

Non-Catalog Model

Frequency Mixer

SYM-10HJ

Level 17 (LO Power +17 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 : CG581

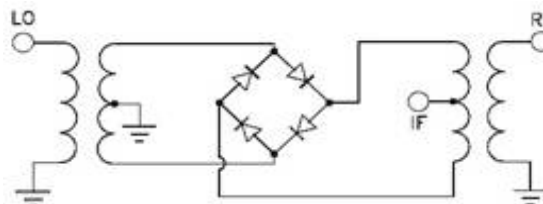
ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	400		1000	MHz
	RF (fL to fU)	400		1000	MHz
	IF	0		400	MHz
Conversion Loss			6.6	8.0	dB
LO-RF Isolation		33	46		dB
LO-IF Isolation		18	32		dB
IP3 Input			+25		dBm
1 dB Comp. Input Power			+10		dBm

Note : units are non-hermetic and aqueous washable

MAXIMUM RATINGS	
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Power	200mW
IF Current	40mA

PIN CONNECTIONS	
LO	11
RF	5
IF	2
GROUND	1, 3, 4, 6, 7, 8, 9, 10, 12

Electrical Schematics



Frequency Mixer

SYM-10HJ

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=+10dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
+14	+17	+20	+14	+17	+20	+14	+17	+20						
170.1	200.1	24.70	10.57	7.40	170.1	200.1	2.19	16.03	25.74	170.1	200.1	-12.13	-1.00	-0.03
210.1	240.1	14.38	7.87	6.88	210.1	240.1	9.83	21.70	30.63	210.1	240.1	-3.10	-0.16	0.00
250.1	280.1	9.96	7.17	6.71	250.1	280.1	15.81	27.34	29.57	250.1	280.1	-0.96	-0.03	-0.02
290.1	320.1	7.84	6.80	6.56	290.1	320.1	21.52	26.57	29.10	290.1	320.1	-0.02	-0.02	-0.02
330.1	360.1	7.39	6.75	6.53	330.1	360.1	24.54	26.79	31.79	330.1	360.1	0.04	-0.03	-0.03
370.1	400.1	7.31	6.68	6.46	370.1	400.1	24.73	26.58	30.74	370.1	400.1	0.07	-0.04	-0.03
410.1	440.1	7.11	6.64	6.44	410.1	440.1	25.46	26.41	27.55	410.1	440.1	0.04	-0.02	-0.04
450.1	480.1	7.12	6.63	6.37	450.1	480.1	22.59	25.01	32.42	450.1	480.1	0.00	-0.04	-0.03
490.1	520.1	7.00	6.59	6.33	490.1	520.1	24.11	24.13	27.28	490.1	520.1	-0.04	-0.06	-0.03
530.1	560.1	6.95	6.56	6.33	530.1	560.1	26.87	26.66	29.80	530.1	560.1	-0.01	-0.07	-0.06
570.1	600.1	6.90	6.51	6.29	570.1	600.1	24.63	25.97	27.59	570.1	600.1	-0.04	-0.04	-0.05
610.1	640.1	6.93	6.49	6.24	610.1	640.1	22.56	23.88	26.52	610.1	640.1	-0.08	-0.05	-0.02
650.1	680.1	6.94	6.56	6.24	650.1	680.1	24.39	25.47	27.35	650.1	680.1	-0.07	-0.05	-0.01
690.1	720.1	6.95	6.62	6.31	690.1	720.1	25.45	26.50	31.86	690.1	720.1	-0.04	-0.08	-0.04
730.1	760.1	7.00	6.69	6.45	730.1	760.1	23.17	23.82	25.24	730.1	760.1	-0.04	-0.08	-0.07
770.1	800.1	7.03	6.72	6.49	770.1	800.1	23.29	22.64	24.68	770.1	800.1	-0.02	-0.08	-0.08
810.1	840.1	7.18	6.80	6.55	810.1	840.1	21.83	23.26	24.03	810.1	840.1	-0.04	-0.10	-0.08
850.1	880.1	7.26	6.78	6.48	850.1	880.1	22.32	25.10	26.47	850.1	880.1	0.00	-0.08	-0.06
890.1	920.1	7.52	6.78	6.41	890.1	920.1	26.28	33.64	28.05	890.1	920.1	-0.02	-0.03	-0.03
930.1	960.1	7.92	6.79	6.35	930.1	960.1	18.91	32.35	32.25	930.1	960.1	-0.23	0.05	0.00
970.1	1000.1	8.49	6.97	6.30	970.1	1000.1	12.96	29.00	26.73	970.1	1000.1	-0.68	-0.04	0.02
1010.1	1040.1	8.68	7.41	6.41	1010.1	1040.1	12.92	17.02	27.36	1010.1	1040.1	-0.84	-0.33	0.02
1050.1	1080.1	8.70	7.59	6.55	1050.1	1080.1	13.73	15.17	25.58	1050.1	1080.1	-0.93	-0.50	-0.06
1090.1	1120.1	8.79	7.69	6.71	1090.1	1120.1	14.58	16.54	21.49	1090.1	1120.1	-1.01	-0.58	-0.17
1130.1	1160.1	8.73	7.73	6.80	1130.1	1160.1	15.62	17.09	21.85	1130.1	1160.1	-0.96	-0.59	-0.20
1170.1	1200.1	8.80	7.95	7.12	1170.1	1200.1	16.32	17.44	20.70	1170.1	1200.1	-0.91	-0.69	-0.34
1210.1	1240.1	8.78	8.09	7.35	1210.1	1240.1	17.55	17.85	20.05	1210.1	1240.1	-0.81	-0.67	-0.39
1250.1	1280.1	8.75	8.14	7.48	1250.1	1280.1	17.05	17.13	18.40	1250.1	1280.1	-0.62	-0.60	-0.36
1290.1	1320.1	8.86	8.39	7.83	1290.1	1320.1	18.19	17.38	18.14	1290.1	1320.1	-0.58	-0.60	-0.45
1330.1	1360.1	8.78	8.38	7.89	1330.1	1360.1	17.51	17.31	17.78	1330.1	1360.1	-0.39	-0.44	-0.32
1370.1	1400.1	8.80	8.44	7.99	1370.1	1400.1	18.08	17.06	18.21	1370.1	1400.1	-0.25	-0.33	-0.24
1410.1	1440.1	8.83	8.46	8.05	1410.1	1440.1	17.54	17.34	18.57	1410.1	1440.1	-0.11	-0.18	-0.11
1450.1	1480.1	8.87	8.50	8.10	1450.1	1480.1	18.56	18.75	19.23	1450.1	1480.1	-0.02	-0.07	-0.03
1490.1	1520.1	9.02	8.60	8.25	1490.1	1520.1	19.43	20.06	20.49	1490.1	1520.1	0.06	0.02	0.03
1530.1	1560.1	9.03	8.61	8.38	1530.1	1560.1	21.29	23.85	22.49	1530.1	1560.1	0.18	0.12	0.07
1570.1	1600.1	9.31	8.92	8.73	1570.1	1600.1	24.40	26.90	26.46	1570.1	1600.1	0.24	0.15	0.07
1610.1	1640.1	9.46	9.15	9.03	1610.1	1640.1	21.40	25.36	28.77	1610.1	1640.1	0.29	0.11	0.05
1650.1	1680.1	9.60	9.38	9.30	1650.1	1680.1	20.87	23.65	32.73	1650.1	1680.1	0.28	0.11	0.04
1690.1	1720.1	9.87	9.67	9.62	1690.1	1720.1	20.24	24.08	28.89	1690.1	1720.1	0.25	0.08	0.03
1750.1	1780.1	10.57	10.18	10.16	1750.1	1780.1	21.00	22.28	26.08	1750.1	1780.1	0.19	0.08	0.04

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=700.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=400.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=1000.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+17			+17			+17
300.0	400.1	5.79	10.0	410.1	6.48	400.0	600.1	6.28
284.7	415.4	5.89	20.0	420.1	6.58	390.0	610.1	6.29
269.5	430.6	5.96	30.0	430.1	6.61	380.0	620.1	6.34
254.2	445.9	6.05	40.0	440.1	6.60	370.0	630.1	6.33
238.9	461.2	6.04	50.0	450.1	6.60	360.0	640.1	6.32
223.7	476.4	6.15	60.0	460.1	6.62	350.0	650.1	6.36
208.4	491.7	6.12	70.0	470.1	6.66	340.0	660.1	6.45
193.2	506.9	6.13	80.0	480.1	6.76	330.0	670.1	6.47
177.9	522.2	6.14	90.0	490.1	6.78	320.0	680.1	6.48
162.6	537.5	6.19	100.0	500.1	6.77	310.0	690.1	6.51
147.4	552.7	6.16	110.0	510.1	6.77	300.0	700.1	6.51
132.1	568.0	6.19	120.0	520.1	6.85	290.0	710.1	6.56
116.8	583.3	6.23	130.0	530.1	6.93	280.0	720.1	6.64
101.6	598.5	6.21	140.0	540.1	6.97	270.0	730.1	6.68
86.3	613.8	6.27	150.0	550.1	6.91	260.0	740.1	6.67
71.1	629.0	6.25	160.0	560.1	6.98	250.0	750.1	6.71
55.8	644.3	6.31	170.0	570.1	7.06	240.0	760.1	6.80
40.5	659.6	6.38	180.0	580.1	7.03	230.0	770.1	6.80
25.3	674.8	6.50	190.0	590.1	7.05	220.0	780.1	6.81
10.0	690.1	6.40	200.0	600.1	7.07	210.0	790.1	6.83
10.0	710.1	6.55	210.0	610.1	7.02	200.0	800.1	6.87
25.3	725.4	6.63	220.0	620.1	7.02	190.0	810.1	6.87
40.5	740.6	6.59	230.0	630.1	7.08	180.0	820.1	6.89
55.8	755.9	6.68	240.0	640.1	7.06	170.0	830.1	6.90
71.1	771.2	6.70	250.0	650.1	7.05	160.0	840.1	6.88
86.3	786.4	6.73	260.0	660.1	7.19	150.0	850.1	6.91
101.6	801.7	6.69	270.0	670.1	7.28	140.0	860.1	6.96
116.8	816.9	6.78	280.0	680.1	7.25	130.0	870.1	6.93
132.1	832.2	6.76	290.0	690.1	7.17	120.0	880.1	6.81
147.4	847.5	6.85	300.0	700.1	7.20	110.0	890.1	6.76
162.6	862.7	6.83	310.0	710.1	7.32	100.0	900.1	6.79
177.9	878.0	6.80	320.0	720.1	7.30	90.0	910.1	6.73
193.2	893.3	6.88	330.0	730.1	7.33	80.0	920.1	6.66
208.4	908.5	6.88	340.0	740.1	7.31	70.0	930.1	6.59
223.7	923.8	6.91	350.0	750.1	7.28	60.0	940.1	6.63
238.9	939.0	6.92	360.0	760.1	7.36	50.0	950.1	6.64
254.2	954.3	7.14	370.0	770.1	7.47	40.0	960.1	6.66
269.5	969.6	7.15	380.0	780.1	7.43	30.0	970.1	6.67
284.7	984.8	7.29	390.0	790.1	7.34	20.0	980.1	6.61
300.0	1000.1	7.40	400.0	800.1	7.40	10.0	990.1	6.61

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+14	+17	+20	+14	+17	+20
170.1	57.72	56.35	57.89	51.37	47.50	41.20
210.1	57.05	55.85	61.07	47.08	41.55	38.80
250.1	54.72	56.52	63.09	42.93	38.87	37.72
290.1	52.67	54.35	61.02	39.22	37.49	37.57
330.1	50.63	53.27	59.69	37.09	37.26	37.53
370.1	48.97	52.44	58.27	35.92	37.07	37.17
410.1	47.40	50.91	55.59	36.27	37.49	37.30
450.1	45.72	48.92	53.26	35.69	37.03	36.71
490.1	43.73	46.55	50.46	35.53	36.75	36.56
530.1	42.38	45.72	50.21	35.91	37.22	36.66
570.1	41.18	44.21	47.93	35.12	36.53	35.87
610.1	41.27	43.95	47.05	35.39	36.25	35.39
650.1	41.37	43.53	45.95	34.84	35.11	34.55
690.1	41.22	43.30	45.06	34.31	33.73	33.05
730.1	40.76	42.82	44.16	34.35	33.35	32.02
770.1	39.27	41.45	43.10	33.94	32.77	31.42
810.1	38.16	40.51	42.48	33.58	32.09	30.58
850.1	37.32	39.90	41.95	33.57	31.63	29.96
890.1	36.17	38.53	40.58	33.21	30.87	29.09
930.1	35.26	37.69	39.68	32.50	30.32	28.57
970.1	34.49	36.62	38.38	30.58	29.42	28.04
1010.1	33.67	35.34	36.83	28.69	28.28	27.30
1050.1	32.82	34.30	35.54	27.74	27.06	26.63
1090.1	31.90	33.25	34.22	26.78	25.70	25.55
1130.1	31.25	32.78	33.76	25.92	24.94	24.57
1170.1	30.57	32.10	33.03	25.80	24.68	23.84
1210.1	30.15	31.64	32.55	25.03	24.00	23.20
1250.1	29.92	31.21	31.72	24.42	23.66	22.91
1290.1	28.80	30.28	30.86	23.72	23.20	22.59
1330.1	28.27	29.67	30.02	22.88	22.57	21.96
1370.1	28.00	29.19	29.27	22.46	22.23	21.72
1410.1	27.64	28.78	28.79	21.51	21.63	21.25
1450.1	27.46	28.39	28.18	20.95	21.29	20.97
1490.1	27.16	27.92	27.44	20.61	21.10	20.48
1530.1	26.15	26.81	26.48	19.88	20.69	20.09
1570.1	25.62	26.21	25.95	19.06	20.24	19.88
1610.1	25.07	25.55	25.22	18.45	19.85	19.60
1650.1	24.42	24.77	24.28	17.53	19.16	18.99
1690.1	23.96	24.26	23.90	16.90	18.47	18.62
1750.1	22.67	23.21	22.99	15.71	17.67	18.17

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+14	+17	+20
170.1	200.1	26.27	28.30	30.05
210.1	240.1	25.75	27.75	28.54
250.1	280.1	25.49	26.76	27.33
290.1	320.1	25.55	26.25	26.70
330.1	360.1	25.21	25.82	26.17
370.1	400.1	24.44	25.42	26.14
410.1	440.1	24.42	25.64	26.47
450.1	480.1	23.87	25.05	25.85
490.1	520.1	23.83	24.41	24.87
530.1	560.1	23.74	24.23	24.61
570.1	600.1	23.90	24.65	25.24
610.1	640.1	24.06	25.29	26.35
650.1	680.1	23.80	24.84	25.78
690.1	720.1	23.20	23.67	23.82
730.1	760.1	22.00	22.13	22.08
770.1	800.1	20.75	20.75	20.63
810.1	840.1	19.70	19.63	19.45
850.1	880.1	18.65	18.48	18.26
890.1	920.1	17.91	17.54	17.29
930.1	960.1	17.40	16.93	16.72
970.1	1000.1	17.28	16.87	16.61
1010.1	1040.1	17.18	16.91	16.69
1050.1	1080.1	17.16	16.95	16.80
1090.1	1120.1	17.22	16.94	16.86
1130.1	1160.1	17.24	16.96	16.82
1170.1	1200.1	17.48	17.33	17.14
1210.1	1240.1	17.63	17.65	17.54
1250.1	1280.1	17.60	17.76	17.79
1290.1	1320.1	17.64	17.86	17.89
1330.1	1360.1	17.51	17.71	17.67
1370.1	1400.1	17.18	17.14	16.86
1410.1	1440.1	16.53	16.13	15.56
1450.1	1480.1	15.63	14.85	14.11
1490.1	1520.1	14.73	13.68	12.72
1530.1	1560.1	13.47	12.20	11.23
1570.1	1600.1	12.23	11.01	10.07
1610.1	1640.1	10.91	9.69	8.92
1650.1	1680.1	9.78	8.66	8.04
1690.1	1720.1	9.01	7.92	7.32
1750.1	1780.1	8.35	7.18	6.53

Frequency Mixer

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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=1000.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+14	+17	+20		+14	+17	+20		+14	+17	+20
170.1	200.1	5.59	3.55	2.70	170.1	52.65	40.41	16.41	10.0	2.59	1.76	1.46
210.1	240.1	4.09	2.75	2.38	210.1	42.38	17.57	7.50	20.0	3.00	1.99	1.62
250.1	280.1	3.16	2.48	2.27	250.1	26.74	9.33	5.44	30.0	2.68	1.81	1.47
290.1	320.1	2.63	2.29	2.17	290.1	15.81	5.77	4.33	40.0	2.85	1.89	1.51
330.1	360.1	2.45	2.22	2.13	330.1	7.73	4.09	3.86	50.0	2.84	1.90	1.49
370.1	400.1	2.40	2.18	2.08	370.1	4.21	3.26	3.67	60.0	3.02	2.01	1.57
410.1	440.1	2.27	2.11	2.04	410.1	3.27	2.92	3.39	70.0	2.93	1.97	1.55
450.1	480.1	2.25	2.10	2.02	450.1	2.77	2.69	3.24	80.0	2.87	1.94	1.53
490.1	520.1	2.17	2.06	1.98	490.1	2.40	2.40	3.08	90.0	2.89	1.95	1.54
530.1	560.1	2.08	1.99	1.94	530.1	2.15	2.32	3.10	100.0	2.87	1.93	1.54
570.1	600.1	2.02	1.94	1.90	570.1	1.88	2.22	2.99	110.0	2.82	1.90	1.53
610.1	640.1	1.95	1.88	1.84	610.1	1.72	2.26	3.12	120.0	2.84	1.93	1.55
650.1	680.1	1.88	1.83	1.79	650.1	1.66	2.27	3.21	130.0	2.89	1.96	1.57
690.1	720.1	1.83	1.80	1.77	690.1	1.59	2.22	3.07	140.0	2.89	1.96	1.57
730.1	760.1	1.80	1.77	1.75	730.1	1.55	2.20	3.07	150.0	2.90	1.97	1.57
770.1	800.1	1.77	1.76	1.74	770.1	1.49	2.15	3.05	160.0	2.88	1.97	1.57
810.1	840.1	1.77	1.75	1.73	810.1	1.47	2.17	3.12	170.0	2.82	1.92	1.54
850.1	880.1	1.73	1.70	1.68	850.1	1.54	2.27	3.13	180.0	2.85	1.95	1.57
890.1	920.1	1.67	1.63	1.60	890.1	1.59	2.29	3.14	190.0	2.84	1.95	1.58
930.1	960.1	1.61	1.54	1.51	930.1	1.71	2.43	3.37	200.0	2.86	1.98	1.61
970.1	1000.1	1.54	1.44	1.41	970.1	1.73	2.40	3.25	210.0	2.85	1.98	1.62
1010.1	1040.1	1.43	1.33	1.29	1010.1	1.75	2.41	3.28	220.0	2.81	1.95	1.61
1050.1	1080.1	1.31	1.22	1.17	1050.1	1.77	2.45	3.35	230.0	2.82	1.96	1.60
1090.1	1120.1	1.23	1.12	1.04	1090.1	1.83	2.50	3.40	240.0	2.78	1.94	1.58
1130.1	1160.1	1.22	1.14	1.09	1130.1	1.92	2.62	3.45	250.0	2.80	1.95	1.59
1170.1	1200.1	1.30	1.25	1.23	1170.1	1.98	2.69	3.54	260.0	2.78	1.95	1.59
1210.1	1240.1	1.43	1.41	1.40	1210.1	2.08	2.79	3.68	270.0	2.85	2.00	1.64
1250.1	1280.1	1.59	1.59	1.59	1250.1	2.22	2.96	3.86	280.0	2.83	2.00	1.64
1290.1	1320.1	1.77	1.78	1.79	1290.1	2.10	2.72	3.54	290.0	2.79	1.98	1.64
1330.1	1360.1	1.96	1.99	2.01	1330.1	2.15	2.72	3.50	300.0	2.75	1.95	1.63
1370.1	1400.1	2.15	2.20	2.25	1370.1	2.20	2.75	3.58	310.0	2.68	1.91	1.61
1410.1	1440.1	2.36	2.44	2.49	1410.1	2.26	2.76	3.47	320.0	2.67	1.90	1.60
1450.1	1480.1	2.55	2.63	2.70	1450.1	2.29	2.79	3.52	330.0	2.65	1.91	1.61
1490.1	1520.1	2.73	2.79	2.86	1490.1	2.36	2.88	3.60	340.0	2.71	1.96	1.65
1530.1	1560.1	2.90	2.95	3.00	1530.1	2.34	2.79	3.50	350.0	2.70	1.96	1.66
1570.1	1600.1	3.04	3.04	3.07	1570.1	2.38	2.77	3.47	360.0	2.69	1.96	1.66
1610.1	1640.1	3.12	3.09	3.10	1610.1	2.47	2.76	3.42	370.0	2.65	1.93	1.64
1650.1	1680.1	3.13	3.07	3.07	1650.1	2.58	2.85	3.55	380.0	2.63	1.92	1.63
1690.1	1720.1	3.19	3.10	3.08	1690.1	2.79	2.98	3.58	390.0	2.65	1.93	1.64
1750.1	1780.1	3.34	3.16	3.09	1750.1	3.18	3.24	3.76	400.0	2.67	1.95	1.67

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	13	26	17	33	28	41	30	55	40	62
1	-	17	+0	22	13	34	37	32	47	40	53	55
2	79	68	41	73	42	52	41	65	54	50	53	83
3	>100	47	47	45	48	46	41	53	57	57	56	68
4	>100	76	72	67	70	66	65	62	66	83	73	70
5	>100	85	96	77	76	75	70	71	66	76	77	82
6	>100	92	92	94	91	85	85	90	80	82	82	94
7	>100	98	98	>98	>98	92	89	87	96	83	86	91
8	>100	>98	>98	>98	>98	>98	98	87	96	94	91	87
9	>100	>98	>98	>98	>98	>98	>98	>98	>98	96	>98	96
10	>100	>98	>98	>98	>98	>98	>98	>98	>98	>98	>98	>98
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 700.1 MHz; 5.00 dBm.

LO IN: 730.01 MHz; +17.00 dBm

IF OUT: 29.91 MHz; -1.59 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	4	16	6	23	17	26	19	42	29	50
1	-	16	+0	21	12	37	39	31	42	40	48	54
2	93	70	49	69	51	57	50	75	62	59	61	79
3	>100	65	66	64	68	66	60	70	74	77	73	79
4	>100	>88	>88	>88	88	87	>88	>88	>88	>88	>88	>88
5	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
6	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
7	>100	>88	>88	>88	>88	>88	>88	>88	86	>88	>88	>88
8	>100	>88	>88	>88	>88	>88	>88	>88	>88	87	>88	>88
9	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
10	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	87
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 700.1 MHz; -5.00 dBm.

LO IN: 730.01 MHz; +17.00 dBm

IF OUT: 29.91 MHz; -11.67 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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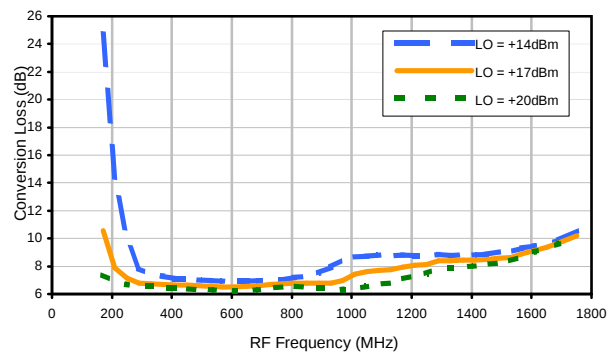
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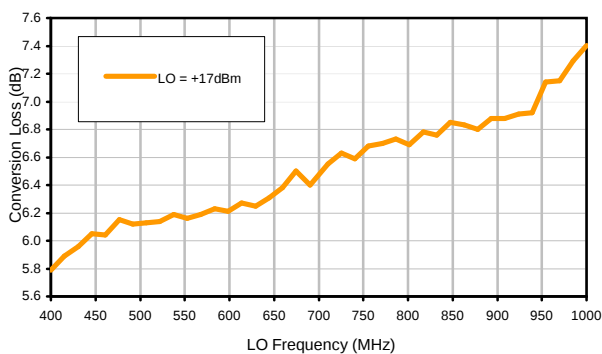
Page 5 of 5

Typical Performance Curves

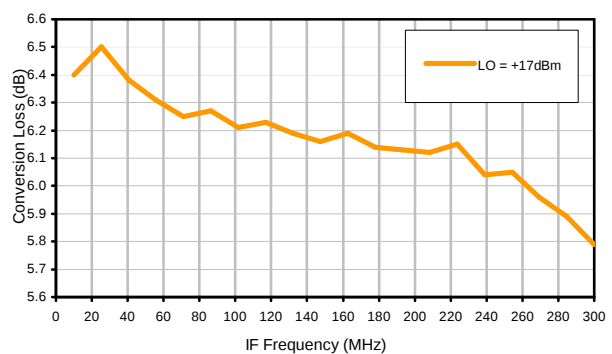
Conversion Loss @ IF=30MHz



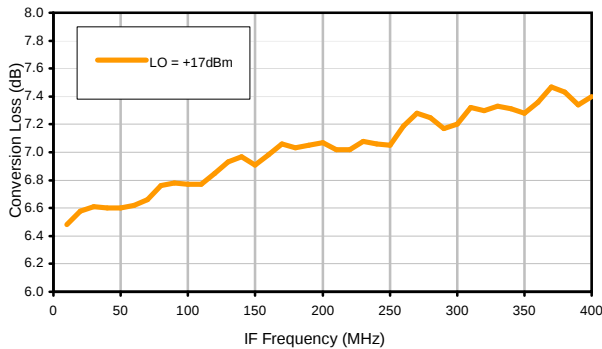
Conversion Loss vs. LO @ RF=700.1MHz



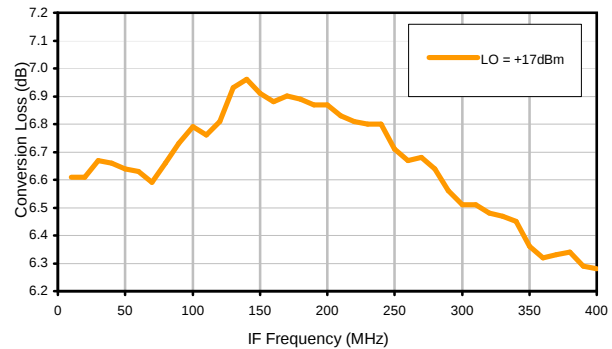
Conversion Loss vs. IF @ RF=700.1MHz



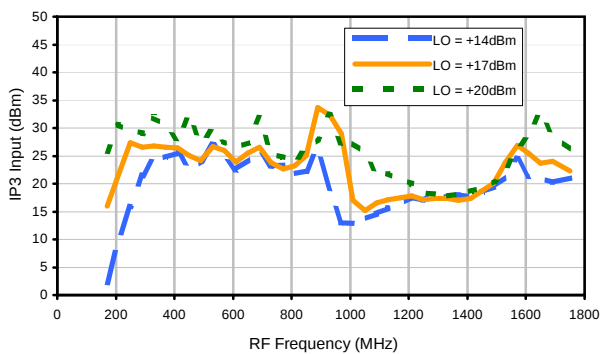
Conversion Loss vs. IF @ RF=400.1MHz



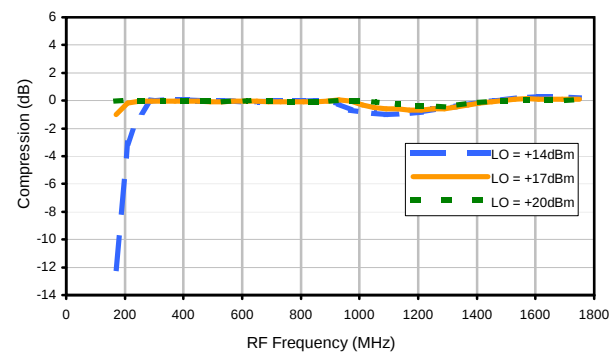
Conversion Loss vs. IF @ RF=1000.1MHz



IP3 Input



Compression @ RF IN=+10dBm



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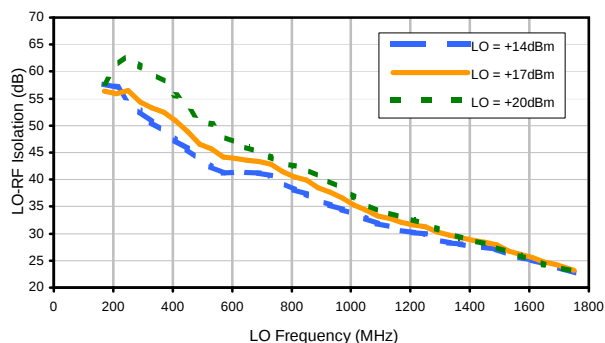


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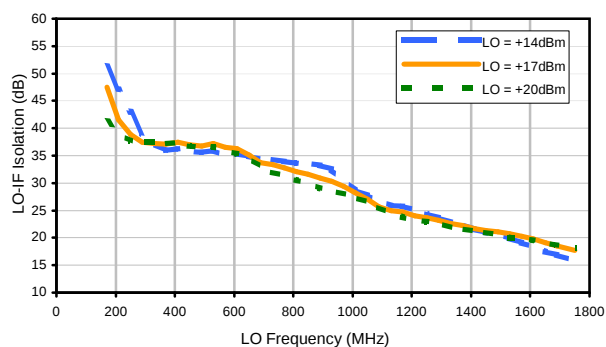


Typical Performance Curves

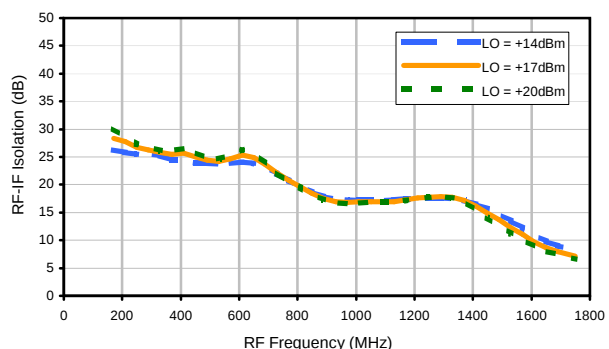
LO-RF Isolation



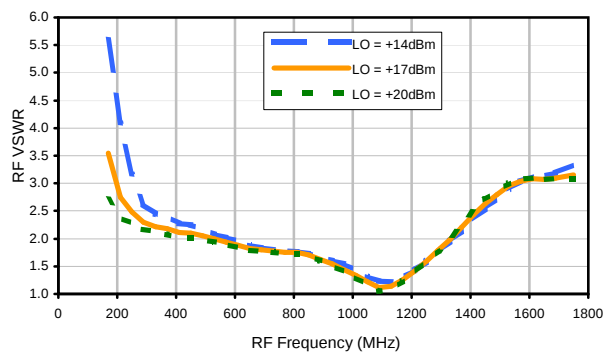
LO-IF Isolation



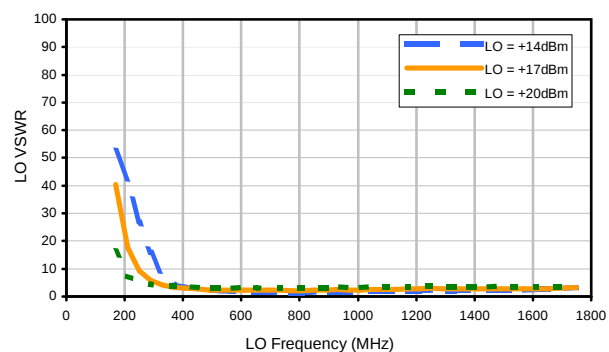
RF-IF Isolation



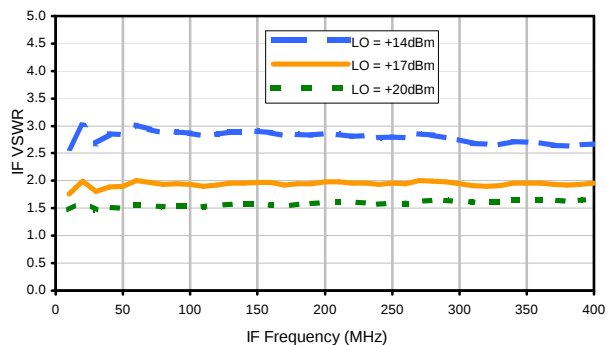
RF VSWR



LO VSWR



IF VSWR



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6	>100	92	92	94	91	85	85	90	80	82	82	94
7	>100	98	98	>98	>98	92	89	87	96	83	86	91
8	>100	>98	>98	>98	>98	>98	98	87	96	94	91	87
9	>100	>98	>98	>98	>98	>98	>98	>98	>98	96	>98	96
10	>100	>98	>98	>98	>98	>98	>98	>98	>98	>98	>98	>98
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

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RF IN: 700.1 MHz; 5.00 dBm.

LO IN: 730.01 MHz; +17.00 dBm

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3	>100	65	66	64	68	66	60	70	74	77	73	79
4	>100	>88	>88	>88	88	87	>88	>88	>88	>88	>88	>88
5	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
6	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
7	>100	>88	>88	>88	>88	>88	>88	>88	86	>88	>88	>88
8	>100	>88	>88	>88	>88	>88	>88	>88	>88	87	>88	>88
9	>100	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88	>88
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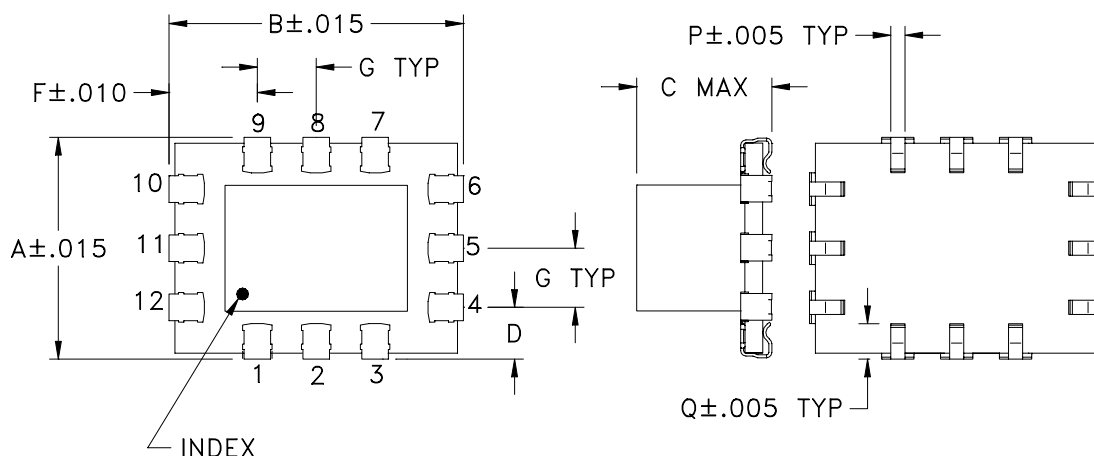
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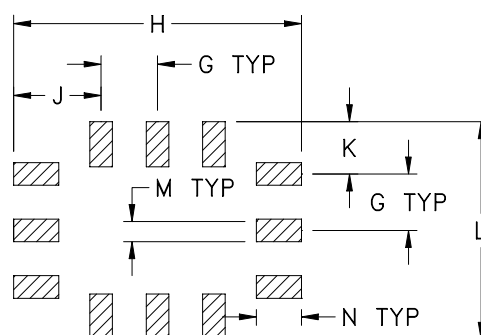
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Outline Dimensions



PCB Land Pattern



Suggested Layout,
Tolerance to be within $\pm .002$

CASE #	A	B	C	D	E	F	G	H	J	K	L	M
CG581	.375 (9.53)	.500 (12.70)	.230 (5.84)	.087 (2.21)	-- --	.15 (3.81)	.100 (2.54)	.510 (12.95)	.155 (3.94)	.093 (2.36)	.385 (9.78)	.040 (1.02)

CASE #	N	P	Q	WT. GRAM
CG581	.080 (2.03)	.024 (0.61)	.060 (1.52)	0.6

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .01$; Pl. $\pm .005$

Notes:

- Case material: Ceramic.
- Termination finish:
For RoHS Case Styles: Tin plate over Nickel plate. All models, (+) suffix.
For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



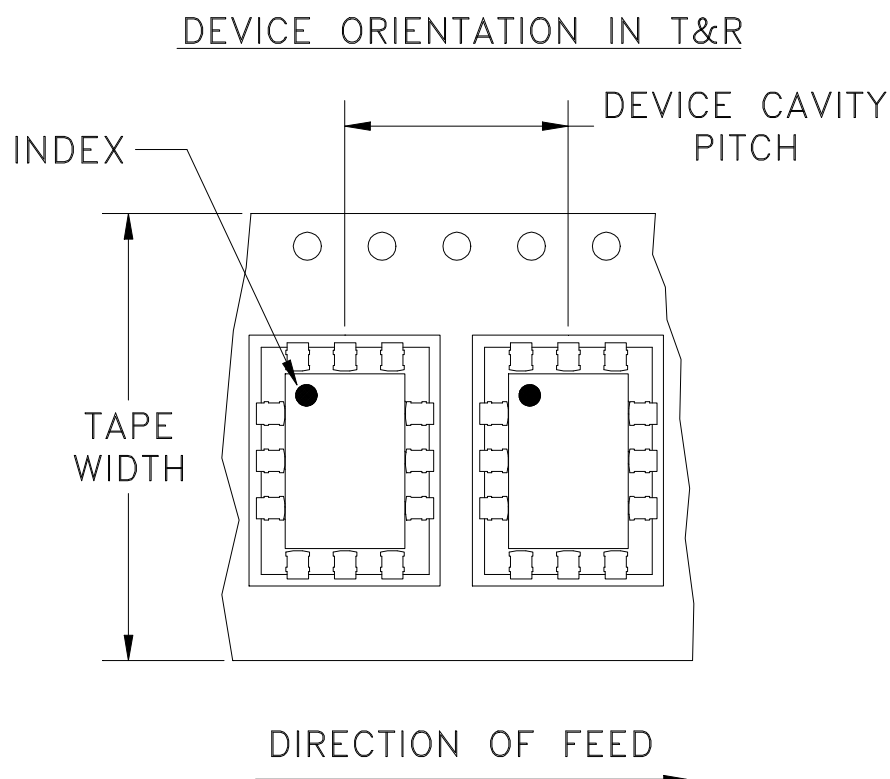
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Tape & Reel Packaging TR-F36



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
24	12	13	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



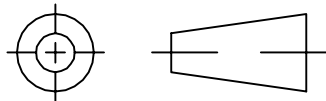
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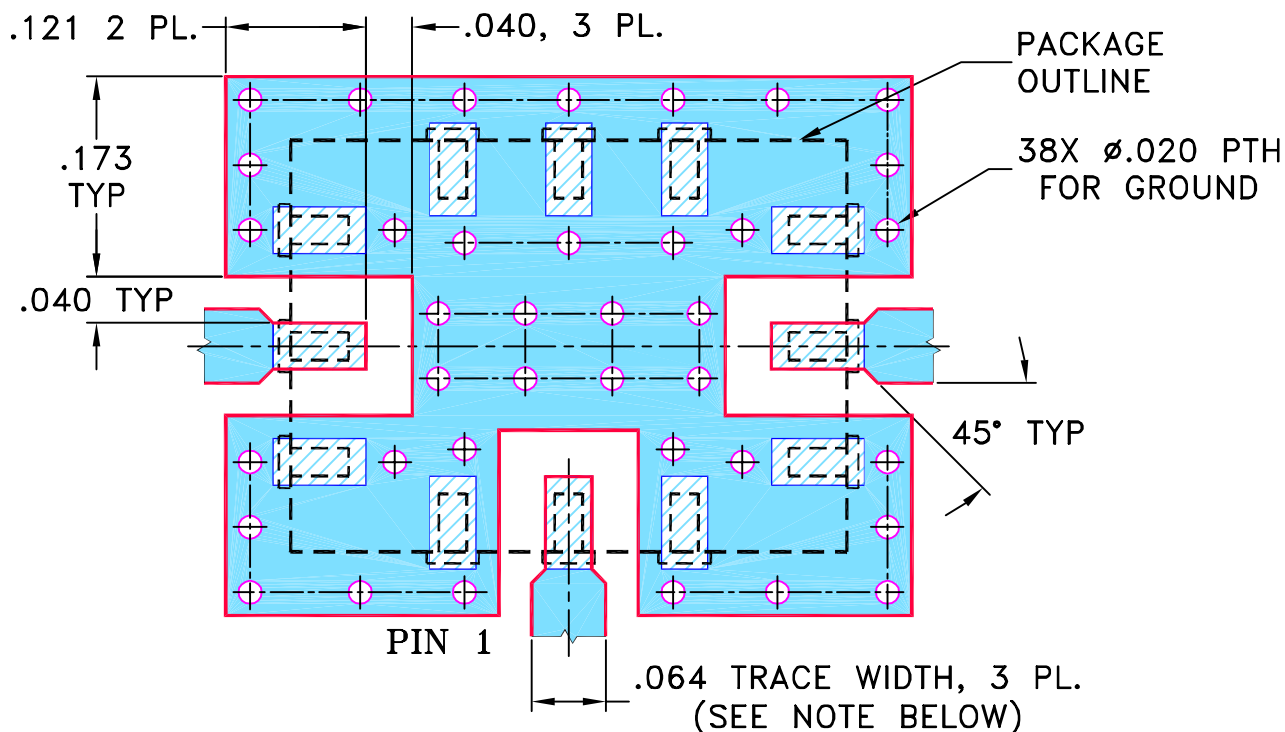
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M87005	NEW RELEASE	06/23/03	MMG	WL
A	M91639	REMOVED NOTE 2	04/14/04	AV	DJ
B	M102713	UPDATED NOTES, ADDED "...WITH SMOBC"	01/16/06	GT	IL

SUGGESTED MOUNTING CONFIGURATION
FOR CG581 CASE STYLE, "ka" PIN CONNECTION.



- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" $\pm$.002".
COPPER: 1/2 OZ. EACH SIDE.
FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.

2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

-  DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
-  DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

UNLESS OTHERWISE SPECIFIED

DIMENSIONS ARE IN INCHES

TOLERANCES ON:
2 PL DECIMALS $\pm$
3 PL DECIMALS $\pm$.005
ANGLES $\pm$ 1°
FRACTIONS $\pm$

INITIALS

DATE

DRAWN

MMG

05/14/03

CHECKED

AV

06/23/03

APPROVED

WL

06/23/03



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, ka, CG581, SYMJ, TB-199

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ASHEETA1.DWG REV:A DATE:01/12/95

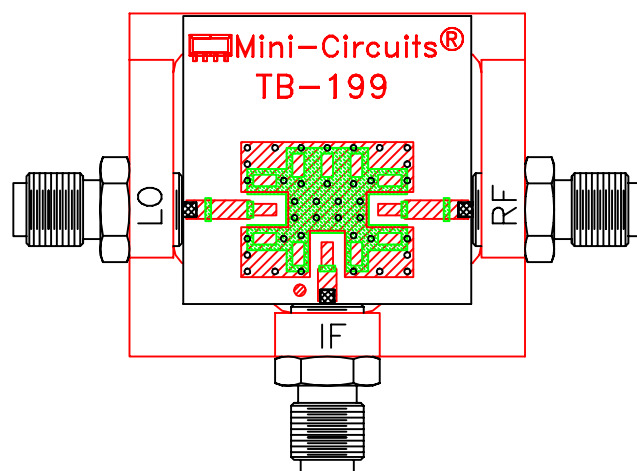
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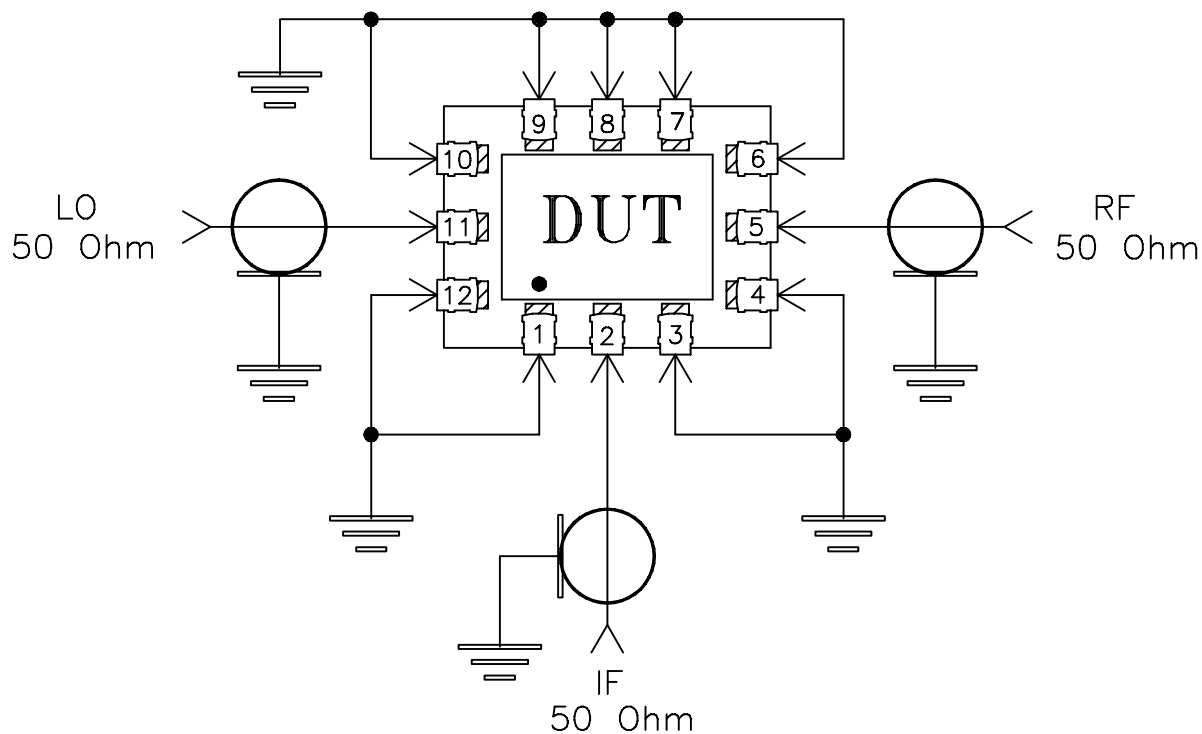
SCALE: 6:1

SHEET: 1 OF 1

Evaluation Board and Circuit



TB-199



Schematic Diagram

Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.030 inch.

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