Engineering Development Model

Frequency Mixer SIM-ED12399/5B

Level 20 (LO Power + 20 dBm)

Important Note

This model has been designed, built and tested in our engineering department. Performance data represents model capability.
At present it is a non-catalog model. On request, we can supply a final specification sheet, part number and price/delivery information.

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

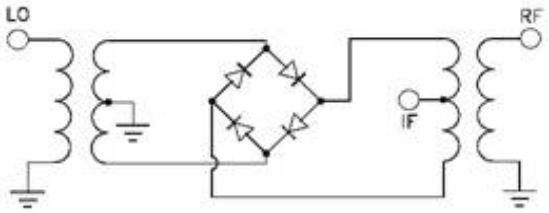
CASE STYLE : HV1195

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		**Min.**	**Typ.**	**Max.**	**Units**
Frequency	**LO** (f_L to f_U)	4950		7550	MHz
	RF (f_L to f_U)	4950		7550	MHz
	IF	3080		5020	MHz
Conversion Loss	**Total Range**		7.1		dB
LO-RF Isolation			20		dB
LO-IF Isolation			25		dB
Input IP3			+27		dBm
1 dB Compression			+10		dBm

MAXIMUM RATINGS	
Operating Temperature	-40°C to +85°C
Storage Temperature	-55°C to +100°C

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

Electrical Schematics



Frequency Mixer SIM-ED12399/5B

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=4700MHz (dB)		
		@LO (dBm)		
		+17	+20	+23
4750.1	50.1	7.54	7.32	7.19
4830.1	130.1	7.38	7.15	7.04
4950.1	250.1	7.29	7.06	6.90
5070.1	370.1	7.11	6.78	6.83
5190.1	490.1	6.79	6.67	6.69
5310.1	610.1	6.63	6.54	6.67
5430.1	730.1	6.73	6.80	6.79
5550.1	850.1	6.80	6.86	6.96
5670.1	970.1	7.06	6.82	6.71
5790.1	1090.1	7.33	7.20	7.06
5910.1	1210.1	7.40	7.36	7.28
6010.1	1310.1	7.19	7.16	7.18
6130.1	1430.1	6.84	6.83	6.92
6230.1	1530.1	6.62	6.40	6.49
6350.1	1650.1	6.84	6.37	6.19
6450.1	1750.1	6.91	6.52	6.27
6570.1	1870.1	6.79	6.51	6.35
6670.1	1970.1	6.72	6.61	6.58
6790.1	2090.1	6.99	6.86	7.01
6890.1	2190.1	7.27	7.17	7.29
7010.1	2310.1	7.56	7.45	7.57
7110.1	2410.1	7.79	7.53	7.56
7230.1	2530.1	7.96	7.59	7.52
7330.1	2630.1	8.11	7.66	7.52
7450.1	2750.1	8.41	7.94	7.68
7550.1	2850.1	8.47	8.06	7.83
7670.1	2970.1	8.56	8.19	7.95
7770.1	3070.1	8.54	8.23	8.07
7890.1	3190.1	8.83	8.61	8.47
7990.1	3290.1	9.24	8.92	8.65
8110.1	3410.1	10.09	9.58	9.23
8210.1	3510.1	11.09	10.29	9.65
8330.1	3630.1	11.38	10.69	10.13
8430.1	3730.1	11.29	10.69	10.33
8550.1	3850.1	11.47	10.82	10.36
8650.1	3950.1	11.41	10.62	10.16
8770.1	4070.1	11.20	10.14	9.62
8870.1	4170.1	11.16	9.90	9.21
8990.1	4290.1	12.15	10.55	9.19
9090.1	4390.1	13.82	11.44	10.55

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+17	+20	+23
4750.1	50.1	24.65	25.52	25.23
4830.1	130.1	22.89	23.68	25.27
4950.1	250.1	22.79	24.08	23.33
5070.1	370.1	22.94	21.58	25.13
5190.1	490.1	23.92	21.03	25.71
5310.1	610.1	20.84	23.74	27.55
5430.1	730.1	34.13	27.98	26.86
5550.1	850.1	34.10	31.44	30.69
5670.1	970.1	25.59	26.42	26.41
5790.1	1090.1	33.55	27.50	27.42
5910.1	1210.1	33.80	28.19	28.49
6010.1	1310.1	25.06	28.07	27.63
6130.1	1430.1	24.20	27.21	27.30
6230.1	1530.1	24.01	27.57	28.05
6350.1	1650.1	23.64	25.00	24.55
6450.1	1750.1	22.20	24.12	24.07
6570.1	1870.1	21.56	24.51	23.39
6670.1	1970.1	26.56	23.05	24.01
6790.1	2090.1	24.69	24.39	23.37
6890.1	2190.1	24.80	23.74	22.55
7010.1	2310.1	27.22	25.80	23.52
7110.1	2410.1	28.05	25.74	24.31
7230.1	2530.1	32.29	26.01	24.18
7330.1	2630.1	22.81	32.12	24.10
7450.1	2750.1	21.69	30.91	27.14
7550.1	2850.1	29.32	32.04	24.68
7670.1	2970.1	22.60	28.35	27.16
7770.1	3070.1	23.88	26.48	26.62
7890.1	3190.1	24.78	26.85	26.86
7990.1	3290.1	24.24	24.42	25.60
8110.1	3410.1	32.46	22.88	23.15
8210.1	3510.1	27.14	28.01	23.51
8330.1	3630.1	31.81	28.45	27.55
8430.1	3730.1	27.63	29.68	26.66
8550.1	3850.1	24.93	28.46	26.44
8650.1	3950.1	26.22	24.35	29.74
8770.1	4070.1	26.42	21.09	22.99
8870.1	4170.1	21.82	25.35	23.69
8990.1	4290.1	19.07	18.79	20.73
9090.1	4390.1	17.13	18.91	19.29

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+10dBm (dB)		
		@LO (dBm)		
		+17	+20	+23
4750.1	50.1	0.03	0.03	0.03
4830.1	130.1	0.03	0.04	0.04
4950.1	250.1	0.03	0.05	0.08
5070.1	370.1	0.04	0.15	0.03
5190.1	490.1	0.14	0.11	0.07
5310.1	610.1	0.13	0.12	0.04
5430.1	730.1	0.09	-0.01	0.01
5550.1	850.1	0.14	0.05	0.02
5670.1	970.1	0.05	0.07	0.07
5790.1	1090.1	-0.03	0.00	0.03
5910.1	1210.1	0.02	-0.03	0.00
6010.1	1310.1	0.13	0.07	0.03
6130.1	1430.1	0.19	0.08	0.07
6230.1	1530.1	0.23	0.11	0.08
6350.1	1650.1	0.09	0.09	0.09
6450.1	1750.1	0.03	0.07	0.11
6570.1	1870.1	0.01	0.10	0.17
6670.1	1970.1	0.09	0.08	0.15
6790.1	2090.1	0.12	0.12	0.14
6890.1	2190.1	0.14	0.11	0.19
7010.1	2310.1	0.11	0.10	0.19
7110.1	2410.1	0.07	0.11	0.21
7230.1	2530.1	0.06	0.10	0.19
7330.1	2630.1	0.01	0.06	0.17
7450.1	2750.1	-0.04	-0.01	0.14
7550.1	2850.1	0.06	0.03	0.12
7670.1	2970.1	0.07	0.07	0.11
7770.1	3070.1	0.15	0.12	0.11
7890.1	3190.1	0.20	0.20	0.19
7990.1	3290.1	0.36	0.33	0.27
8110.1	3410.1	0.28	0.33	0.33
8210.1	3510.1	-0.04	0.12	0.22
8330.1	3630.1	-0.04	0.03	0.14
8430.1	3730.1	0.02	0.09	0.15
8550.1	3850.1	-0.04	0.06	0.19
8650.1	3950.1	-0.04	0.07	0.16
8770.1	4070.1	-0.05	0.13	0.26
8870.1	4170.1	-0.01	0.30	0.46
8990.1	4290.1	-0.12	0.12	0.63
9090.1	4390.1	-0.13	-0.02	0.22

Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=5800.1001MHz (dB) @LO (dBm) +20
5790.0	10.1	7.55
5690.0	110.1	7.49
5590.0	210.1	7.47
5490.0	310.1	7.45
5390.0	410.1	7.35
5290.0	510.1	7.36
5190.0	610.1	7.44
5090.0	710.1	7.32
4990.0	810.1	7.47
4890.0	910.1	7.15
4790.0	1010.1	7.11
4690.0	1110.1	7.19
4590.0	1210.1	7.22
4490.0	1310.1	6.88
4390.0	1410.1	6.40
4290.0	1510.1	6.25
4190.0	1610.1	6.52
4090.0	1710.1	6.68
3990.0	1810.1	7.06
3890.0	1910.1	7.43
3790.0	2010.1	7.85
3690.0	2110.1	8.21
3590.0	2210.1	8.89
3490.0	2310.1	8.76
3390.0	2410.1	8.61
3290.0	2510.1	7.95
3190.0	2610.1	6.70
3090.0	2710.1	6.14
2990.0	2810.1	6.02
2890.0	2910.1	5.75
2790.0	3010.1	5.58
2690.0	3110.1	5.68
2590.0	3210.1	5.76
2490.0	3310.1	6.02
2410.0	3390.1	6.37
2310.0	3490.1	7.33
2230.0	3570.1	8.49
2130.0	3670.1	10.40
2050.0	3750.1	11.74
1950.0	3850.1	13.41

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=5700.1001MHz (dB) @LO (dBm) +20
5690.0	10.1	7.51
5590.0	110.1	7.43
5490.0	210.1	7.45
5390.0	310.1	7.37
5290.0	410.1	7.24
5190.0	510.1	7.26
5090.0	610.1	7.23
4990.0	710.1	7.22
4890.0	810.1	7.23
4790.0	910.1	6.88
4690.0	1010.1	6.87
4590.0	1110.1	7.07
4490.0	1210.1	7.08
4390.0	1310.1	6.69
4290.0	1410.1	6.25
4190.0	1510.1	6.35
4090.0	1610.1	6.62
3990.0	1710.1	6.82
3890.0	1810.1	7.24
3790.0	1910.1	7.54
3690.0	2010.1	8.13
3590.0	2110.1	8.67
3490.0	2210.1	8.92
3390.0	2310.1	9.05
3290.0	2410.1	8.27
3190.0	2510.1	7.50
3090.0	2610.1	6.34
2990.0	2710.1	6.03
2890.0	2810.1	5.84
2790.0	2910.1	5.73
2690.0	3010.1	5.60
2590.0	3110.1	5.76
2490.0	3210.1	6.08
2390.0	3310.1	6.37
2310.0	3390.1	6.94
2210.0	3490.1	8.44
2130.0	3570.1	9.72
2030.0	3670.1	11.66
1950.0	3750.1	13.22
1850.0	3850.1	14.80

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=5900.1001MHz (dB) @LO (dBm) +20
5890.0	10.1	7.51
5790.0	110.1	7.54
5690.0	210.1	7.52
5590.0	310.1	7.51
5490.0	410.1	7.43
5390.0	510.1	7.44
5290.0	610.1	7.59
5190.0	710.1	7.45
5090.0	810.1	7.60
4990.0	910.1	7.46
4890.0	1010.1	7.28
4790.0	1110.1	7.46
4690.0	1210.1	7.29
4590.0	1310.1	7.03
4490.0	1410.1	6.58
4390.0	1510.1	6.17
4290.0	1610.1	6.42
4190.0	1710.1	6.59
4090.0	1810.1	6.90
3990.0	1910.1	7.19
3890.0	2010.1	7.53
3790.0	2110.1	8.02
3690.0	2210.1	8.41
3590.0	2310.1	8.55
3490.0	2410.1	8.78
3390.0	2510.1	8.23
3290.0	2610.1	7.23
3190.0	2710.1	6.33
3090.0	2810.1	6.09
2990.0	2910.1	5.94
2890.0	3010.1	5.60
2790.0	3110.1	5.64
2690.0	3210.1	5.62
2590.0	3310.1	5.81
2510.0	3390.1	5.93
2410.0	3490.1	6.57
2330.0	3570.1	7.55
2230.0	3670.1	9.00
2150.0	3750.1	10.27
2050.0	3850.1	12.27

Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB) @LO (dBm)			LO-IF ISOLATION (dB) @LO (dBm)		
	+17	+20	+23	+17	+20	+23
50.1	41.23	39.06	37.95	53.81	51.86	50.53
130.1	34.03	34.92	31.98	47.31	45.88	44.95
250.1	31.54	30.21	29.30	42.03	40.89	40.08
370.1	28.37	26.93	26.76	38.68	37.63	36.84
490.1	25.27	24.06	23.86	36.27	35.25	34.45
610.1	22.92	22.03	21.56	34.32	33.30	32.52
730.1	21.34	20.81	20.43	32.53	31.70	31.01
850.1	21.21	20.39	19.81	30.94	30.25	29.67
970.1	20.88	19.64	18.77	29.40	28.97	28.43
1090.1	20.31	18.70	17.66	27.79	27.68	27.33
1210.1	19.31	17.59	16.57	26.26	26.48	26.53
1310.1	19.12	17.51	16.52	25.14	25.55	25.79
1430.1	19.15	17.60	16.44	23.80	24.72	25.40
1530.1	19.02	17.49	16.29	22.74	24.03	25.01
1650.1	18.45	16.98	16.01	21.58	23.12	24.54
1750.1	17.98	16.51	15.63	20.64	22.42	24.13
1870.1	18.10	16.94	16.18	19.63	21.76	23.72
1970.1	18.51	17.09	16.40	18.83	21.27	23.42
2090.1	19.10	17.53	16.77	17.98	20.47	22.95
2190.1	20.04	18.57	17.45	17.65	20.24	22.69
2310.1	21.37	20.26	19.00	17.07	19.71	22.06
2410.1	23.07	22.18	20.91	17.05	19.61	21.68
2530.1	24.90	23.94	22.83	17.54	19.67	21.38
2630.1	25.18	24.64	23.46	18.00	19.87	21.33
2750.1	23.29	22.97	22.06	18.46	19.96	20.91
2850.1	21.66	21.63	20.83	18.78	20.11	20.96
2970.1	21.10	20.98	20.42	19.58	20.80	21.31
3070.1	20.71	20.99	20.42	20.16	21.29	21.61
3190.1	19.35	19.79	19.61	21.07	21.79	21.87
3290.1	18.62	19.32	19.36	21.96	22.55	22.47
3410.1	17.99	18.82	19.28	23.41	24.02	23.79
3510.1	18.28	19.06	19.60	25.09	25.30	24.60
3630.1	18.43	19.15	19.85	27.49	27.09	26.10
3730.1	17.69	18.57	19.58	28.88	28.03	27.80
3850.1	17.27	18.06	18.67	31.20	29.41	28.53
3950.1	16.75	17.62	18.20	32.25	30.47	31.01
4070.1	16.20	16.94	17.45	31.20	30.98	32.85
4170.1	16.63	16.78	17.23	28.87	29.38	30.70
4290.1	19.04	17.56	17.45	29.12	29.89	32.22
4390.1	23.08	19.91	18.87	29.28	29.82	29.92

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB) @LO (dBm)		
		+17	+20	+23
4750.1	50.1	30.27	29.91	29.69
4830.1	130.1	30.08	29.63	29.36
4950.1	250.1	29.25	28.50	27.66
5070.1	370.1	29.09	28.27	27.63
5190.1	490.1	29.03	28.15	27.62
5310.1	610.1	28.94	28.05	27.50
5430.1	730.1	28.76	27.79	26.95
5550.1	850.1	28.77	27.89	27.53
5670.1	970.1	29.71	29.19	28.98
5790.1	1090.1	30.81	30.10	30.21
5910.1	1210.1	30.84	30.58	30.64
6010.1	1310.1	29.76	29.64	29.84
6130.1	1430.1	28.79	28.95	29.16
6230.1	1530.1	27.45	27.37	27.66
6350.1	1650.1	26.67	26.87	27.60
6450.1	1750.1	26.20	25.81	26.64
6570.1	1870.1	26.34	25.13	25.31
6670.1	1970.1	26.07	25.14	24.29
6790.1	2090.1	26.57	27.64	26.05
6890.1	2190.1	27.11	27.96	28.16
7010.1	2310.1	27.51	28.27	27.96
7110.1	2410.1	26.15	26.35	26.50
7230.1	2530.1	25.15	25.77	25.68
7330.1	2630.1	25.62	26.12	25.58
7450.1	2750.1	26.17	26.26	25.92
7550.1	2850.1	25.65	25.62	25.02
7670.1	2970.1	25.95	26.13	25.51
7770.1	3070.1	26.30	26.46	25.99
7890.1	3190.1	25.56	25.34	24.68
7990.1	3290.1	25.39	25.07	24.20
8110.1	3410.1	25.45	25.03	24.86
8210.1	3510.1	22.70	22.68	22.80
8330.1	3630.1	20.92	20.73	20.62
8430.1	3730.1	19.67	19.63	19.63
8550.1	3850.1	18.10	18.19	18.27
8650.1	3950.1	16.51	17.06	17.74
8770.1	4070.1	15.39	16.11	16.94
8870.1	4170.1	14.25	15.08	15.83
8990.1	4290.1	14.02	14.20	14.85
9090.1	4390.1	14.68	14.37	14.29

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	RF VSWR (:1) @LO (dBm)		
		+17	+20	+23
4750.1	50.1	2.87	2.72	2.61
4830.1	130.1	3.30	3.09	2.94
4950.1	250.1	2.93	2.73	2.59
5070.1	370.1	2.58	2.39	2.21
5190.1	490.1	2.42	2.15	1.97
5310.1	610.1	2.28	1.97	1.85
5430.1	730.1	2.16	1.91	1.74
5550.1	850.1	2.00	1.83	1.72
5670.1	970.1	1.90	1.72	1.61
5790.1	1090.1	2.04	1.83	1.71
5910.1	1210.1	2.24	2.03	1.90
6010.1	1310.1	2.26	2.08	1.94
6130.1	1430.1	2.08	1.93	1.83
6230.1	1530.1	1.91	1.77	1.70
6350.1	1650.1	1.86	1.66	1.57
6450.1	1750.1	1.92	1.73	1.63
6570.1	1870.1	1.85	1.71	1.64
6670.1	1970.1	1.84	1.73	1.71
6790.1	2090.1	1.81	1.72	1.77
6890.1	2190.1	1.92	1.81	1.84
7010.1	2310.1	2.24	2.17	2.25
7110.1	2410.1	2.18	2.08	2.14
7230.1	2530.1	2.11	2.02	2.07
7330.1	2630.1	2.46	2.31	2.32
7450.1	2750.1	2.60	2.44	2.40
7550.1	2850.1	2.73	2.57	2.49
7670.1	2970.1	2.50	2.34	2.24
7770.1	3070.1	2.20	2.04	1.95
7890.1	3190.1	1.83	1.69	1.62
7990.1	3290.1	1.82	1.70	1.64
8110.1	3410.1	2.27	2.17	2.12
8210.1	3510.1	2.94	2.84	2.76
8330.1	3630.1	3.82	3.65	3.45
8430.1	3730.1	4.29	4.09	3.85
8550.1	3850.1	4.37	4.20	3.98
8650.1	3950.1	4.40	4.26	4.14
8770.1	4070.1	3.95	3.79	3.69
8870.1	4170.1	3.60	3.40	3.28
8990.1	4290.1	3.42	3.17	2.97
9090.1	4390.1	3.62	3.21	3.07

LO (MHz)	LO VSWR (:1) @LO (dBm)		
	+17	+20	+23
50.1	1.82	4.08	13.09
130.1	1.57	2.52	3.92
250.1	1.58	2.28	3.24
370.1	1.60	2.16	2.97
490.1	1.59	2.04	2.81
610.1	1.55	1.96	2.71
730.1	1.51	1.85	2.53
850.1	1.62	1.77	2.35
970.1	1.79	1.72	2.18
1090.1	2.01	1.67	1.97
1210.1	2.20	1.64	1.80
1310.1	2.27	1.56	1.63
1430.1	2.43	1.49	1.42
1530.1	2.54	1.46	1.27
1650.1	2.61	1.44	1.10
1750.1	2.62	1.46	1.06
1870.1	2.55	1.49	1.24
1970.1	2.50	1.54	1.39
2090.1	2.51	1.67	1.65
2190.1	2.54	1.83	1.90
2310.1	2.73	2.10	2.23
2410.1	2.79	2.28	2.49
2530.1	2.77	2.44	2.72
2630.1	2.72	2.60	2.95
2750.1	2.78	2.89	3.37
2850.1	2.78	3.05	3.62
2970.1	2.79	3.30	4.08
3070.1	3.01	3.59	4.39
3190.1	3.07	3.76	4.57
3290.1	3.18	3.99	4.87
3410.1	3.28	4.04	4.60
3510.1	3.47	4.27	4.80
3630.1	3.79	4.59	5.03
3730.1	4.06	4.84	5.23
3850.1	4.68	5.58	6.26
3950.1	5.07	5.95	6.58
4070.1	5.59	6.39	7.08
4170.1	5.93	6.51	7.00
4290.1	6.37	6.35	6.30
4390.1	6.89	6.53	6.39

IF (OUT) (MHz)	IF VSWR @LO=1330MHz (:1) @LO (dBm)		
	+17	+20	+23
2600.1	3.78	3.70	3.58
2720.1	3.17	3.05	2.93
2840.1	2.78	2.66	2.54
2960.1	2.53	2.41	2.31
3080.1	2.28	2.17	2.09
3200.1	1.98	1.90	1.85
3320.1	1.76	1.71	1.69
3440.1	1.64	1.61	1.62
3560.1	1.56	1.55	1.59
3680.1	1.48	1.49	1.56
3800.1	1.39	1.43	1.53
3920.1	1.39	1.49	1.63
4040.1	1.42	1.58	1.74
4160.1	1.46	1.63	1.78
4280.1	1.43	1.61	1.75
4400.1	1.57	1.77	1.91
4520.1	1.62	1.82	1.95
4640.1	1.71	1.89	2.02
4760.1	1.91	2.10	2.22
4900.1	2.04	2.17	2.27
5020.1	2.33	2.43	2.51
5160.1	2.78	2.84	2.91
5280.1	2.89	2.88	2.92
5420.1	2.99	2.94	2.95
5540.1	3.20	3.09	3.06
5680.1	3.31	3.20	3.16
5800.1	3.38	3.25	3.19
5940.1	3.02	2.90	2.84
6060.1	2.94	2.80	2.73
6200.1	2.99	2.82	2.71
6320.1	2.65	2.50	2.39
6460.1	2.31	2.16	2.04
6580.1	2.00	1.85	1.72
6720.1	1.57	1.44	1.34
6840.1	1.35	1.27	1.22
6980.1	1.35	1.39	1.44
7100.1	1.66	1.74	1.80
7240.1	2.19	2.27	2.34
7360.1	2.60	2.66	2.72
7500.1	3.29	3.27	3.26

Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	5.35	2.25	-8.99	3.64	-18.62	-2.25	-9.64	-14.16	-22.64	-13.14
1	---	-21.91	---	-32.93	-13.51	-39.10	-37.93	-52.02	-26.53	-54.09	-28.56	-44.70
2	-93.30	-52.60	-60.08	-56.41	-50.76	-64.57	-61.83	-54.02	-64.46	-46.36	-61.47	-63.79
3	-107.38	-86.94	-93.77	-92.23	-89.52	-75.70	-81.39	-84.99	-92.60	-78.31	-76.44	-83.19
4	-103.53	-96.31	-97.46	-98.37	-97.78	-98.90	-99.51	-99.04	-100.91	-101.76	-103.38	-103.03
5	-103.15	-74.54	-74.81	-96.78	-95.36	-93.73	-98.03	-99.65	-95.74	-99.00	-100.95	-98.85
6	-103.45	-74.83	-74.64	-74.69	-75.17	-75.42	-75.56	-75.78	-75.88	-96.87	-96.64	-95.65
7	-101.74	-74.32	-74.47	-74.61	-75.13	-75.61	-75.08	-75.72	-75.75	-76.34	-75.71	-76.36
8	-101.59	-74.41	-75.13	-75.08	-75.32	-75.27	-75.22	-76.03	-76.06	-76.14	-75.81	-76.23
9	-101.01	-74.16	-74.92	-75.00	-75.19	-75.39	-75.30	-75.95	-75.61	-75.98	-76.14	-76.37
10	-103.37	-74.70	-75.12	-75.18	-75.40	-75.31	-75.54	-76.34	-76.39	-75.77	-76.42	-75.67
	RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Test conditions:
RF IN: 5780 MHz; -5 dBm.
LO IN: 1080 MHz; +20.00 dBm
IF OUT: 47000 MHz; -12.24 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	---	---	-4.01	-6.66	-18.02	-6.11	-29.63	-12.71	-20.69	-24.78	-32.95	-24.50
1	---	-21.38	---	-32.56	-12.18	-39.18	-37.72	-51.84	-27.04	-47.40	-30.86	-48.40
2	-83.63	-42.26	-50.33	-46.49	-40.78	-56.99	-52.30	-45.25	-53.23	-32.16	-52.91	-54.74
3	-116.90	-66.37	-73.75	-74.42	-69.70	-55.27	-60.36	-66.14	-70.04	-60.12	-58.90	-63.31
4	-113.47	-96.77	-87.45	-94.59	-91.33	-104.18	-90.22	-89.24	-89.67	-83.36	-78.04	-76.91
5	-112.55	-89.25	-89.07	-105.30	-102.14	-103.87	-106.84	-107.13	-105.96	-109.00	-108.40	-108.76
6	-113.76	-88.06	-88.21	-88.84	-88.57	-89.12	-88.99	-88.67	-88.47	-104.79	-102.46	-107.83
7	-112.43	-89.15	-87.70	-88.67	-88.59	-88.67	-89.12	-89.29	-88.66	-88.91	-88.50	-88.84
8	-112.83	-89.33	-88.94	-88.19	-88.33	-88.62	-88.66	-88.95	-88.66	-88.26	-88.19	-89.15
9	-114.73	-89.04	-88.66	-88.26	-88.30	-88.42	-88.63	-89.05	-88.26	-88.76	-88.17	-88.73
10	-114.05	-88.35	-88.19	-88.50	-88.32	-89.49	-88.62	-88.70	-89.82	-88.79	-89.30	-87.77
	RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

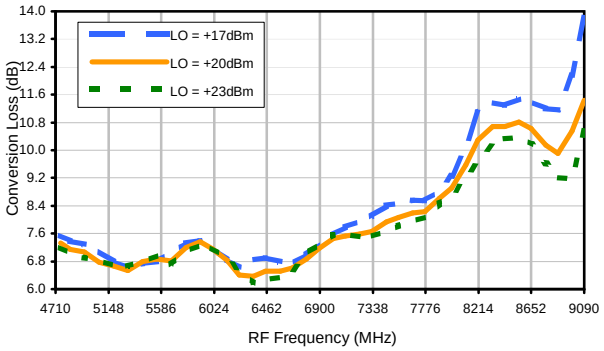
LO HARMONICS ORDER

Test conditions:
RF IN: 5780 MHz; +5 dBm.
LO IN: 1080 MHz; +20.00 dBm
IF OUT: 47000 MHz; -2.53 dBm

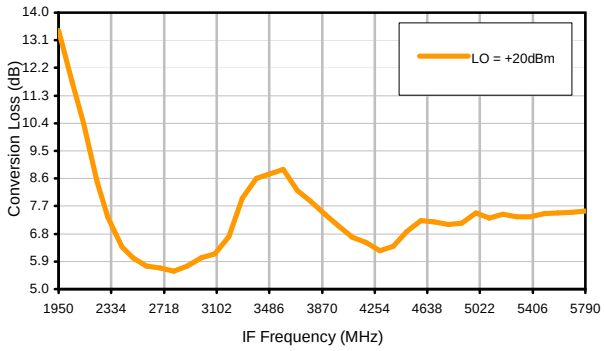
Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

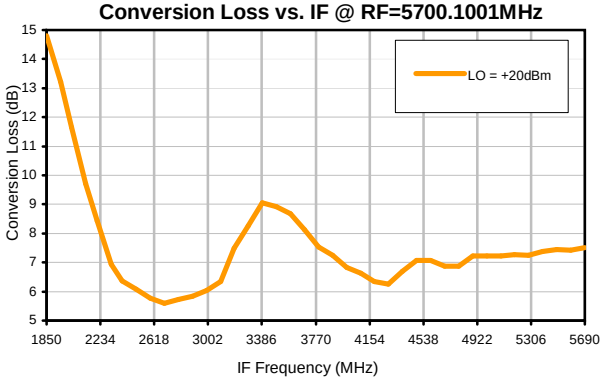
Conversion Loss @ IF=4700MHz



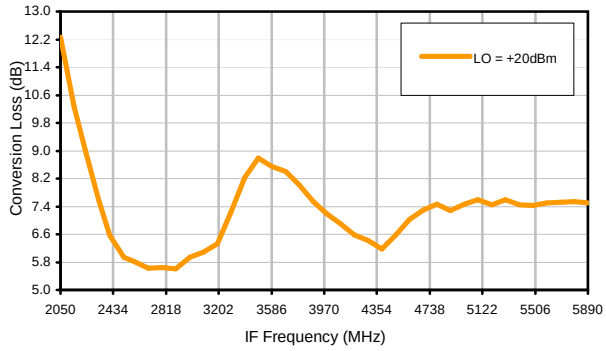
Conversion Loss vs. IF @ RF=5800.1001MHz



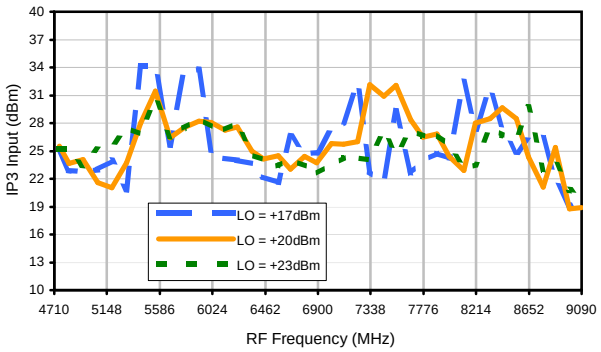
Conversion Loss vs. IF @ RF=5700.1001MHz



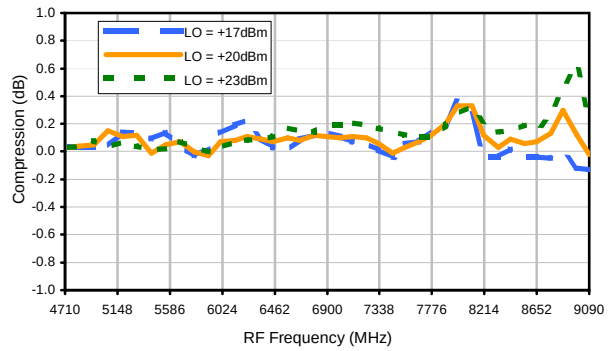
Conversion Loss vs. IF @ RF=5900.1001MHz



IP3 Input

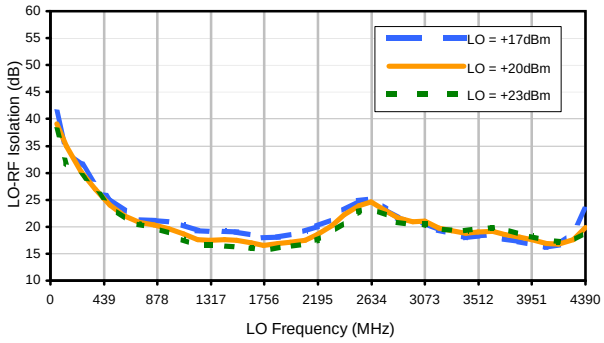


Compression @ RF IN=+10dBm

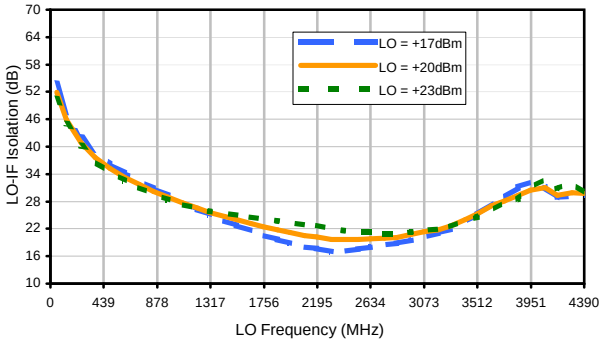


Typical Performance Curves

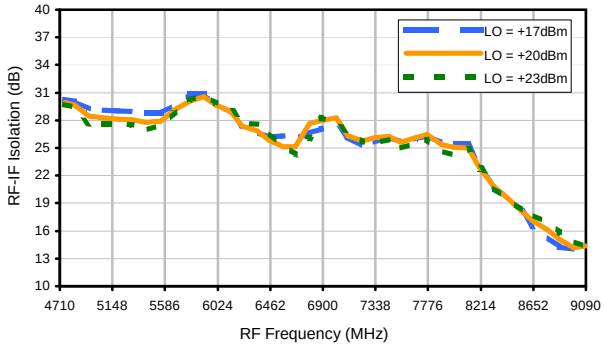
LO-RF Isolation



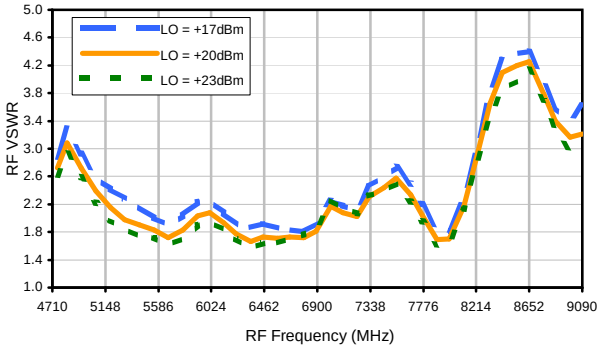
LO-IF Isolation



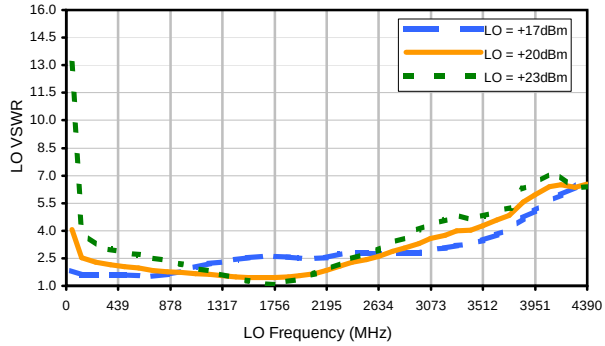
RF-IF Isolation



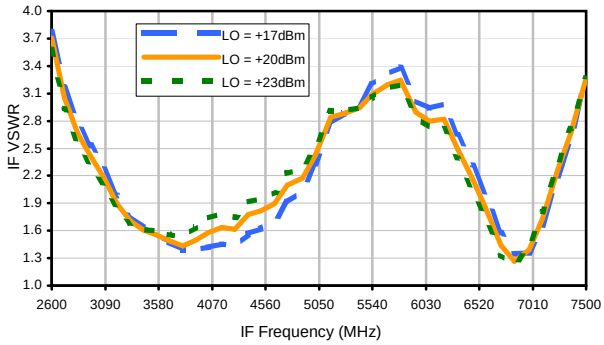
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	---	---	5.35	2.25	-8.99	3.64	-18.62	-2.25	-9.64	-14.16	-22.64	-13.14
1	---	-21.91	---	-32.93	-13.51	-39.10	-37.93	-52.02	-26.53	-54.09	-28.56	-44.70
2	-93.30	-52.60	-60.08	-56.41	-50.76	-64.57	-61.83	-54.02	-64.46	-46.36	-61.47	-63.79
3	-107.38	-86.94	-93.77	-92.23	-89.52	-75.70	-81.39	-84.99	-92.60	-78.31	-76.44	-83.19
4	-103.53	-96.31	-97.46	-98.37	-97.78	-98.90	-99.51	-99.04	-100.91	-101.76	-103.38	-103.03
5	-103.15	-74.54	-74.81	-96.78	-95.36	-93.73	-98.03	-99.65	-95.74	-99.00	-100.95	-98.85
6	-103.45	-74.83	-74.64	-74.69	-75.17	-75.42	-75.56	-75.78	-75.88	-96.87	-96.64	-95.65
7	-101.74	-74.32	-74.47	-74.61	-75.13	-75.61	-75.08	-75.72	-75.75	-76.34	-75.71	-76.36
8	-101.59	-74.41	-75.13	-75.08	-75.32	-75.27	-75.22	-76.03	-76.06	-76.14	-75.81	-76.23
9	-101.01	-74.16	-74.92	-75.00	-75.19	-75.39	-75.30	-75.95	-75.61	-75.98	-76.14	-76.37
10	-103.37	-74.70	-75.12	-75.18	-75.40	-75.31	-75.54	-76.34	-76.39	-75.77	-76.42	-75.67
	RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

Test conditions: **RF IN: 5780 MHz; -5 dBm.**
LO IN: 1080 MHz; +20.00 dBm
IF OUT: 47000 MHz; -12.24 dBm

RF HARMONICS ORDER	(-dBm)	(-dBc)										
0	---	---	-4.01	-6.66	-18.02	-6.11	-29.63	-12.71	-20.69	-24.78	-32.95	-24.50
1	---	-21.38	---	-32.56	-12.18	-39.18	-37.72	-51.84	-27.04	-47.40	-30.86	-48.40
2	-83.63	-42.26	-50.33	-46.49	-40.78	-56.99	-52.30	-45.25	-53.23	-32.16	-52.91	-54.74
3	-116.90	-66.37	-73.75	-74.42	-69.70	-55.27	-60.36	-66.14	-70.04	-60.12	-58.90	-63.31
4	-113.47	-96.77	-87.45	-94.59	-91.33	-104.18	-90.22	-89.24	-89.67	-83.36	-78.04	-76.91
5	-112.55	-89.25	-89.07	-105.30	-102.14	-103.87	-106.84	-107.13	-105.96	-109.00	-108.40	-108.76
6	-113.76	-88.06	-88.21	-88.84	-88.57	-89.12	-88.99	-88.67	-88.47	-104.79	-102.46	-107.83
7	-112.43	-89.15	-87.70	-88.67	-88.59	-88.67	-89.12	-89.29	-88.66	-88.91	-88.50	-88.84
8	-112.83	-89.33	-88.94	-88.19	-88.33	-88.62	-88.66	-88.95	-88.66	-88.26	-88.19	-89.15
9	-114.73	-89.04	-88.66	-88.26	-88.30	-88.42	-88.63	-89.05	-88.26	-88.76	-88.17	-88.73
10	-114.05	-88.35	-88.19	-88.50	-88.32	-89.49	-88.62	-88.70	-89.82	-88.79	-89.30	-87.77
	RF CAL	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

LO HARMONICS ORDER

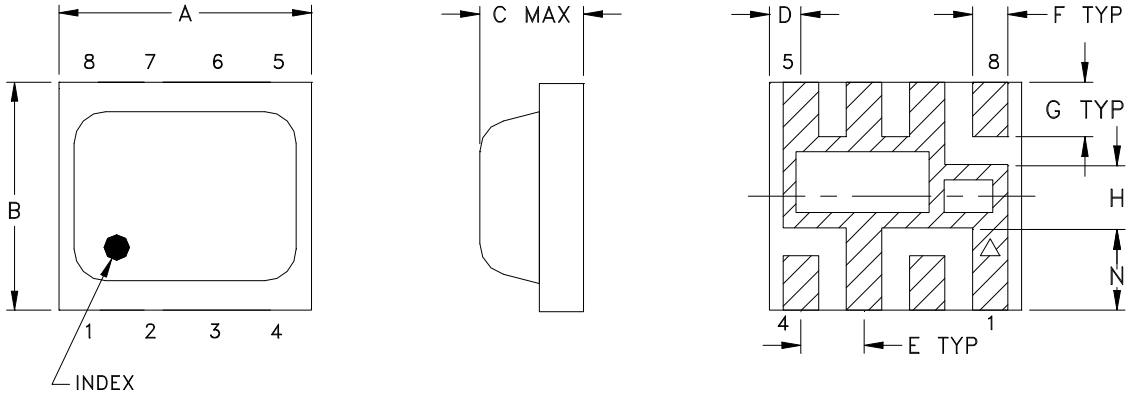
Test conditions: **RF IN: 5780 MHz; +5 dBm.**
LO IN: 1080 MHz; +20.00 dBm
IF OUT: 47000 MHz; -2.53 dBm

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.

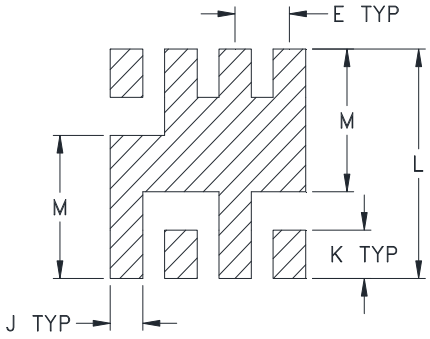
Case Style HV

Outline Dimensions

HV1195



PCB Metal Land Pattern



Suggested Layout,
Tolerance to be within ±.002

CASE#	A	B	C	D	E	F	G	H	J	K	L	M	N
HV1195	0.200 (5.08)	0.180 (4.57)	0.087 (2.21)	0.025 (0.64)	0.050 (1.27)	0.028 (0.71)	0.043 (1.09)	0.050 (1.27)	0.030 (0.76)	0.043 (1.09)	0.204 (5.18)	0.127 (3.23)	0.065 (1.65)

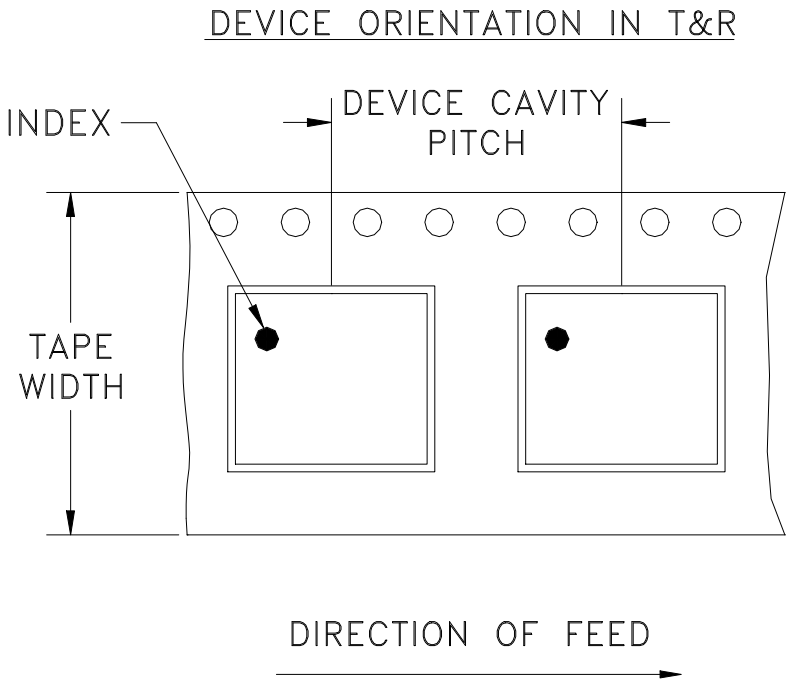
CASE#	WT, GRAM
HV1195	.08

Dimensions are in inches (mm). Tolerances: 2 Pl. ± .01; 3 Pl. ± .005

Notes:

1. Case material: Plastic encapsulation on Ceramic base.
2. Termination finish: Palladium Silver.

Tape & Reel Packaging TR-F82



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
12	8	7	500

Mini-Circuits carrier tape materials provide protection from ESD (Electro-Static Discharge) during handling and transportation. Tapes are static dissipative and comply with industry standards EIA-481/EIA-541.

Go to: www.minicircuits.com/pages/pdfs/tape.pdf

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
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

Mini-Circuits

Environmental Specifications ENV10T1

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	-40° to 85° C Case Temperature	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Autoclave	15 psig, 100% RH, 121°C, 96 hours	JESD22-A102-C, Condition C
Thermal Shock	-55° to 100°C, 100 cycles	MIL-STD-202, Method 107, Condition A-3, except +100°C
Solder Reflow Heat	Sn-Pb Eutectic Process: 225°C peak Pb-Free Process: 250°C peak	J-STD-020, Table 4-1, 4-2 and 5-2; Figure 5-1
Solderability	10X Magnification	J-STD-002, Para 4.2.5, Test S, 95% Coverage
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
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