

Frequency Mixer

LAVI-ED12344A

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.



CASE STYLE : CK605

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ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (f _L to f _u)	10		1000	MHz
	RF (f _L to f _u)	10		1000	MHz
	IF	10		800	MHz
Conversion Loss	Mid Range		7.3		dB
	Total Range		7.6		
LO-RF Isolation	Low Range		60		dB
	Mid Range		52		dB
	Upper Range		43		dB
LO-IF Isolation	Low Range		46		dB
	Mid Range		40		dB
	Upper Range		38		dB
Input IP3			+31		dBm
1 dB Compression			+15		dBm

Note: Low Range = [f_L to 10f_L]
mid band = [2f_L to f_u/2]

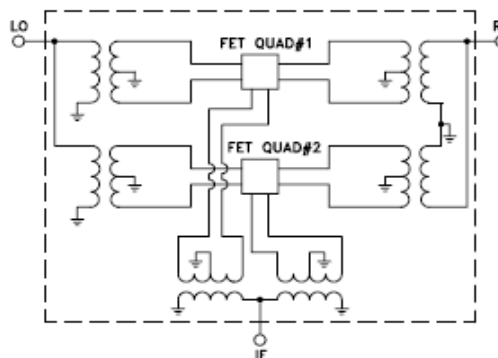
Mid Range = [10f_L to f_u/2]

Upper Range = [f_u/2 to f_u]

MAXIMUM RATINGS	
Operating Temperature	-45°C to 85°C
Storage Temperature	-55°C to +100°C

PIN CONNECTIONS	
LO	10
RF	2
IF	14
GROUND	1,3,4,5,6,7,8,9,11,12,13,15,16

Electrical Schematic



Frequency Mixer

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Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=30MHz (dB)		
		@LO (dBm)		
		+17	+20	+23
10.1	40.1	7.24	6.99	6.82
40.1	70.1	7.19	6.99	6.86
70.1	100.1	7.23	7.09	6.98
100.1	130.1	7.46	7.31	7.20
130.1	160.1	7.39	7.24	7.12
160.1	190.1	7.39	7.26	7.15
190.1	220.1	7.46	7.32	7.21
220.1	250.1	7.40	7.25	7.15
250.1	280.1	7.37	7.24	7.15
280.1	310.1	7.48	7.34	7.25
310.1	340.1	7.42	7.29	7.20
340.1	370.1	7.40	7.28	7.19
370.1	400.1	7.48	7.36	7.27
400.1	430.1	7.43	7.31	7.22
430.1	460.1	7.37	7.25	7.17
460.1	490.1	7.53	7.42	7.34
490.1	520.1	7.53	7.41	7.33
520.1	550.1	7.58	7.48	7.41
550.1	580.1	7.66	7.56	7.50
580.1	610.1	7.67	7.57	7.51
610.1	640.1	7.68	7.58	7.52
640.1	670.1	7.75	7.65	7.59
670.1	700.1	7.76	7.66	7.59
700.1	730.1	7.75	7.65	7.58
730.1	760.1	7.84	7.73	7.67
760.1	790.1	7.92	7.81	7.74
790.1	820.1	7.95	7.84	7.77
820.1	850.1	8.03	7.92	7.85
850.1	880.1	8.11	8.00	7.92
880.1	910.1	8.19	8.08	8.00
910.1	940.1	8.33	8.21	8.14
940.1	970.1	8.50	8.38	8.30
970.1	1000.1	8.61	8.48	8.39
1000.1	1030.1	8.69	8.55	8.45
1040.1	1070.1	8.80	8.63	8.52
1070.1	1100.1	8.91	8.73	8.60
1110.1	1140.1	9.14	8.91	8.75
1140.1	1170.1	9.39	9.13	8.95
1180.1	1210.1	10.12	9.79	9.59
1210.1	1240.1	10.89	10.52	10.30

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+17	+20	+23
10.1	40.1	20.35	23.30	25.72
40.1	70.1	24.94	27.85	29.51
70.1	100.1	26.88	28.73	30.03
100.1	130.1	26.81	28.52	29.89
130.1	160.1	27.05	28.46	30.02
160.1	190.1	27.41	28.97	31.16
190.1	220.1	27.29	29.14	31.19
220.1	250.1	27.40	29.37	31.11
250.1	280.1	27.72	29.68	31.24
280.1	310.1	27.72	29.47	31.69
310.1	340.1	27.99	29.98	31.99
340.1	370.1	28.71	30.70	33.15
370.1	400.1	28.02	30.08	32.33
400.1	430.1	28.63	30.57	32.94
430.1	460.1	29.25	31.49	33.59
460.1	490.1	29.20	31.13	33.94
490.1	520.1	29.03	31.45	33.86
520.1	550.1	29.38	31.64	34.24
550.1	580.1	30.02	32.60	35.67
580.1	610.1	31.06	33.82	35.91
610.1	640.1	31.22	33.65	37.12
640.1	670.1	31.47	34.65	36.68
670.1	700.1	31.52	34.47	37.60
700.1	730.1	30.94	33.65	36.13
730.1	760.1	30.54	33.11	36.19
760.1	790.1	30.86	34.20	36.98
790.1	820.1	31.05	34.18	37.17
820.1	850.1	31.08	33.96	37.07
850.1	880.1	30.34	33.10	35.79
880.1	910.1	29.85	32.89	35.52
910.1	940.1	29.28	32.29	35.12
940.1	970.1	29.01	32.03	35.33
970.1	1000.1	28.92	32.03	34.36
1000.1	1030.1	28.30	31.63	34.11
1040.1	1070.1	27.21	30.44	33.26
1070.1	1100.1	25.82	29.00	32.23
1110.1	1140.1	23.45	26.45	29.22
1140.1	1170.1	21.50	24.44	27.14
1180.1	1210.1	18.83	21.44	24.00
1210.1	1240.1	17.47	20.19	22.74

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+15dBm (dB)		
		@LO (dBm)		
		+17	+20	+23
10.1	40.1	2.75	1.32	0.58
40.1	70.1	0.96	0.40	0.19
70.1	100.1	0.41	0.21	0.12
100.1	130.1	0.41	0.20	0.11
130.1	160.1	0.32	0.17	0.09
160.1	190.1	0.26	0.13	0.07
190.1	220.1	0.28	0.14	0.08
220.1	250.1	0.26	0.13	0.07
250.1	280.1	0.23	0.12	0.07
280.1	310.1	0.24	0.13	0.07
310.1	340.1	0.22	0.11	0.06
340.1	370.1	0.20	0.10	0.05
370.1	400.1	0.22	0.12	0.06
400.1	430.1	0.19	0.10	0.05
430.1	460.1	0.19	0.10	0.05
460.1	490.1	0.19	0.10	0.05
490.1	520.1	0.17	0.08	0.04
520.1	550.1	0.15	0.08	0.04
550.1	580.1	0.16	0.08	0.04
580.1	610.1	0.14	0.06	0.03
610.1	640.1	0.14	0.07	0.03
640.1	670.1	0.14	0.06	0.03
670.1	700.1	0.13	0.06	0.03
700.1	730.1	0.14	0.06	0.03
730.1	760.1	0.16	0.07	0.04
760.1	790.1	0.16	0.08	0.04
790.1	820.1	0.19	0.09	0.04
820.1	850.1	0.20	0.09	0.04
850.1	880.1	0.23	0.11	0.05
880.1	910.1	0.28	0.13	0.06
910.1	940.1	0.31	0.15	0.07
940.1	970.1	0.33	0.15	0.07
970.1	1000.1	0.36	0.16	0.07
1000.1	1030.1	0.40	0.17	0.07
1040.1	1070.1	0.55	0.22	0.10
1070.1	1100.1	0.76	0.31	0.13
1110.1	1140.1	1.27	0.55	0.24
1140.1	1170.1	1.75	0.86	0.41
1180.1	1210.1	2.41	1.36	0.74
1210.1	1240.1	2.77	1.62	0.92

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Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=475.1MHz (dB)
		@LO (dBm)
		+20
465.0	10.1	9.29
455.0	20.1	8.26
445.0	30.1	8.00
435.0	40.1	7.97
425.0	50.1	7.91
415.0	60.1	7.90
405.0	70.1	7.86
395.0	80.1	7.82
385.0	90.1	7.79
375.0	100.1	7.74
365.0	110.1	7.74
355.0	120.1	7.77
345.0	130.1	7.74
335.0	140.1	7.73
325.0	150.1	7.68
310.0	165.1	7.63
300.0	175.1	7.61
285.0	190.1	7.54
275.0	200.1	7.50
260.0	215.1	7.47
250.0	225.1	7.50
235.0	240.1	7.37
225.0	250.1	7.30
210.0	265.1	7.30
200.0	275.1	7.42
185.0	290.1	7.42
175.0	300.1	7.41
160.0	315.1	7.42
150.0	325.1	7.36
135.0	340.1	7.48
125.0	350.1	7.45
110.0	365.1	7.43
100.0	375.1	7.35
85.0	390.1	7.46
75.0	400.1	7.41
60.0	415.1	7.41
50.0	425.1	7.41
35.0	440.1	7.41
25.0	450.1	7.38
10.0	465.1	7.26

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)
		@LO (dBm)
		+20
10.0	20.1	7.30
40.0	50.1	6.93
70.0	80.1	6.61
100.0	110.1	6.78
130.0	140.1	6.94
160.0	170.1	6.80
190.0	200.1	6.81
220.0	230.1	6.74
250.0	260.1	6.85
280.0	290.1	6.93
310.0	320.1	6.96
340.0	350.1	6.99
370.0	380.1	6.98
400.0	410.1	7.09
430.0	440.1	7.16
460.0	470.1	7.06
490.0	500.1	7.09
520.0	530.1	7.09
550.0	560.1	7.21
580.0	590.1	7.35
610.0	620.1	7.33
640.0	650.1	7.44
670.0	680.1	7.50
700.0	710.1	7.47
730.0	740.1	7.53
760.0	770.1	7.57
800.0	810.1	7.63
830.0	840.1	7.68
870.0	880.1	7.81
900.0	910.1	7.84
940.0	950.1	8.00
970.0	980.1	8.17
1010.0	1020.1	8.26
1040.0	1050.1	8.49
1080.0	1090.1	8.66
1110.0	1120.1	8.77
1150.0	1160.1	8.98
1180.0	1190.1	9.26
1220.0	1230.1	10.05
1250.0	1260.1	10.89

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=950.1MHz (dB)
		@LO (dBm)
		+20
940.0	10.1	10.48
920.0	30.1	9.23
900.0	50.1	9.19
880.0	70.1	9.14
860.0	90.1	9.05
840.0	110.1	8.99
820.0	130.1	8.97
800.0	150.1	8.90
780.0	170.1	8.86
760.0	190.1	8.81
740.0	210.1	8.80
710.0	240.1	8.77
690.0	260.1	8.77
660.0	290.1	8.79
640.0	310.1	8.83
610.0	340.1	8.76
590.0	360.1	8.73
560.0	390.1	8.65
540.0	410.1	8.61
510.0	440.1	8.47
490.0	460.1	8.49
460.0	490.1	8.41
440.0	510.1	8.49
410.0	540.1	8.48
390.0	560.1	8.54
360.0	590.1	8.48
340.0	610.1	8.47
310.0	640.1	8.30
290.0	660.1	8.32
260.0	690.1	8.23
240.0	710.1	8.19
210.0	740.1	8.16
190.0	760.1	8.17
160.0	790.1	8.11
140.0	810.1	8.12
110.0	840.1	8.08
90.0	860.1	8.09
60.0	890.1	8.04
40.0	910.1	8.10
10.0	940.1	8.06

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+17	+20	+23	+17	+20	+23
40.1	68.39	67.62	66.24	50.82	50.04	49.36
70.1	62.42	61.56	60.96	46.40	45.86	45.40
100.1	59.56	58.62	57.97	45.06	44.64	44.36
130.1	58.08	57.26	56.56	45.10	44.73	44.43
160.1	56.75	56.23	56.39	44.89	44.64	44.15
190.1	56.56	55.65	55.36	44.58	44.37	44.34
220.1	55.77	54.71	53.91	43.96	43.71	43.55
250.1	55.27	54.14	53.36	43.35	43.10	42.98
280.1	54.88	53.87	53.03	42.36	42.07	41.83
310.1	54.92	53.96	53.53	41.48	41.19	41.07
340.1	54.38	53.53	53.34	40.74	40.42	40.42
370.1	52.64	51.85	51.16	40.02	39.71	39.50
400.1	51.85	50.98	50.48	39.40	39.06	38.83
430.1	51.30	50.68	50.15	38.85	38.52	38.35
460.1	51.29	50.94	50.98	38.31	37.96	37.56
490.1	50.70	50.46	50.22	38.37	38.11	37.89
520.1	49.68	49.27	48.88	38.56	38.32	38.15
550.1	47.78	47.43	47.08	38.38	38.19	38.05
580.1	46.26	45.96	45.68	38.15	37.94	37.87
610.1	45.32	45.04	44.90	37.69	37.49	37.32
640.1	44.14	43.86	43.61	37.29	37.02	36.82
670.1	43.58	43.32	43.14	37.32	37.02	36.83
700.1	43.30	43.02	42.83	37.52	37.21	37.00
730.1	43.42	43.16	43.06	37.57	37.27	37.07
760.1	43.20	42.96	42.92	37.08	36.73	36.54
790.1	43.13	42.91	42.86	37.06	36.69	36.43
820.1	43.55	43.36	43.37	37.20	36.83	36.62
850.1	44.04	43.86	43.83	37.31	36.96	36.74
880.1	45.26	45.09	45.12	37.77	37.45	37.37
910.1	45.49	45.19	45.13	38.30	38.09	38.12
940.1	43.73	43.06	42.57	39.67	39.48	39.46
970.1	40.92	40.27	39.87	41.41	41.25	41.27
1000.1	39.63	39.03	38.78	43.55	43.34	43.41
1030.1	39.42	38.91	38.86	45.54	45.21	45.43
1070.1	40.18	39.58	39.37	47.79	47.30	47.18
1100.1	40.88	40.30	40.13	49.73	49.18	49.02
1140.1	41.84	41.21	40.86	50.98	50.84	50.97
1170.1	42.28	41.66	41.20	49.00	49.06	49.49
1210.1	42.29	41.69	41.24	45.52	45.64	45.97
1240.1	42.13	41.63	41.15	43.58	43.78	44.05

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+17	+20	+23
10.1	40.1	33.64	33.93	34.18
40.1	70.1	35.57	36.03	36.65
70.1	100.1	36.65	36.52	35.86
100.1	130.1	39.08	39.02	38.62
130.1	160.1	43.75	44.38	48.09
160.1	190.1	52.79	53.01	42.31
190.1	220.1	47.15	49.04	52.32
220.1	250.1	44.71	44.89	44.59
250.1	280.1	41.79	40.61	38.84
280.1	310.1	49.14	51.88	46.13
310.1	340.1	47.73	49.90	40.49
340.1	370.1	43.37	43.45	42.66
370.1	400.1	41.49	41.11	40.08
400.1	430.1	39.17	37.95	35.47
430.1	460.1	42.21	42.22	44.93
460.1	490.1	40.95	40.99	40.98
490.1	520.1	39.56	39.41	39.26
520.1	550.1	38.73	38.29	37.68
550.1	580.1	38.16	37.75	37.01
580.1	610.1	38.85	38.66	38.34
610.1	640.1	39.09	39.05	39.15
640.1	670.1	39.09	39.00	39.09
670.1	700.1	38.89	38.86	38.87
700.1	730.1	39.29	39.29	39.56
730.1	760.1	39.32	39.37	39.73
760.1	790.1	39.40	39.47	39.92
790.1	820.1	39.69	39.70	40.25
820.1	850.1	39.68	39.75	40.24
850.1	880.1	40.16	40.28	40.94
880.1	910.1	39.94	39.99	40.66
910.1	940.1	39.92	39.90	40.35
940.1	970.1	38.99	38.98	39.01
970.1	1000.1	37.89	37.77	37.79
1000.1	1030.1	37.02	36.99	37.25
1040.1	1070.1	35.16	35.18	35.61
1070.1	1100.1	33.76	33.74	34.28
1110.1	1140.1	32.43	32.17	32.50
1140.1	1170.1	31.66	31.16	31.34
1180.1	1210.1	32.61	31.89	32.08
1210.1	1240.1	32.91	31.86	31.62

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RF (IN) (MHz)	LO (MHz)	RF VSWR (:1)		
		@LO (dBm)		
		+17	+20	+23
10.1	40.1	1.23	1.27	1.25
40.1	70.1	1.10	1.14	1.15
70.1	100.1	1.11	1.14	1.16
100.1	130.1	1.15	1.18	1.20
130.1	160.1	1.20	1.22	1.24
160.1	190.1	1.20	1.22	1.24
190.1	220.1	1.22	1.25	1.27
220.1	250.1	1.27	1.30	1.32
250.1	280.1	1.28	1.30	1.32
280.1	310.1	1.28	1.31	1.33
310.1	340.1	1.32	1.35	1.37
340.1	370.1	1.32	1.34	1.36
370.1	400.1	1.31	1.34	1.36
400.1	430.1	1.33	1.36	1.38
430.1	460.1	1.32	1.35	1.36
460.1	490.1	1.33	1.35	1.36
490.1	520.1	1.33	1.35	1.36
520.1	550.1	1.33	1.35	1.36
550.1	580.1	1.31	1.32	1.33
580.1	610.1	1.30	1.31	1.32
610.1	640.1	1.30	1.30	1.30
640.1	670.1	1.28	1.28	1.28
670.1	700.1	1.28	1.28	1.27
700.1	730.1	1.30	1.28	1.27
730.1	760.1	1.29	1.27	1.26
760.1	790.1	1.30	1.28	1.26
790.1	820.1	1.32	1.30	1.28
820.1	850.1	1.33	1.30	1.28
850.1	880.1	1.35	1.32	1.29
880.1	910.1	1.38	1.34	1.32
910.1	940.1	1.38	1.34	1.31
940.1	970.1	1.36	1.32	1.29
970.1	1000.1	1.39	1.35	1.32
1000.1	1030.1	1.42	1.38	1.35
1040.1	1070.1	1.46	1.41	1.38
1070.1	1100.1	1.52	1.47	1.44
1110.1	1140.1	1.59	1.54	1.50
1140.1	1170.1	1.61	1.56	1.52
1180.1	1210.1	1.67	1.62	1.58
1210.1	1240.1	1.66	1.62	1.59

LO (MHz)	LO VSWR (:1)		
	@LO (dBm)		
	+17	+20	+23
40.1	13.39	13.19	12.99
70.1	6.49	6.49	6.46
100.1	6.13	6.13	6.11
130.1	6.44	6.44	6.44
160.1	6.86	6.86	6.83
190.1	7.02	7.02	7.02
220.1	7.11	7.11	7.11
250.1	7.22	7.22	7.20
280.1	7.08	7.08	7.08
310.1	6.78	6.78	6.78
340.1	6.44	6.42	6.39
370.1	6.01	6.01	6.01
400.1	5.54	5.54	5.54
430.1	5.10	5.09	5.07
460.1	4.59	4.57	4.57
490.1	4.10	4.09	4.09
520.1	3.70	3.69	3.68
550.1	3.33	3.32	3.32
580.1	2.98	2.97	2.97
610.1	2.67	2.66	2.66
640.1	2.41	2.41	2.41
670.1	2.21	2.21	2.21
700.1	2.05	2.05	2.06
730.1	1.96	1.96	1.97
760.1	1.93	1.94	1.95
790.1	1.96	1.97	1.98
820.1	2.06	2.07	2.08
850.1	2.20	2.21	2.22
880.1	2.34	2.35	2.36
910.1	2.50	2.51	2.52
940.1	2.65	2.65	2.65
970.1	2.76	2.77	2.77
1000.1	2.89	2.89	2.89
1030.1	2.96	2.96	2.97
1070.1	2.93	2.93	2.95
1100.1	2.85	2.84	2.84
1140.1	2.62	2.62	2.63
1170.1	2.43	2.43	2.44
1210.1	2.17	2.17	2.17
1240.1	1.96	1.96	1.96

IF (OUT) (MHz)	IF VSWR @LO=950.1MHz (:1)		
	@LO (dBm)		
	+17	+20	+23
10.1	1.24	1.29	1.34
30.1	1.24	1.29	1.34
50.1	1.24	1.28	1.33
70.1	1.27	1.32	1.36
90.1	1.30	1.34	1.38
110.1	1.32	1.36	1.40
130.1	1.38	1.41	1.44
150.1	1.39	1.42	1.45
170.1	1.43	1.46	1.48
190.1	1.48	1.50	1.52
210.1	1.52	1.54	1.56
240.1	1.58	1.59	1.61
260.1	1.61	1.62	1.64
290.1	1.68	1.69	1.70
310.1	1.73	1.74	1.74
340.1	1.78	1.78	1.78
360.1	1.81	1.81	1.81
390.1	1.86	1.86	1.85
410.1	1.89	1.89	1.88
440.1	1.93	1.92	1.91
460.1	1.96	1.94	1.93
490.1	2.01	1.99	1.97
510.1	2.02	2.00	1.98
540.1	2.02	1.99	1.97
560.1	2.06	2.03	2.00
590.1	2.08	2.04	2.01
610.1	2.06	2.02	1.99
640.1	2.08	2.03	2.00
660.1	2.10	2.05	2.01
690.1	2.09	2.03	1.99
710.1	2.07	2.01	1.97
740.1	2.09	2.03	1.99
760.1	2.12	2.06	2.01
790.1	2.11	2.04	1.99
810.1	2.11	2.04	1.99
840.1	2.14	2.07	2.02
860.1	2.17	2.10	2.04
890.1	2.13	2.06	2.00
910.1	2.12	2.05	1.99
940.1	2.13	2.06	2.01

REV. X2

LAVI-ED12344A

101012

Page 4 of 5



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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	18	12	22	36	37	35	36	37	53
1	-	33	+0	41	12	41	20	44	30	47	50	44
2	74	64	64	82	71	65	66	60	65	62	66	63
3	>100	91	75	>93	72	92	74	92	75	91	81	>93
4	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
5	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
6	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
10	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 480 MHz; 0.00 dBm.
LO IN: 510 MHz; +20.00 dBm
IF OUT: 30 MHz; -7.45 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	21	27	22	30	43	44	50	47	48	69
1	-	33	+0	41	12	41	21	44	31	47	47	45
2	54	55	54	72	61	55	56	50	55	51	56	53
3	88	77	54	76	52	73	53	72	55	72	60	73
4	>100	98	91	90	87	86	84	84	87	82	85	82
5	>100	>103	84	>103	84	100	83	96	85	94	85	94
6	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
7	>100	>103	>103	>103	102	>103	>103	>103	100	>103	102	>103
8	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
9	>100	>103	>103	>103	>103	>103	>103	>103	101	>103	100	>103
10	>100	>103	>103	>103	>103	>103	>103	>103	101	>103	100	>103
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 480 MHz; 10.00 dBm.
LO IN: 510 MHz; +20.00 dBm
IF OUT: 30 MHz; 2.52 dBm

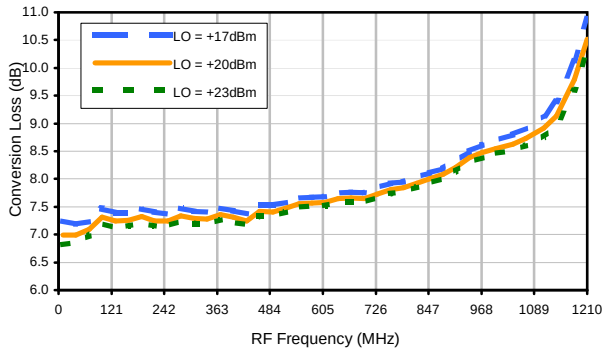
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Frequency Mixer

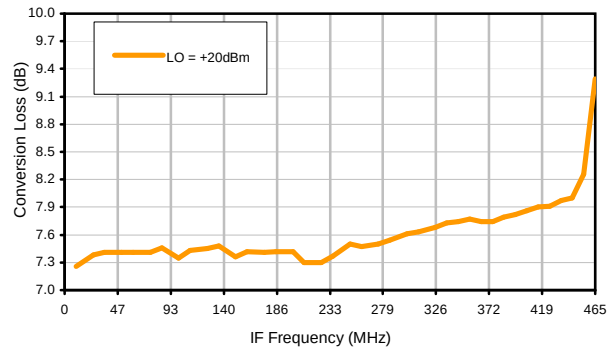
LAVI-ED12344A

Typical Performance Curves

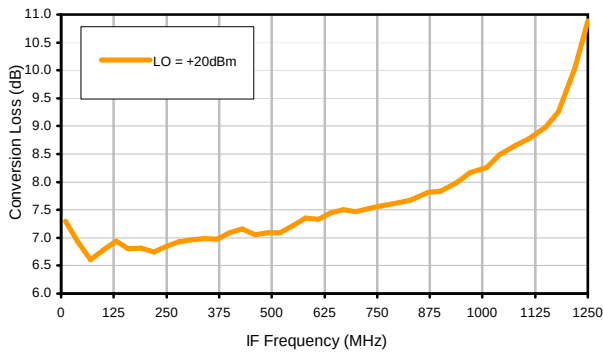
Conversion Loss @ IF=30MHz



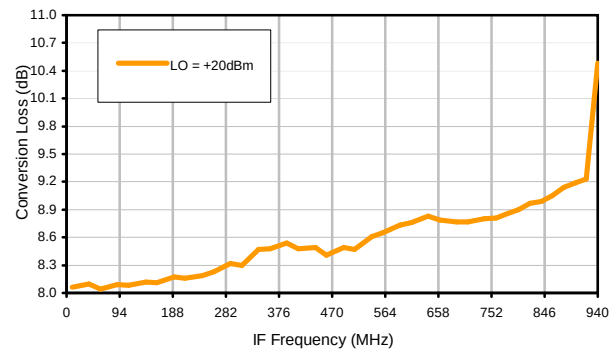
Conversion Loss vs. IF @ RF=475.1MHz



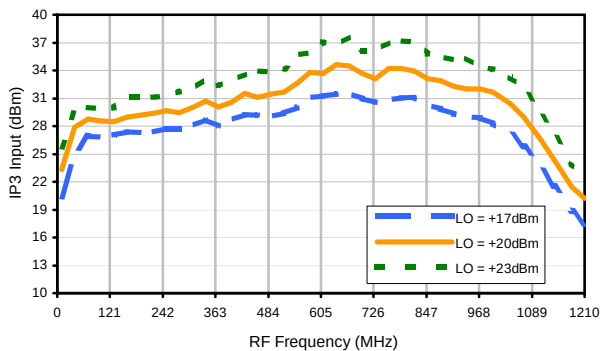
Conversion Loss vs. IF @ RF=10.1MHz



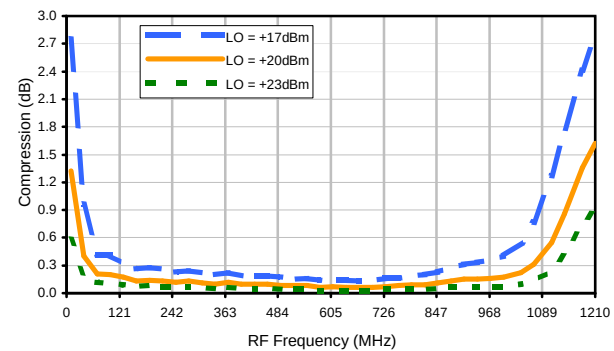
Conversion Loss vs. IF @ RF=950.1MHz



IP3 Input

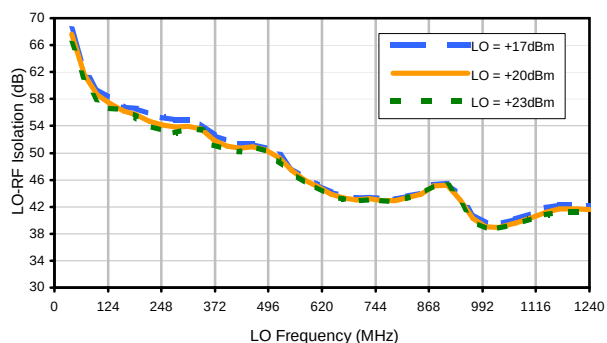


Compression @ RF IN=+15dBm

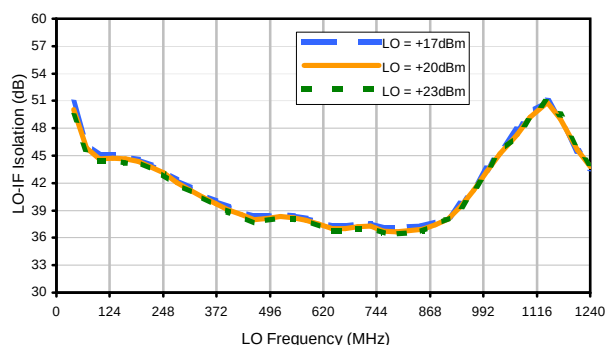


Typical Performance Curves

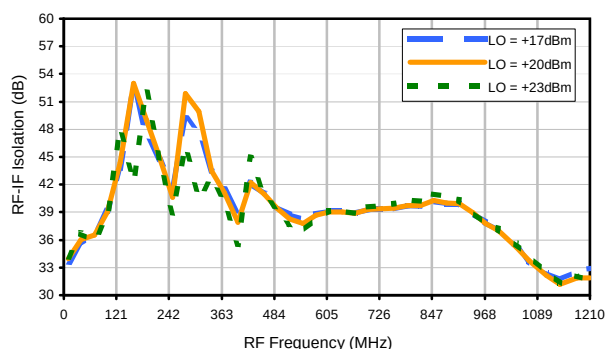
LO-RF Isolation



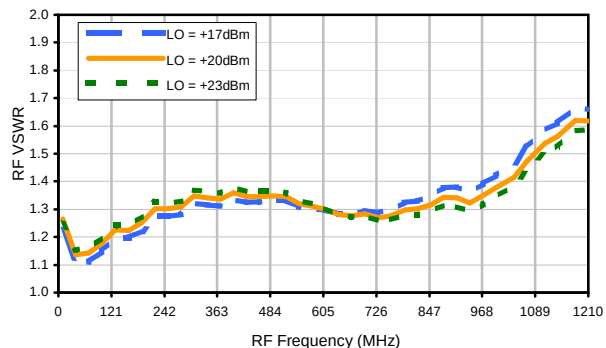
LO-IF Isolation



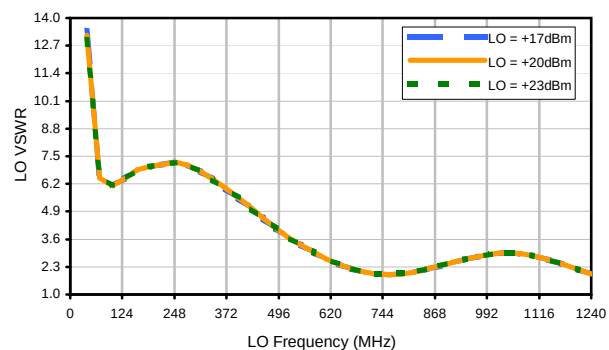
RF-IF Isolation



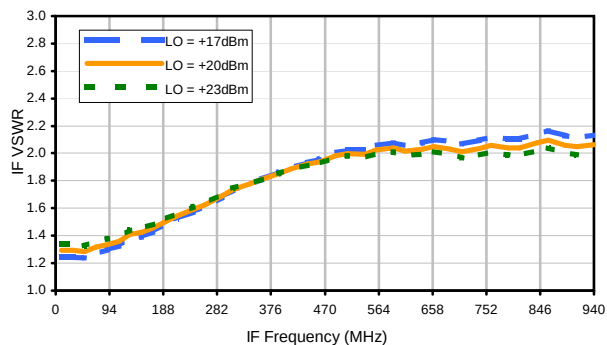
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	18	12	22	36	37	35	36	37	53
1	-	33	+0	41	12	41	20	44	30	47	50	44
2	74	64	64	82	71	65	66	60	65	62	66	63
3	>100	91	75	>93	72	92	74	92	75	91	81	>93
4	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
5	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
6	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
7	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
8	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
9	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
10	>100	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93	>93
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

RF IN: 480 MHz; 0.00 dBm.
LO IN: 510 MHz; +20.00 dBm
IF OUT: 30 MHz; -7.45 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	21	27	22	30	43	44	50	47	48	69
1	-	33	+0	41	12	41	21	44	31	47	47	45
2	54	55	54	72	61	55	56	50	55	51	56	53
3	88	77	54	76	52	73	53	72	55	72	60	73
4	>100	98	91	90	87	86	84	84	87	82	85	82
5	>100	>103	84	>103	84	100	83	96	85	94	85	94
6	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
7	>100	>103	>103	>103	102	>103	>103	>103	100	>103	102	>103
8	>100	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103	>103
9	>100	>103	>103	>103	>103	>103	>103	>103	101	>103	100	>103
10	>100	>103	>103	>103	>103	>103	>103	>103	101	>103	100	>103
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions:

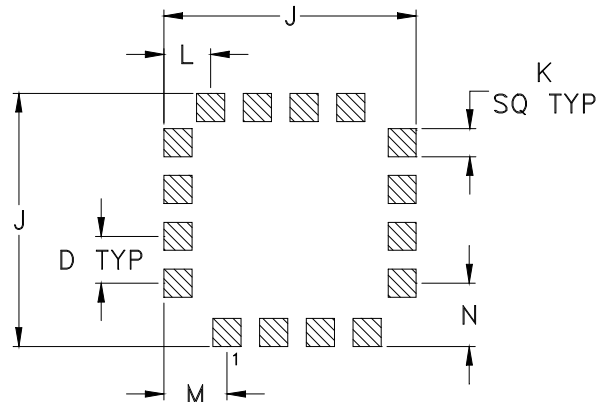
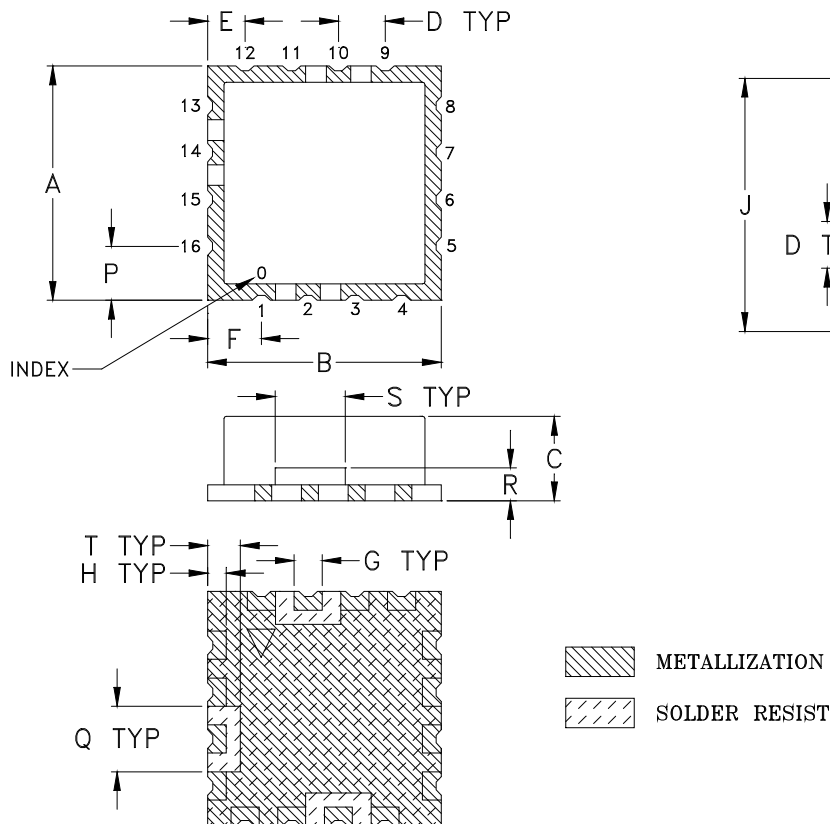
RF IN: 480 MHz; 10.00 dBm.
LO IN: 510 MHz; +20.00 dBm
IF OUT: 30 MHz; 2.52 dBm

- 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.

Outline Dimensions

CK605

PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K
CK605	.500 (12.70)	.500 (12.70)	.180 (4.57)	.100 (2.54)	.080 (2.03)	.115 (2.92)	.060 (1.52)	.040 (1.02)	.540 (13.72)	.060 (1.52)

CASE #	L	M	N	P	Q	R	S	T	WT. GRAM
CK605	.100 (2.54)	.135 (3.43)	.135 (3.43)	.115 (2.92)	.140 (3.56)	.070 (1.78)	.150 (3.81)	.070 (1.78)	1.2 +0.5 -0.0

Dimensions are in inches (mm). Tolerances: 2 Pl. $\pm .03$; 3Pl. $\pm .015$

Notes:

- Case material: Nickel-Silver alloy.
- Base: Printed wiring laminate.
- Termination finish:
For RoHS Case Styles: 3-5 μ inch (.08-.13 microns) Gold over 120-240 μ inch (3.05-6.10 microns) Nickel plate.
All models, (+) suffix.

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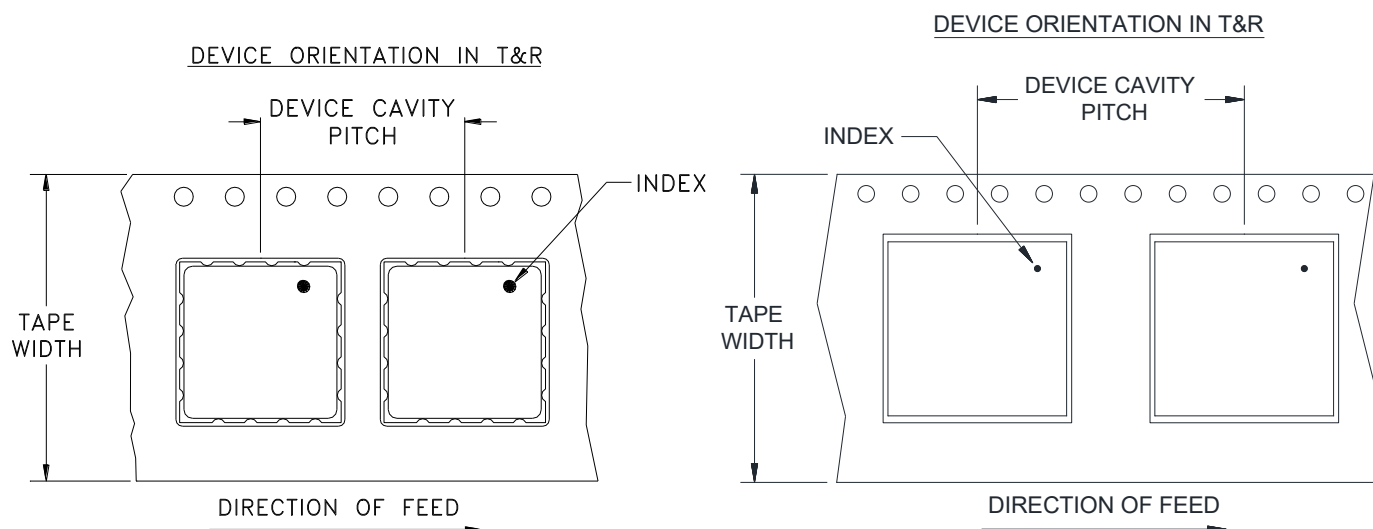
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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F37



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel	
24	16	7	Small quantity standards (see note)	10
				20
				50
				100
		13	Standard	200
				500

Note: Please consult individual model data sheet to determine device per reel availability.

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



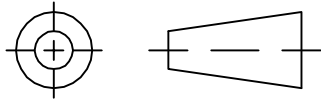
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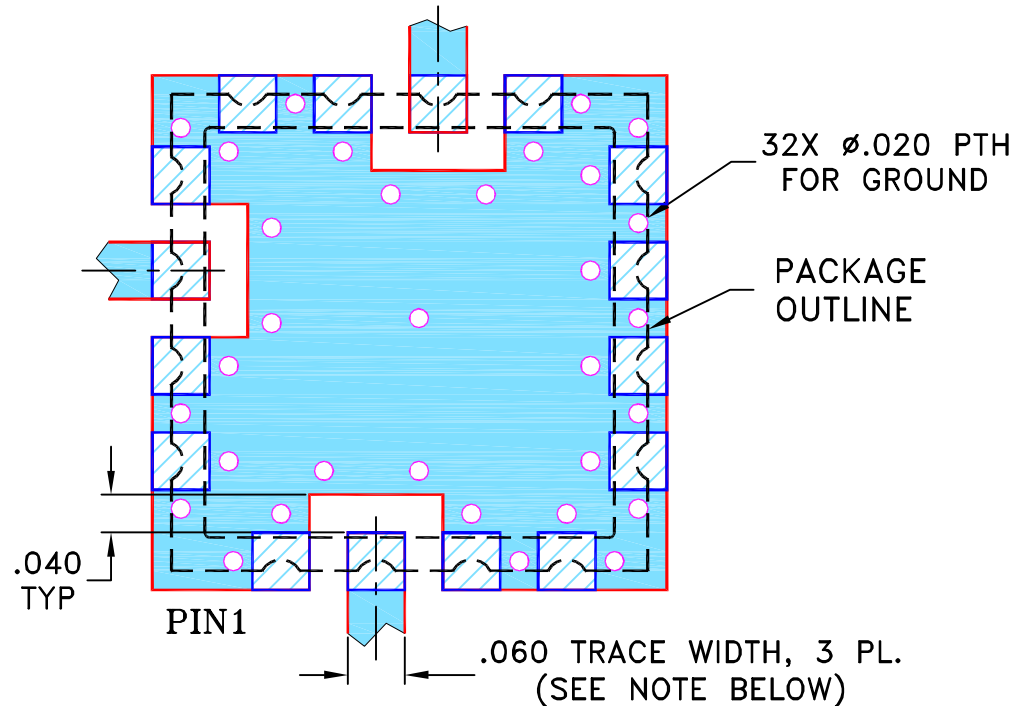
THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
E	M105563	ADDED "rl" PIN CONNECTION	06/02/06	MMG	DJ
F	M105640	CORRECTED NOTE 2	06/08/06	MMG	MM
G	M124395	ADDED "RAMP"	09/09	EM	HH
G	R77589	ADDED "RAMP"	09/09	EM	HH

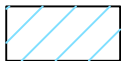
SUGGESTED MOUNTING CONFIGURATION FOR
CK605 CASE STYLE, "kg/rl/16AM01" PIN CONNECTION

NOTES:

- TRACE WIDTH IS SHOWN FOR FR4 WITH DIELECTRIC THICKNESS .030" $\pm$.002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
- BOTTOM SIDE OF THE BOTTOM 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

INITIALS

DATE

DIMENSIONS ARE IN INCHES

TOLERANCES ON:

2 PL DECIMALS $\pm$ 3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$

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CHECKED

SK

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APPROVED

DB

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Brooklyn NY 11235

PL,kg/rl/16AM01,CK605,ROS/LAVI/RAMP

SIZE
A

CODE IDENT
15542

DRAWING NO:
98-PL-012

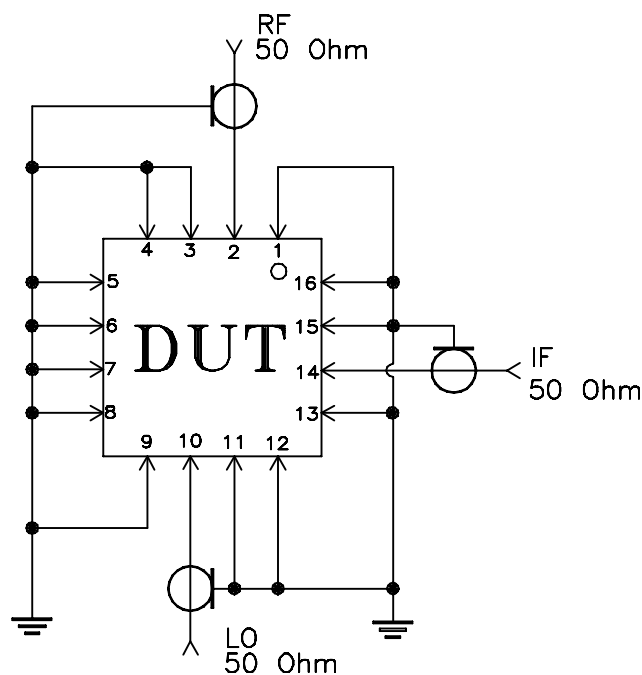
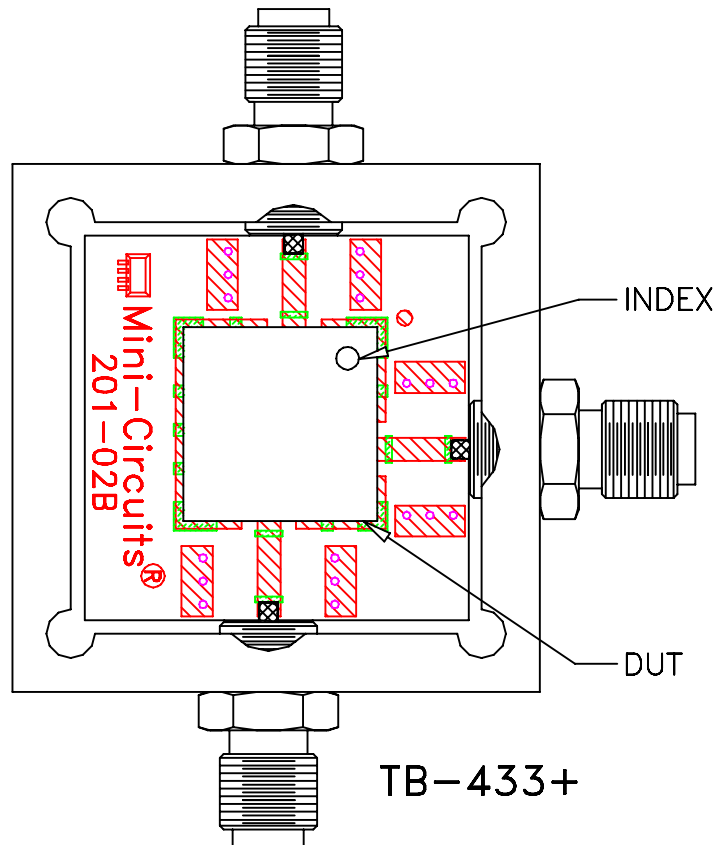
REV:
G

FILE: 98PL012

SCALE: 5:1

SHEET: 1 OF 1

Evaluation Board and Circuit



Notes:

1. SMA Female connectors.
2. PCB Material: Rogers R04350 or equivalent,
Dielectric Constant=3.5, Thickness=.028 inch.

Schematic Diagram

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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	-45° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Humidity	90 to 95% RH, 240 hours, 50°C	MIL-STD-202, Method 103, Condition A, Except 50°C and end-point electrical test done within 12 hours
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, 245°C peak	J-STD-020, Table 4-1, 4-2 and 5-2, Figure 5-1
Solderability	10X Magnification	J-STD-002, 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