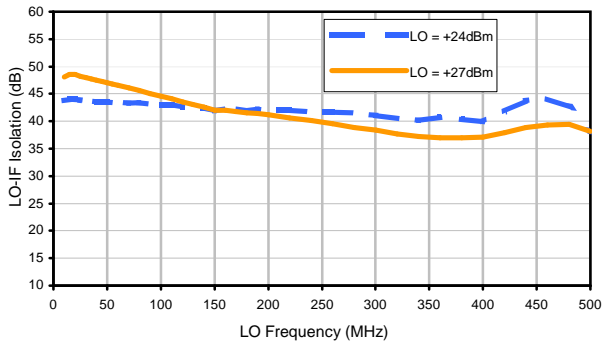


Typical Performance Curves

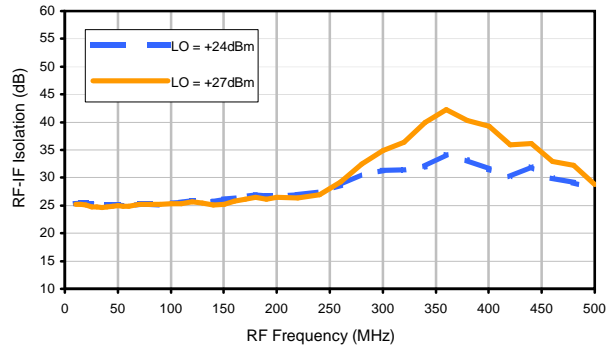
LO-RF Isolation



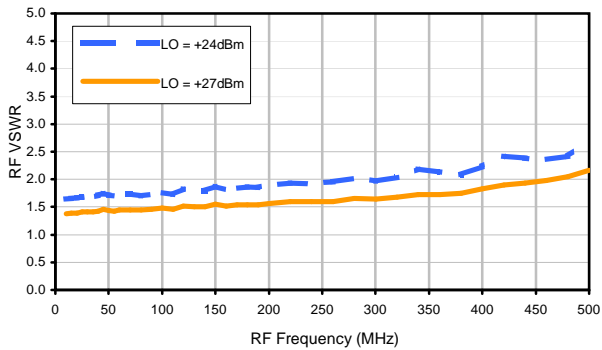
LO-IF Isolation



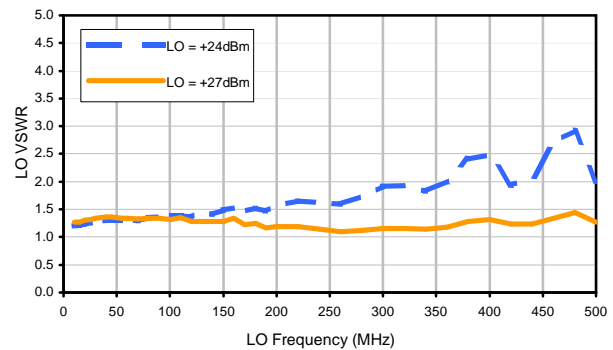
RF-IF Isolation



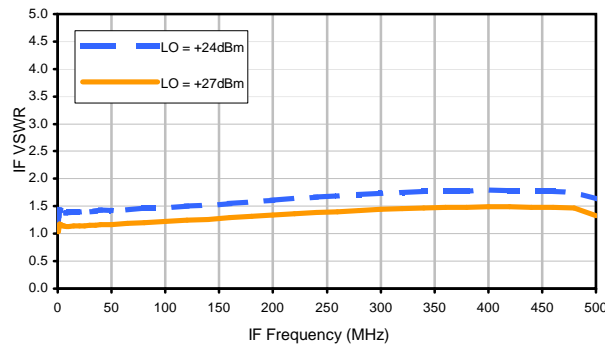
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	25	40	26	52	37	55	56	56	61	63
1	-	35	+0	46	13	42	29	41	38	46	36	59
2	74	59	51	65	51	64	52	57	61	78	50	72
3	91	57	39	54	39	59	52	59	40	51	42	52
4	109	70	59	82	65	72	63	80	61	71	69	77
5	>119	63	49	66	50	62	48	61	50	59	49	60
6	>119	78	64	84	60	75	64	72	64	75	63	81
7	>118	89	65	74	65	72	73	74	65	66	68	63
8	>120	80	78	81	72	79	67	77	69	78	69	78
9	>120	84	74	80	77	71	89	71	72	74	68	75
10	>119	86	82	103	81	94	75	86	74	86	76	86
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 19.05.00 dBm.
 LO IN: 280.01 MHz; +26.9.00 dBm
 IF OUT: 29.91 MHz; 13.56 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	14	30	15	36	25	52	35	51	34	43
1	-	32	+0	46	13	39	27	34	26	36	25	46
2	88	66	49	61	50	65	48	65	57	60	51	58
3	102	56	53	55	52	57	51	59	49	64	50	63
4	>121	74	60	86	63	80	65	71	74	76	72	78
5	>122	74	70	65	65	68	66	67	63	66	74	75
6	>122	90	83	84	77	87	86	84	83	76	77	84
7	>121	85	81	79	76	75	78	78	80	75	88	76
8	>121	96	95	97	91	89	92	89	92	89	88	86
9	>122	94	97	94	95	87	89	85	89	87	93	86
10	>120	105	101	104	107	107	102	94	101	96	98	97
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 250.1 MHz; 9.00 dBm.
 LO IN: 280.01 MHz; +26.9.00 dBm
 IF OUT: 29.91 MHz; 3.39 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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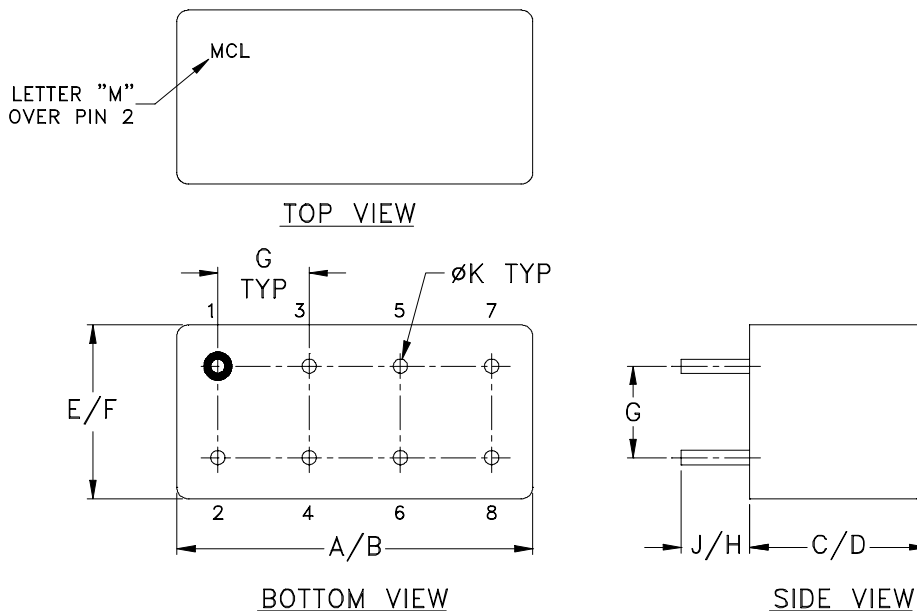
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Case Style

A

A01
A04
A05
A06

Outline Dimensions



CASE#	A	B	C	D	E	F	G	H	J	K	WT, GRAM
A01			.385 (9.78)	.400 (10.16)							5.2
A04	.770 (19.56)	.800 (20.32)	.200 (5.08)	.210 (5.33)	.370 (9.40)	.400 (10.16)	.200 (5.08)	.20 (5.08)	.14 (3.56)	.031 (.79)	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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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
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
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	50g, 11 ms, 1/2-sine, 18 shocks: 3 each direction, each of 3 axes	MIL-STD-202, Method 213, Condition A
Moisture Resistance	10 cycles, 24 hours per cycle	MIL-STD-202, Method 106, Condition A, except 50°C and end point electrical test done within 12 hours
Solderability	10X Magnification	J-STD-002, 95% Coverage
Resistance to Solder Heat	260°C for 10 seconds	MIL-STD-202, Method 210, Condition B
Marking Resistance to Solvents	Isopropyl alcohol + mineral spirits at 25°C; terpene defluxer at 25°C; distilled water + proylene glycol monomethyl ether + monoethanolamine at 63°C to 70°C	MIL-STD-202, Method 215
Terminal Strength	4 1/2 Pound Pull	MIL-STD-202, Method 211, Condition A



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
Gross Leak	125°C Bubble Test	MIL-STD-202, Method 112, Condition D
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D