

Non-Catalog Model

Frequency Mixer

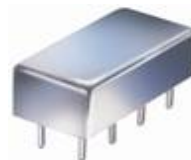
SBL-3LH+

Level 10 (LO Power +10 dBm)

Important Note

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

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



CASE STYLE : A06

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	0.07		250	MHz
	RF (fL to fU)	0.07		250	MHz
	IF	0		250	MHz
Conversion Loss	mid band		4.9	7.0	dB
	Total Range			8.5	dB
LO-RF Isolation	Low Range	45	60		dB
	Mid Range	35	60		dB
	Upper Range	30	45		dB
LO-IF Isolation	Low Range	35	57		dB
	Mid Range	30	53		dB
	Upper Range	25	42		dB
1 dB Comp. Input Power			+5		dBm

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

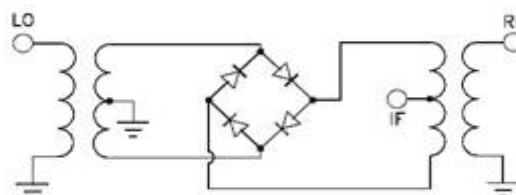
Non-hermetic

MAXIMUM RATINGS	
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Power	50mW
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



Frequency Mixer

SBL-3LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+7	+10	+13
0.07	30.1	5.39	5.17	5.00
0.10	30.1	5.19	4.97	4.83
0.14	30.1	5.09	4.87	4.74
0.2	30.2	5.03	4.81	4.68
0.5	30.5	4.95	4.75	4.59
0.7	30.7	4.92	4.70	4.56
1.0	31.0	4.90	4.69	4.53
2.0	32.0	4.90	4.65	4.48
5.0	35.0	4.98	4.67	4.48
10.0	40.0	4.77	4.59	4.47
22.7	52.7	4.93	4.70	4.54
47.8	77.8	5.00	4.76	4.60
60.4	90.4	5.02	4.75	4.61
72.9	102.9	5.06	4.79	4.62
85.5	115.5	4.95	4.78	4.66
110.6	140.6	5.15	4.83	4.64
123.2	153.2	5.25	5.02	4.82
135.7	165.7	5.24	5.03	4.89
148.3	178.3	5.26	5.04	4.88
173.4	203.4	5.35	5.06	4.97
186.0	216.0	5.57	5.16	4.98
198.6	228.6	5.77	5.42	5.16
211.1	241.1	5.93	5.72	5.45
236.3	266.3	6.30	6.06	5.84
248.8	278.8	6.59	6.32	6.06
261.4	291.4	6.67	6.33	6.02
273.9	303.9	6.94	6.43	6.00
299.1	329.1	6.74	6.21	5.88
311.6	341.6	6.69	6.21	5.88
324.2	354.2	6.41	6.09	5.89
336.8	366.8	6.58	6.30	6.15
361.9	391.9	6.72	6.53	6.52
374.5	404.5	6.71	6.51	6.58
387.0	417.0	6.97	6.88	7.05
399.6	429.6	7.42	7.25	7.32
424.7	454.7	8.29	8.08	8.06
437.3	467.3	8.62	8.33	8.27
449.8	479.8	9.39	9.11	8.98
462.4	492.4	9.98	9.52	9.29
500.1	530.1	12.91	12.11	11.76

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	17.41	17.77	19.16
22.7	52.7	17.80	18.19	20.50
35.2	65.2	17.39	18.27	25.88
47.8	77.8	16.89	18.84	24.68
60.4	90.4	18.48	23.12	16.88
72.9	102.9	16.75	18.54	21.10
85.5	115.5	19.51	17.55	14.37
98.0	128.0	24.92	15.04	14.64
110.6	140.6	17.04	15.48	15.08
123.2	153.2	15.93	13.17	12.39
135.7	165.7	19.34	15.98	14.53
148.3	178.3	24.04	17.64	17.34
160.9	190.9	21.91	14.39	14.81
173.4	203.4	17.53	13.88	15.90
186.0	216.0	11.46	13.77	14.58
198.6	228.6	7.31	10.10	13.30
211.1	241.1	5.66	5.66	8.49
223.7	253.7	5.00	4.32	4.60
236.3	266.3	4.65	4.36	4.41
248.8	278.8	4.73	4.78	5.20
261.4	291.4	5.28	5.88	6.97
273.9	303.9	7.55	8.66	10.17
286.5	316.5	8.33	9.57	11.76
299.1	329.1	9.93	11.43	13.35
311.6	341.6	11.23	13.02	14.72
324.2	354.2	11.73	14.22	17.24
336.8	366.8	13.17	17.28	18.71
349.3	379.3	14.48	18.55	15.78
361.9	391.9	14.02	16.31	15.37
374.5	404.5	12.21	13.03	14.06
387.0	417.0	11.43	12.56	14.51
399.6	429.6	11.40	13.13	14.02
412.2	442.2	12.08	14.44	14.14
424.7	454.7	11.65	13.47	13.27
437.3	467.3	11.76	13.91	14.15
449.8	479.8	12.39	14.86	14.92
462.4	492.4	12.46	14.70	15.55
475.0	505.0	13.05	15.93	15.75
487.5	517.5	13.03	15.93	17.00
500.1	530.1	12.91	16.65	17.61

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+5dBm (dB)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	1.36	1.02	0.78
22.7	52.7	1.20	0.94	0.74
35.2	65.2	1.03	0.90	0.72
47.8	77.8	1.11	0.89	0.69
60.4	90.4	1.18	0.85	0.67
72.9	102.9	1.00	0.81	0.65
85.5	115.5	1.03	0.74	0.61
98.0	128.0	1.02	0.74	0.58
110.6	140.6	0.85	0.68	0.56
123.2	153.2	0.82	0.63	0.54
135.7	165.7	0.95	0.69	0.58
148.3	178.3	1.07	0.77	0.65
160.9	190.9	1.29	0.85	0.68
173.4	203.4	1.55	0.95	0.64
186.0	216.0	1.76	1.23	0.82
198.6	228.6	1.97	1.49	1.05
211.1	241.1	2.17	1.73	1.30
223.7	253.7	2.38	2.00	1.56
236.3	266.3	2.36	2.02	1.71
248.8	278.8	2.13	1.81	1.57
261.4	291.4	2.04	1.71	1.49
273.9	303.9	1.71	1.45	1.24
286.5	316.5	1.71	1.52	1.24
299.1	329.1	1.69	1.36	1.11
311.6	341.6	1.82	1.40	1.19
324.2	354.2	1.93	1.41	1.18
336.8	366.8	1.85	1.32	1.11
349.3	379.3	1.90	1.43	1.20
361.9	391.9	1.83	1.28	1.00
374.5	404.5	2.01	1.52	1.14
387.0	417.0	1.98	1.40	1.00
399.6	429.6	2.10	1.53	1.20
412.2	442.2	1.99	1.35	1.14
424.7	454.7	2.00	1.40	1.27
437.3	467.3	2.05	1.45	1.35
449.8	479.8	1.95	1.24	1.10
462.4	492.4	2.13	1.37	1.21
475.0	505.0	2.09	1.11	0.86
487.5	517.5	2.17	1.03	0.75
500.1	530.1	2.14	0.93	0.65

REV. X2

SBL-3LH+

100818

Page 1 of 5



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

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



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



Frequency Mixer

SBL-3LH+

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=125.1MHz (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)=250.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+10			+10			+10
115.0	10.1	4.98	10.0	20.1	4.56	240.0	10.1	6.23
112.3	12.8	4.95	15.9	26.0	4.51	234.1	16.0	6.11
109.6	15.5	4.93	21.8	31.9	4.48	228.2	21.9	5.97
106.9	18.2	4.88	27.7	37.8	4.47	222.3	27.8	5.89
104.2	20.9	4.82	33.6	43.7	4.54	216.4	33.7	5.85
101.5	23.6	4.78	39.5	49.6	4.54	210.5	39.6	5.82
98.8	26.3	4.77	45.4	55.5	4.60	204.6	45.5	5.78
96.2	28.9	4.74	51.3	61.4	4.61	198.7	51.4	5.72
93.5	31.6	4.71	57.2	67.3	4.59	192.8	57.3	5.71
90.8	34.3	4.71	63.1	73.2	4.66	186.9	63.2	5.68
88.1	37.0	4.71	69.0	79.1	4.68	181.0	69.1	5.69
85.4	39.7	4.70	74.9	85.0	4.73	175.1	75.0	5.68
82.7	42.4	4.71	80.8	90.9	4.74	169.2	80.9	5.66
80.0	45.1	4.71	86.7	96.8	4.74	163.3	86.8	5.63
77.3	47.8	4.70	92.6	102.7	4.78	157.4	92.7	5.65
74.6	50.5	4.71	98.5	108.6	4.81	151.5	98.6	5.71
71.9	53.2	4.70	104.4	114.5	4.81	145.6	104.5	5.76
69.2	55.9	4.69	110.3	120.4	4.81	139.7	110.4	5.72
66.5	58.6	4.70	116.2	126.3	4.76	133.8	116.3	5.70
63.8	61.3	4.64	122.1	132.2	4.72	127.9	122.2	5.69
61.2	63.9	4.65	127.9	138.0	4.75	122.1	128.0	5.75
58.5	66.6	4.70	133.8	143.9	4.89	116.2	133.9	5.81
55.8	69.3	4.70	139.7	149.8	5.05	110.3	139.8	5.78
53.1	72.0	4.71	145.6	155.7	5.16	104.4	145.7	5.74
50.4	74.7	4.71	151.5	161.6	5.20	98.5	151.6	5.68
47.7	77.4	4.73	157.4	167.5	5.21	92.6	157.5	5.64
45.0	80.1	4.73	163.3	173.4	5.27	86.7	163.4	5.64
42.3	82.8	4.73	169.2	179.3	5.29	80.8	169.3	5.63
39.6	85.5	4.74	175.1	185.2	5.33	74.9	175.2	5.62
36.9	88.2	4.74	181.0	191.1	5.20	69.0	181.1	5.59
34.2	90.9	4.72	186.9	197.0	5.10	63.1	187.0	5.59
31.5	93.6	4.71	192.8	202.9	5.10	57.2	192.9	5.58
28.8	96.3	4.72	198.7	208.8	5.07	51.3	198.8	5.52
26.2	98.9	4.71	204.6	214.7	5.16	45.4	204.7	5.50
23.5	101.6	4.73	210.5	220.6	5.12	39.5	210.6	5.52
20.8	104.3	4.75	216.4	226.5	5.29	33.6	216.5	5.57
18.1	107.0	4.75	222.3	232.4	5.38	27.7	222.4	5.68
15.4	109.7	4.75	228.2	238.3	5.52	21.8	228.3	5.81
12.7	112.4	4.76	234.1	244.2	5.47	15.9	234.2	6.01
10.0	115.1	4.81	240.0	250.1	5.43	10.0	240.1	6.15

REV. X2
SBL-3LH+
100818
Page 2 of 5

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+7	+10	+13	+7	+10	+13
0.07	69.51	63.65	64.89	67.21	61.05	61.21
0.10	66.52	62.95	64.78	64.62	60.16	61.05
0.14	65.02	62.75	64.47	63.02	59.80	60.95
0.2	64.07	62.58	64.50	62.27	59.57	60.90
0.5	63.42	62.45	64.37	61.42	59.40	60.82
0.7	63.12	62.25	64.29	61.32	59.30	60.80
1.0	62.82	62.23	64.36	60.92	59.23	60.83
2.0	62.62	62.11	64.23	60.82	59.10	60.74
5.0	62.57	62.06	64.19	60.57	59.04	60.61
10.0	62.36	62.16	64.39	59.66	58.62	60.22
22.7	55.77	56.37	56.59	46.10	46.98	47.42
47.8	54.42	56.01	56.73	44.42	45.82	46.89
60.4	53.27	55.36	56.37	43.35	44.71	46.20
72.9	52.54	54.41	55.58	42.04	43.96	45.66
85.5	52.12	54.95	56.80	41.26	43.40	44.93
110.6	50.44	52.59	53.95	40.20	42.62	44.39
123.2	53.67	56.37	57.62	39.49	41.62	43.16
135.7	57.00	63.04	58.76	39.40	41.83	43.29
148.3	50.14	56.97	71.61	37.48	40.49	43.71
173.4	44.67	48.20	52.87	35.98	37.28	38.57
186.0	42.66	45.99	50.64	36.92	37.00	36.55
198.6	41.38	45.80	52.05	38.45	35.80	34.61
211.1	44.63	52.65	68.31	39.07	35.96	34.17
236.3	51.17	58.06	62.38	38.70	40.15	37.95
248.8	50.79	58.62	74.28	35.46	36.84	37.74
261.4	51.54	61.23	59.16	34.24	35.21	35.46
273.9	55.61	60.23	55.48	33.58	34.14	34.07
299.1	57.86	49.76	44.50	31.58	31.57	29.41
311.6	55.83	47.53	41.03	30.11	29.30	25.84
324.2	54.78	44.26	38.44	28.52	26.56	23.15
336.8	46.11	38.83	35.04	26.80	24.36	21.81
361.9	40.10	35.85	33.34	23.51	22.12	20.45
374.5	36.55	34.09	31.69	22.28	21.68	20.24
387.0	34.09	32.62	30.11	20.85	21.07	19.69
399.6	30.83	30.34	28.15	19.17	19.84	18.69
424.7	24.57	24.86	24.02	15.88	16.83	16.13
437.3	22.85	23.23	22.76	14.81	15.80	15.25
449.8	21.59	22.03	21.75	14.46	15.06	14.59
462.4	20.70	20.92	20.59	14.36	14.68	14.09
500.1	18.84	18.78	18.28	14.05	13.84	13.15

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+7	+10	+13
10.1	40.1	40.28	38.58	40.94
22.7	52.7	32.85	33.07	33.10
35.2	65.2	29.17	29.31	29.60
47.8	77.8	26.96	27.82	28.02
60.4	90.4	26.09	26.24	26.54
72.9	102.9	25.44	25.84	26.30
85.5	115.5	24.96	25.68	26.23
98.0	128.0	24.18	25.09	25.86
110.6	140.6	24.10	24.95	25.78
123.2	153.2	24.38	24.82	25.17
135.7	165.7	25.53	25.76	25.97
148.3	178.3	27.07	27.93	28.25
160.9	190.9	25.47	26.60	27.61
173.4	203.4	23.07	23.68	23.92
186.0	216.0	20.61	20.53	20.56
198.6	228.6	18.83	18.51	18.29
211.1	241.1	17.75	17.58	17.11
223.7	253.7	16.50	16.38	16.08
236.3	266.3	16.10	16.03	15.87
248.8	278.8	15.84	15.73	15.65
261.4	291.4	15.69	15.60	15.55
273.9	303.9	16.05	15.94	15.75
286.5	316.5	15.70	15.45	15.11
299.1	329.1	15.23	14.78	14.37
311.6	341.6	14.82	14.19	13.80
324.2	354.2	13.68	13.18	12.88
336.8	366.8	12.99	12.61	12.35
349.3	379.3	12.48	12.12	11.92
361.9	391.9	11.76	11.44	11.15
374.5	404.5	11.35	10.95	10.26
387.0	417.0	10.41	9.87	9.14
399.6	429.6	9.33	8.80	8.28
412.2	442.2	8.41	7.90	7.57
424.7	454.7	7.72	7.26	7.03
437.3	467.3	7.19	6.82	6.60
449.8	479.8	6.72	6.41	6.20
462.4	492.4	6.33	5.97	5.84
475.0	505.0	5.84	5.51	5.29
487.5	517.5	5.51	5.19	5.02
500.1	530.1	5.29	4.95	4.76

Frequency Mixer

SBL-3LH+

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)			LO (MHz)	LO VSWR (:1)			IF (OUT) (MHz)	IF VSWR @LO=250.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+7	+10	+13		+7	+10	+13		+7	+10	+13
0.3	30.3	1.31	1.25	1.21	0.3	1.81	2.63	3.74	0.3	1.83	1.74	1.62
1.0	31.0	1.29	1.21	1.14	1.0	1.74	2.57	3.66	1.0	1.83	1.74	1.62
2.0	32.0	1.31	1.22	1.14	2.0	1.70	2.53	3.60	2.0	1.83	1.75	1.62
5.0	35.0	1.32	1.23	1.15	5.0	1.66	2.48	3.52	5.0	1.84	1.75	1.63
10.0	40.0	1.33	1.23	1.15	10.0	1.53	2.31	3.32	10.0	1.85	1.77	1.64
22.7	52.7	1.37	1.22	1.14	22.7	1.45	2.26	3.34	16.2	2.59	2.29	1.91
35.2	65.2	1.33	1.22	1.14	35.2	1.46	2.31	3.37	22.3	2.75	2.45	2.09
47.8	77.8	1.34	1.21	1.12	47.8	1.43	2.21	3.20	28.5	2.85	2.53	2.15
60.4	90.4	1.31	1.20	1.12	60.4	1.40	2.11	3.01	34.6	2.90	2.61	2.22
72.9	102.9	1.30	1.16	1.07	72.9	1.41	2.06	2.90	40.8	2.91	2.65	2.27
85.5	115.5	1.24	1.14	1.07	85.5	1.42	2.06	2.91	46.9	2.95	2.69	2.33
98.0	128.0	1.19	1.09	1.03	98.0	1.46	2.12	2.97	53.1	2.92	2.69	2.34
110.6	140.6	1.20	1.08	1.05	110.6	1.49	2.20	3.11	59.2	2.94	2.70	2.35
123.2	153.2	1.21	1.12	1.05	123.2	1.54	2.26	3.17	65.4	2.92	2.68	2.34
135.7	165.7	1.15	1.07	1.03	135.7	1.60	2.29	3.15	71.5	2.93	2.71	2.35
148.3	178.3	1.07	1.02	1.08	148.3	1.60	2.27	3.13	77.7	2.95	2.69	2.34
160.9	190.9	1.03	1.13	1.21	160.9	1.60	2.23	3.05	83.8	2.95	2.71	2.36
173.4	203.4	1.08	1.22	1.28	173.4	1.61	2.21	3.01	90.0	2.94	2.71	2.37
186.0	216.0	1.10	1.21	1.27	186.0	1.66	2.23	3.04	96.2	2.94	2.73	2.39
198.6	228.6	1.16	1.19	1.28	198.6	1.76	2.32	3.14	102.3	2.95	2.74	2.40
211.1	241.1	1.23	1.19	1.22	211.1	1.89	2.47	3.28	108.5	2.95	2.71	2.41
223.7	253.7	1.32	1.26	1.24	223.7	1.95	2.61	3.40	114.6	2.93	2.72	2.42
236.3	266.3	1.35	1.29	1.25	236.3	1.95	2.64	3.46	120.8	2.93	2.73	2.44
248.8	278.8	1.45	1.38	1.31	248.8	1.93	2.61	3.44	126.9	2.93	2.73	2.46
261.4	291.4	1.47	1.38	1.28	261.4	1.92	2.59	3.42	133.1	2.92	2.75	2.48
273.9	303.9	1.52	1.39	1.28	273.9	1.93	2.60	3.45	139.2	2.95	2.78	2.51
286.5	316.5	1.51	1.37	1.30	286.5	1.96	2.65	3.50	145.4	3.00	2.83	2.55
299.1	329.1	1.51	1.41	1.39	299.1	1.99	2.68	3.54	151.5	3.05	2.86	2.58
311.6	341.6	1.62	1.56	1.54	311.6	2.01	2.68	3.52	157.7	3.05	2.88	2.60
324.2	354.2	1.59	1.57	1.58	324.2	2.00	2.64	3.45	163.8	3.05	2.89	2.62
336.8	366.8	1.77	1.75	1.76	336.8	1.99	2.59	3.40	170.0	2.99	2.84	2.59
349.3	379.3	1.79	1.78	1.79	349.3	1.99	2.58	3.38	176.2	2.92	2.78	2.54
361.9	391.9	1.95	1.94	1.97	361.9	2.05	2.63	3.43	182.3	2.83	2.69	2.48
374.5	404.5	2.00	1.99	2.02	374.5	2.15	2.73	3.52	188.5	2.79	2.65	2.44
387.0	417.0	2.07	2.06	2.10	387.0	2.27	2.83	3.61	194.6	2.78	2.63	2.40
399.6	429.6	2.17	2.12	2.12	399.6	2.41	2.92	3.67	200.8	2.79	2.63	2.41
412.2	442.2	2.17	2.11	2.09	412.2	2.57	3.00	3.69	206.9	2.79	2.64	2.42
424.7	454.7	2.25	2.16	2.13	424.7	2.73	3.09	3.70	213.1	2.80	2.66	2.44
437.3	467.3	2.28	2.15	2.12	437.3	2.90	3.19	3.74	219.2	2.78	2.65	2.44
449.8	479.8	2.38	2.25	2.22	449.8	3.01	3.30	3.80	225.4	2.79	2.65	2.46
462.4	492.4	2.39	2.25	2.22	462.4	3.09	3.40	3.88	231.5	2.80	2.65	2.43
475.0	505.0	2.44	2.31	2.29	475.0	3.10	3.45	3.93	237.7	2.80	2.64	2.43
487.5	517.5	2.53	2.41	2.38	487.5	3.08	3.46	3.94	243.8	2.80	2.64	2.43
500.1	530.1	2.55	2.44	2.41	500.1	3.00	3.42	3.90	250.0	2.82	2.66	2.45

REV. X2
SBL-3LH+
100818
Page 4 of 5

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	36	23	32	34	28	56	44	61	44	67
1	-	20	+0	34	15	29	42	33	71	42	61	41
2	93	47	68	45	67	46	59	55	46	65	60	65
3	>100	35	33	42	37	46	35	41	54	45	68	61
4	>100	57	58	60	67	63	74	69	69	67	64	72
5	>100	57	65	55	46	55	45	73	47	57	65	60
6	>100	74	80	67	71	69	72	65	70	69	73	77
7	>100	68	75	68	63	64	57	61	53	64	64	64
8	>100	91	89	87	78	72	85	76	85	80	80	79
9	>100	86	82	88	78	73	74	67	68	66	66	70
10	>100	>95	>95	89	90	91	89	80	86	55	83	85
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 120.1 MHz; 0.00 dBm.

LO IN: 150.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -5.29 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	12	22	22	15	39	31	44	34	54
1	-	18	+0	34	15	23	36	28	48	36	54	39
2	>100	63	55	54	59	56	57	64	55	65	63	64
3	>100	53	51	60	48	59	47	61	63	67	65	59
4	>100	83	>84	73	76	71	>84	81	>84	82	74	>84
5	>100	>84	77	80	68	55	70	>84	82	74	>84	73
6	>100	>84	>84	>84	>84	>84	77	>84	>84	>84	>84	>84
7	>100	>84	>84	>84	>84	>84	>84	79	>84	>84	>84	>84
8	>100	>84	>84	>84	>84	>84	>84	83	83	>84	>84	>84
9	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
10	>100	>84	>84	>84	>84	>84	>84	>84	>84	55	>84	>84
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 120.1 MHz; -10.00 dBm.

LO IN: 150.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -15.69 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.

REV. X2

SBL-3LH+

100818

Page 5 of 5



Mini-Circuits®

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

P.O. Box 350166, Brooklyn, New York 11235-0006 (718) 934-4500 Fax (718) 332-4661

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

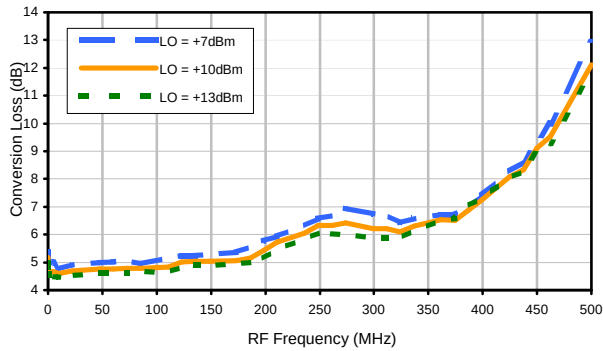


Frequency Mixer

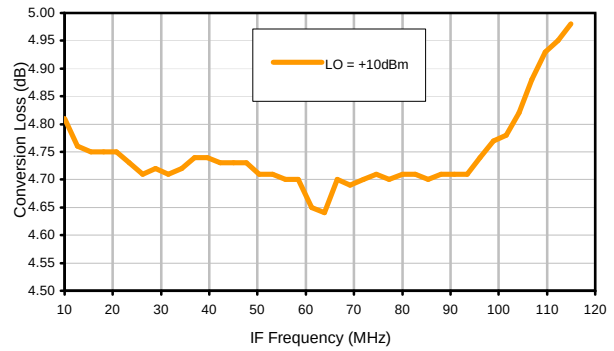
SBL-3LH+

Typical Performance Curves

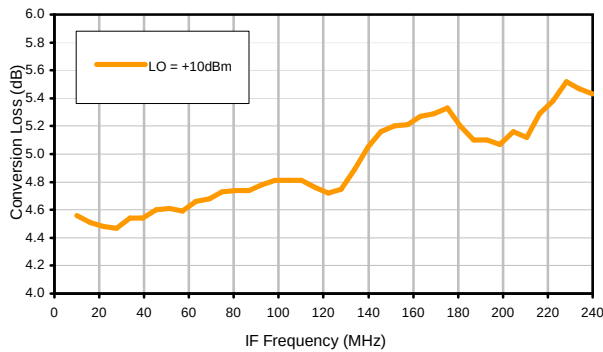
Conversion Loss @ IF=30MHz



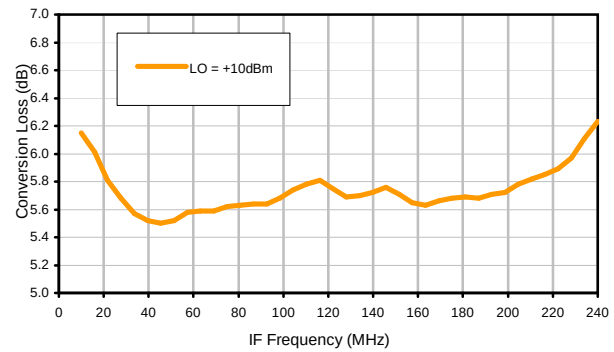
Conversion Loss vs. IF @ RF=125.1MHz



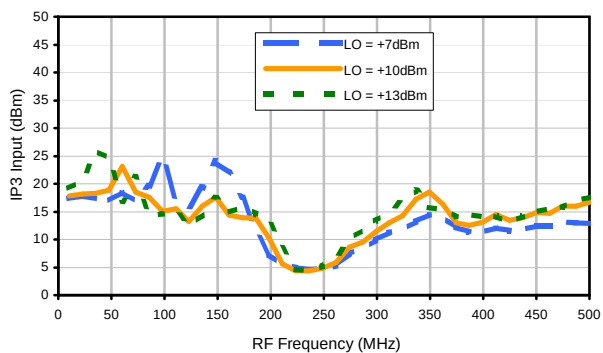
Conversion Loss vs. IF @ RF=10.1MHz



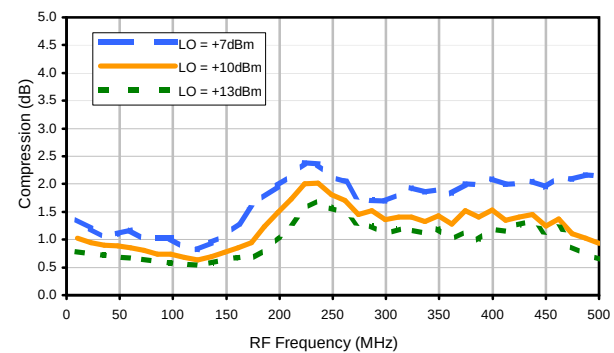
Conversion Loss vs. IF @ RF=250.1MHz



IP3 Input

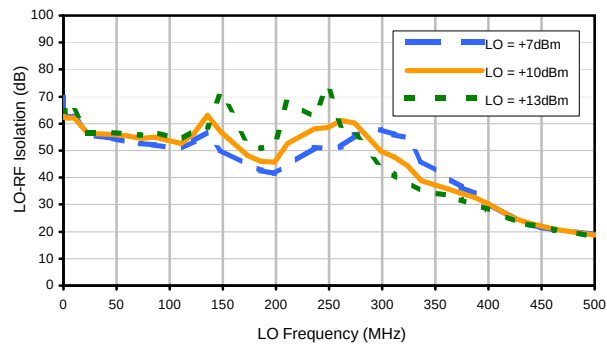


Compression @ RF IN=+5dBm

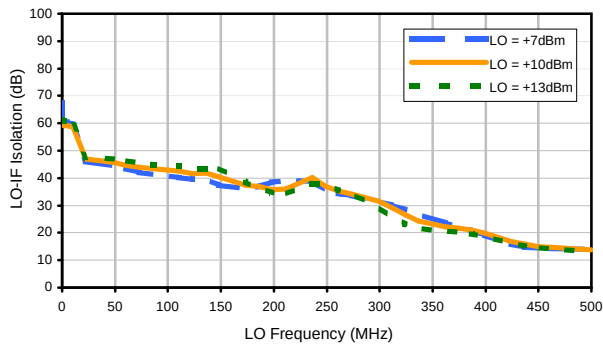


Typical Performance Curves

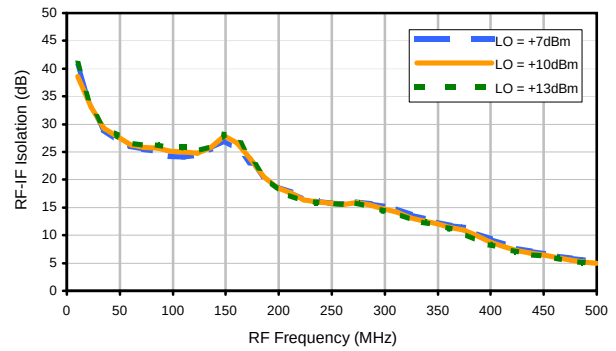
LO-RF Isolation



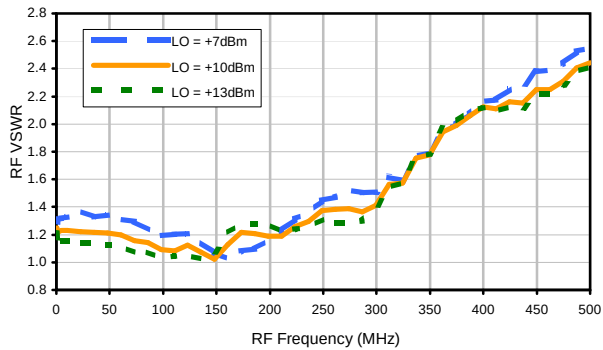
LO-IF Isolation



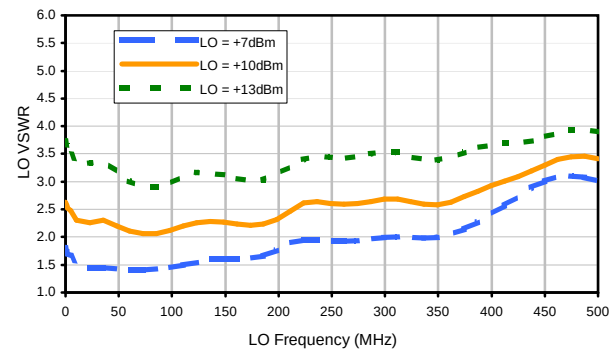
RF-IF Isolation



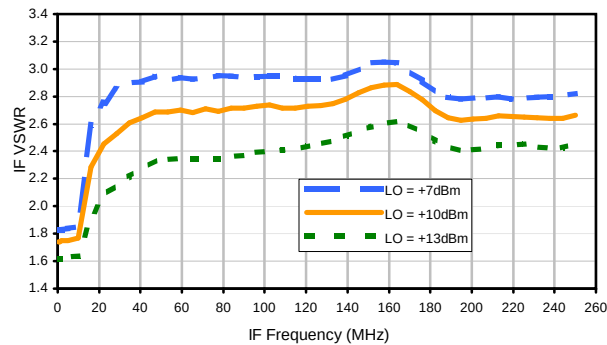
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	36	23	32	34	28	56	44	61	44	67
1	-	20	+0	34	15	29	42	33	71	42	61	41
2	93	47	68	45	67	46	59	55	46	65	60	65
3	>100	35	33	42	37	46	35	41	54	45	68	61
4	>100	57	58	60	67	63	74	69	69	67	64	72
5	>100	57	65	55	46	55	45	73	47	57	65	60
6	>100	74	80	67	71	69	72	65	70	69	73	77
7	>100	68	75	68	63	64	57	61	53	64	64	64
8	>100	91	89	87	78	72	85	76	85	80	80	79
9	>100	86	82	88	78	73	74	67	68	66	66	70
10	>100	>95	>95	89	90	91	89	80	86	55	83	85
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 120.1 MHz; 0.00 dBm.

LO IN: 150.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -5.29 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	12	22	22	15	39	31	44	34	54
1	-	18	+0	34	15	23	36	28	48	36	54	39
2	>100	63	55	54	59	56	57	64	55	65	63	64
3	>100	53	51	60	48	59	47	61	63	67	65	59
4	>100	83	>84	73	76	71	>84	81	>84	82	74	>84
5	>100	>84	77	80	68	55	70	>84	82	74	>84	73
6	>100	>84	>84	>84	>84	>84	77	>84	>84	>84	>84	>84
7	>100	>84	>84	>84	>84	>84	>84	79	>84	>84	>84	>84
8	>100	>84	>84	>84	>84	>84	>84	83	83	>84	>84	>84
9	>100	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84	>84
10	>100	>84	>84	>84	>84	>84	>84	>84	>84	55	>84	>84
RF CAL	0	1	2	3	4	5	6	7	8	9	10	

LO HARMONICS ORDER

Test conditions:

RF IN: 120.1 MHz; -10.00 dBm.

LO IN: 150.01 MHz; +10.00 dBm

IF OUT: 29.91 MHz; -15.69 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.

REV. X2

SBL-3LH+

100818

Page 3 of 3



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

P.O. Box 350166, Brooklyn, New York 11235-0006 (718) 934-4500 Fax (718) 332-4661

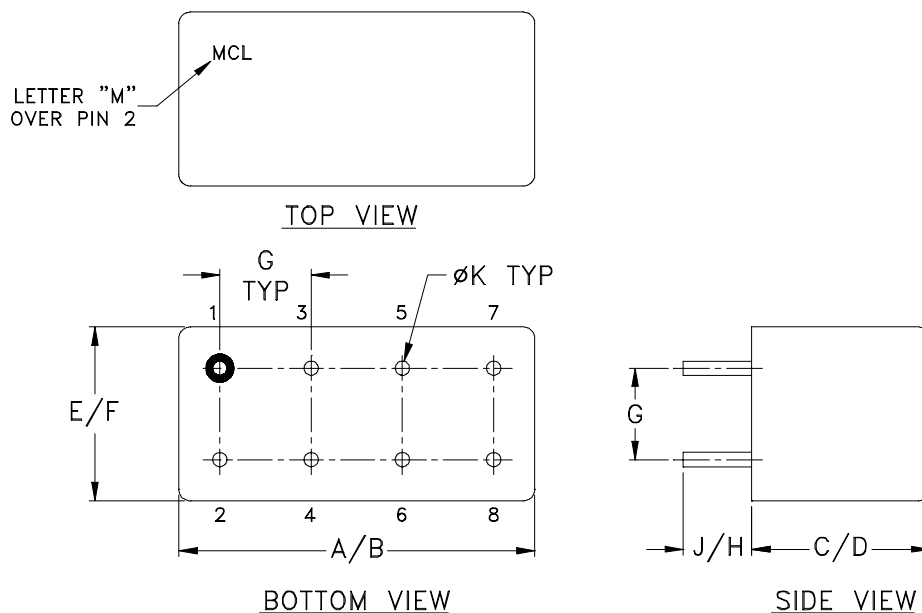


The Design Engineers Search Engine finds the model you need, instantly • For detailed performance specs & shopping online see



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.

Mini-Circuits®

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

Mini-Circuits ISO 9001 & ISO 14001 Certified

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

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



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
Barometric Pressure	100,000 Feet	MIL-STD-202, Method 105, Condition D