

Frequency Mixer

JCIR-ED12838/1

Level 13 (LO Power + 13 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.

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CASE STYLE : BG291

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
Frequency	LO (fL to fU)	204		1074	MHz
	RF (fL to fU)	204		1074	MHz
	IF	16		55	MHz
Conversion Loss	Total Range		7.9		dB
LO-RF Isolation			56		dB
LO-IF Isolation			36		dB
Input IP3			+20		dBm
1 dB Compression			+2		dBm

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

PIN CONNECTIONS	
LO	2
RF	9
IF	11
GROUND	1,3,5,6,7,8,10,12,13,14
50-OHM TERM EXTERNAL	4

Frequency Mixer

JCIR-ED12838/1

Typical Performance Data

RF (IN) (MHz)	LO (MHz)	CONVERSION LOSS IF FIXED @IF(OUT)=36MHz (dB)		
		@LO (dBm)		
		+10	+13	+16
174.1	210.1	12.50	10.95	10.27
204.1	240.1	9.39	7.99	7.40
234.1	270.1	8.91	7.78	7.33
264.1	300.1	8.65	7.81	7.48
294.1	330.1	8.36	7.68	7.38
324.1	360.1	8.17	7.58	7.33
354.1	390.1	8.19	7.70	7.46
384.1	420.1	8.10	7.64	7.41
414.1	450.1	8.02	7.58	7.35
444.1	480.1	8.10	7.67	7.43
474.1	510.1	8.08	7.67	7.40
504.1	540.1	8.00	7.62	7.36
534.1	570.1	8.07	7.70	7.47
564.1	600.1	8.09	7.68	7.46
594.1	630.1	8.06	7.61	7.37
624.1	660.1	8.22	7.74	7.46
654.1	690.1	8.28	7.80	7.49
684.1	720.1	8.28	7.83	7.49
714.1	750.1	8.36	7.95	7.63
744.1	780.1	8.41	8.00	7.69
774.1	810.1	8.39	7.98	7.68
804.1	840.1	8.42	8.03	7.75
834.1	870.1	8.41	8.02	7.79
864.1	900.1	8.45	8.00	7.76
894.1	930.1	8.60	8.08	7.85
924.1	960.1	8.75	8.16	7.90
944.1	980.1	8.85	8.21	7.94
974.1	1010.1	9.04	8.36	8.03
994.1	1030.1	9.15	8.48	8.10
1024.1	1060.1	9.32	8.61	8.22
1044.1	1080.1	9.52	8.78	8.35
1074.1	1110.1	9.79	9.04	8.56
1094.1	1130.1	9.91	9.18	8.68
1124.1	1160.1	10.12	9.42	8.93
1144.1	1180.1	10.33	9.64	9.15
1174.1	1210.1	10.54	9.85	9.35
1194.1	1230.1	10.66	10.02	9.48
1224.1	1260.1	10.94	10.34	9.83
1244.1	1280.1	11.10	10.50	10.00
1274.1	1310.1	11.16	10.61	10.10

RF (IN) (MHz)	LO (MHz)	IP3 INPUT (dBm)		
		@LO (dBm)		
		+10	+13	+16
174.1	210.1	9.48	15.13	16.80
204.1	240.1	11.22	14.99	19.51
234.1	270.1	13.26	17.06	21.83
264.1	300.1	13.99	19.74	21.76
294.1	330.1	17.77	21.66	21.81
324.1	360.1	18.59	21.71	21.83
354.1	390.1	17.97	21.65	21.77
384.1	420.1	18.15	21.08	21.79
414.1	450.1	17.34	20.93	21.82
444.1	480.1	16.96	19.72	21.78
474.1	510.1	16.40	18.94	21.80
504.1	540.1	16.18	18.63	21.76
534.1	570.1	16.91	19.91	21.77
564.1	600.1	15.81	20.42	21.77
594.1	630.1	15.43	19.56	21.82
624.1	660.1	15.56	19.51	21.77
654.1	690.1	15.43	19.06	21.76
684.1	720.1	15.44	18.88	21.76
714.1	750.1	17.12	18.86	21.69
744.1	780.1	18.64	20.84	21.66
774.1	810.1	19.57	21.51	21.66
804.1	840.1	21.29	21.48	21.62
834.1	870.1	21.29	21.49	21.61
864.1	900.1	21.28	21.50	21.33
894.1	930.1	21.20	21.27	20.03
924.1	960.1	21.12	21.42	18.78
944.1	980.1	21.07	21.40	18.83
974.1	1010.1	20.98	21.32	20.32
994.1	1030.1	20.92	21.26	20.16
1024.1	1060.1	20.84	20.76	18.59
1044.1	1080.1	19.88	20.10	16.70
1074.1	1110.1	18.73	20.98	17.25
1094.1	1130.1	18.88	20.51	21.05
1124.1	1160.1	18.88	19.63	21.04
1144.1	1180.1	19.07	19.66	20.92
1174.1	1210.1	18.29	20.25	20.56
1194.1	1230.1	18.41	20.35	20.76
1224.1	1260.1	18.68	19.88	20.59
1244.1	1280.1	18.36	19.71	20.46
1274.1	1310.1	18.53	19.25	20.45

RF (IN) (MHz)	LO (MHz)	COMPRESSION @RF IN=+2dBm (dB)		
		@LO (dBm)		
		+10	+13	+16
174.1	210.1	-0.56	-0.04	0.00
204.1	240.1	-0.39	0.01	0.02
234.1	270.1	-0.19	0.00	0.00
264.1	300.1	-0.06	0.00	-0.02
294.1	330.1	0.02	-0.01	-0.02
324.1	360.1	0.01	-0.03	-0.03
354.1	390.1	-0.02	-0.03	-0.02
384.1	420.1	-0.03	-0.04	-0.02
414.1	450.1	-0.04	-0.03	-0.02
444.1	480.1	-0.05	-0.03	-0.01
474.1	510.1	-0.04	-0.03	-0.01
504.1	540.1	-0.03	-0.03	-0.01
534.1	570.1	-0.03	-0.02	-0.01
564.1	600.1	-0.03	-0.01	-0.01
594.1	630.1	-0.04	0.00	0.00
624.1	660.1	-0.06	-0.01	0.01
654.1	690.1	-0.07	-0.02	0.01
684.1	720.1	-0.07	-0.04	0.01
714.1	750.1	-0.06	-0.04	0.00
744.1	780.1	-0.06	-0.04	-0.01
774.1	810.1	-0.04	-0.03	0.00
804.1	840.1	-0.01	-0.01	0.01
834.1	870.1	0.02	0.01	0.01
864.1	900.1	0.03	0.02	0.03
894.1	930.1	0.03	0.04	0.04
924.1	960.1	0.00	0.04	0.04
944.1	980.1	-0.01	0.05	0.05
974.1	1010.1	-0.03	0.04	0.07
994.1	1030.1	-0.04	0.03	0.08
1024.1	1060.1	-0.04	0.04	0.10
1044.1	1080.1	-0.05	0.05	0.10
1074.1	1110.1	-0.07	0.03	0.09
1094.1	1130.1	-0.08	0.01	0.06
1124.1	1160.1	-0.08	-0.01	0.03
1144.1	1180.1	-0.10	-0.02	0.01
1174.1	1210.1	-0.13	-0.04	0.00
1194.1	1230.1	-0.13	-0.08	-0.02
1224.1	1260.1	-0.12	-0.09	-0.05
1244.1	1280.1	-0.12	-0.09	-0.05
1274.1	1310.1	-0.11	-0.10	-0.05

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Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+10	+13	+16	+10	+13	+16
210.1	72.50	66.27	63.48	44.83	44.31	43.55
240.1	72.27	66.47	63.54	44.61	44.12	43.45
270.1	74.19	67.93	64.46	43.40	42.80	42.21
300.1	70.41	65.63	64.40	42.15	41.62	41.14
330.1	71.29	68.02	64.65	41.28	40.94	40.53
360.1	66.46	64.49	62.62	40.43	40.26	40.04
390.1	62.33	63.99	63.04	39.62	39.53	39.40
420.1	64.63	63.56	62.07	39.23	39.24	39.15
450.1	64.52	63.86	62.49	38.83	39.02	39.05
480.1	63.09	67.59	68.70	38.58	38.96	39.06
510.1	59.20	61.43	63.66	37.98	38.44	38.94
540.1	57.52	60.00	60.91	37.26	37.88	38.38
570.1	55.53	57.59	58.38	36.34	37.08	37.61
600.1	54.96	58.26	60.83	35.66	36.40	37.07
630.1	54.18	57.26	60.70	35.15	35.93	36.68
660.1	54.26	58.00	61.39	34.66	35.54	36.38
690.1	52.97	57.15	61.65	34.13	35.06	35.96
720.1	52.46	56.72	62.22	33.76	34.83	35.81
750.1	51.20	55.10	60.03	33.37	34.57	35.59
780.1	49.94	53.40	57.14	32.91	34.21	35.36
810.1	49.07	51.71	54.74	32.69	34.15	35.46
840.1	48.16	50.39	53.19	32.54	34.10	35.55
870.1	47.51	49.48	51.76	32.15	33.80	35.40
900.1	47.50	49.48	51.48	32.04	33.74	35.46
930.1	47.19	49.31	51.21	31.98	33.70	35.53
960.1	46.50	48.74	50.33	31.94	33.62	35.54
980.1	46.16	48.40	50.19	31.90	33.58	35.52
1010.1	45.36	47.53	49.19	32.15	33.83	35.80
1030.1	44.55	46.51	47.98	32.23	33.96	35.88
1060.1	44.30	46.30	47.64	32.23	34.07	36.00
1080.1	43.54	45.36	46.33	32.32	34.34	36.37
1110.1	42.16	43.68	44.25	32.42	34.60	36.88
1130.1	41.30	42.59	42.96	32.27	34.41	36.68
1160.1	40.01	40.99	40.95	31.55	33.52	35.44
1180.1	39.36	40.14	40.02	31.13	33.00	34.81
1210.1	38.75	39.28	39.02	31.07	32.85	34.63
1230.1	38.25	38.60	38.23	31.05	32.80	34.53
1260.1	37.53	37.92	37.73	30.98	32.71	34.41
1280.1	37.08	37.21	37.11	31.01	32.73	34.46
1310.1	36.11	36.13	36.05	31.04	32.75	34.46

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+10	+13	+16
174.1	210.1	28.83	28.97	29.08
204.1	240.1	28.41	28.43	28.38
234.1	270.1	27.64	27.65	27.64
264.1	300.1	27.37	27.25	27.15
294.1	330.1	27.19	27.00	26.89
324.1	360.1	26.93	26.74	26.63
354.1	390.1	26.76	26.59	26.52
384.1	420.1	26.64	26.44	26.32
414.1	450.1	26.63	26.38	26.19
444.1	480.1	26.83	26.52	26.26
474.1	510.1	27.13	26.83	26.58
504.1	540.1	27.13	26.87	26.68
534.1	570.1	27.16	26.94	26.81
564.1	600.1	26.91	26.82	26.78
594.1	630.1	26.35	26.39	26.42
624.1	660.1	25.73	25.90	26.02
654.1	690.1	24.97	25.09	25.26
684.1	720.1	24.11	24.15	24.15
714.1	750.1	23.14	23.15	23.09
744.1	780.1	22.14	22.12	22.04
774.1	810.1	21.24	21.21	21.10
804.1	840.1	20.47	20.38	20.30
834.1	870.1	19.70	19.59	19.52
864.1	900.1	19.00	18.86	18.83
894.1	930.1	18.49	18.31	18.28
924.1	960.1	18.04	17.93	17.87
944.1	980.1	17.76	17.70	17.64
974.1	1010.1	17.42	17.46	17.47
994.1	1030.1	17.16	17.22	17.32
1024.1	1060.1	16.90	17.03	17.26
1044.1	1080.1	16.64	16.82	17.11
1074.1	1110.1	16.42	16.58	16.86
1094.1	1130.1	16.27	16.43	16.63
1124.1	1160.1	16.20	16.36	16.51
1144.1	1180.1	16.17	16.32	16.50
1174.1	1210.1	16.15	16.28	16.48
1194.1	1230.1	16.14	16.25	16.44
1224.1	1260.1	16.15	16.27	16.45
1244.1	1280.1	16.22	16.35	16.55
1274.1	1310.1	16.32	16.50	16.72

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=894MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+10	+13	+16		+10	+13	+16		+10	+13	+16
174.1	210.1	1.65	1.90	2.12	210.1	2.49	3.36	4.26	10.0	1.54	1.40	1.30
204.1	240.1	1.68	1.95	2.17	240.1	2.43	3.21	3.99	30.0	1.10	1.11	1.12
234.1	270.1	1.75	2.01	2.21	270.1	2.36	3.05	3.71	50.0	1.05	1.05	1.06
264.1	300.1	1.84	2.07	2.24	300.1	2.37	2.99	3.56	70.0	2.57	2.34	2.18
294.1	330.1	1.89	2.10	2.24	330.1	2.30	2.84	3.33	90.0	1.70	1.67	1.66
324.1	360.1	1.95	2.14	2.27	360.1	2.24	2.71	3.13	110.0	1.84	1.68	1.61
354.1	390.1	1.99	2.15	2.27	390.1	2.20	2.62	2.98	130.0	1.90	1.71	1.61
384.1	420.1	2.00	2.14	2.24	420.1	2.13	2.49	2.80	150.0	1.95	1.74	1.63
414.1	450.1	2.03	2.16	2.25	450.1	2.06	2.36	2.62	170.0	1.97	1.76	1.64
444.1	480.1	2.03	2.15	2.24	480.1	2.01	2.27	2.49	190.0	1.97	1.75	1.63
474.1	510.1	2.01	2.12	2.20	510.1	1.93	2.16	2.34	210.0	2.00	1.77	1.63
504.1	540.1	2.01	2.11	2.19	540.1	1.86	2.05	2.21	230.0	2.29	2.08	1.97
534.1	570.1	2.02	2.11	2.18	570.1	1.81	1.96	2.09	250.0	2.19	1.97	1.86
564.1	600.1	2.02	2.10	2.18	600.1	1.74	1.87	1.97	270.0	2.18	1.96	1.85
594.1	630.1	2.04	2.11	2.18	630.1	1.68	1.78	1.87	290.0	2.18	1.96	1.85
624.1	660.1	2.06	2.12	2.19	660.1	1.62	1.71	1.78	310.0	2.20	1.98	1.86
654.1	690.1	2.08	2.14	2.20	690.1	1.57	1.63	1.69	330.0	2.21	1.98	1.86
684.1	720.1	2.11	2.16	2.21	720.1	1.51	1.56	1.60	350.0	2.25	2.02	1.89
714.1	750.1	2.18	2.22	2.26	750.1	1.45	1.49	1.51	370.0	2.26	2.03	1.90
744.1	780.1	2.25	2.28	2.32	780.1	1.41	1.43	1.44	390.0	2.27	2.04	1.91
774.1	810.1	2.32	2.36	2.40	810.1	1.36	1.37	1.38	410.0	2.30	2.06	1.92
804.1	840.1	2.42	2.46	2.50	840.1	1.33	1.33	1.33	430.0	2.30	2.06	1.92
834.1	870.1	2.52	2.56	2.60	870.1	1.31	1.30	1.29	450.0	2.34	2.09	1.95
864.1	900.1	2.62	2.66	2.69	900.1	1.30	1.29	1.28	470.0	2.32	2.08	1.94
894.1	930.1	2.76	2.78	2.81	930.1	1.30	1.29	1.28	490.0	2.33	2.08	1.94
924.1	960.1	2.89	2.89	2.92	960.1	1.32	1.31	1.30	510.0	2.36	2.11	1.96
944.1	980.1	2.98	2.96	2.99	980.1	1.33	1.33	1.32	530.0	2.36	2.11	1.96
974.1	1010.1	3.14	3.10	3.11	1010.1	1.36	1.37	1.37	550.0	2.36	2.10	1.96
994.1	1030.1	3.23	3.19	3.19	1030.1	1.38	1.40	1.40	570.0	2.34	2.08	1.94
1024.1	1060.1	3.36	3.30	3.29	1060.1	1.42	1.45	1.46	590.0	2.34	2.09	1.95
1044.1	1080.1	3.48	3.40	3.38	1080.1	1.46	1.49	1.51	610.0	2.36	2.10	1.95
1074.1	1110.1	3.65	3.55	3.50	1110.1	1.51	1.54	1.57	630.0	2.32	2.07	1.93
1094.1	1130.1	3.73	3.63	3.56	1130.1	1.54	1.59	1.62	650.0	2.30	2.05	1.92
1124.1	1160.1	3.84	3.74	3.66	1160.1	1.60	1.65	1.69	670.0	2.26	2.01	1.88
1144.1	1180.1	3.92	3.82	3.73	1180.1	1.65	1.70	1.74	690.0	2.24	2.00	1.87
1174.1	1210.1	4.06	3.96	3.87	1210.1	1.72	1.78	1.83	710.0	2.22	1.98	1.86
1194.1	1230.1	4.12	4.03	3.94	1230.1	1.76	1.83	1.88	730.0	2.14	1.92	1.80
1224.1	1260.1	4.26	4.17	4.09	1260.1	1.83	1.91	1.97	760.0	2.04	1.83	1.73
1244.1	1280.1	4.39	4.31	4.23	1280.1	1.88	1.96	2.03	780.0	1.99	1.79	1.70
1274.1	1310.1	4.56	4.50	4.41	1310.1	1.95	2.05	2.12	810.0	1.88	1.69	1.62

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Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	27	18	25	7	31	19	38	28	42
1	-	17	+0	38	14	29	37	48	43	37	52	45
2	87	>69	64	>69	68	>69	>69	>69	61	>69	69	>69
3	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 666 MHz; -13.00 dBm.
LO IN: 702 MHz; +13.00 dBm
IF OUT: 36 MHz; -20.81 dBm

RF HARMONICS ORDER

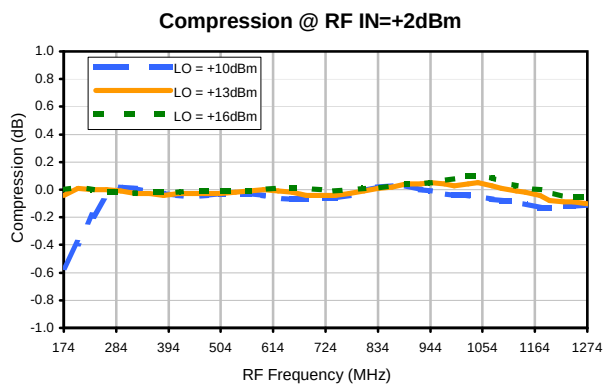
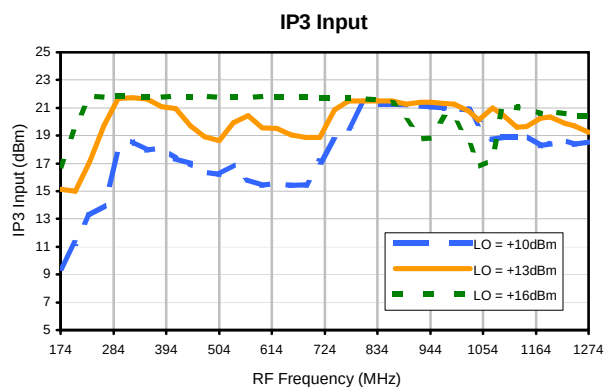
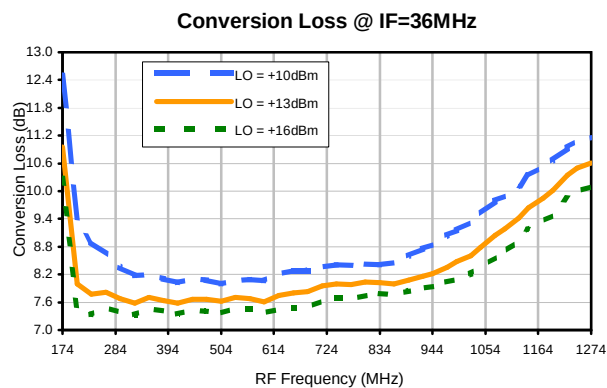
	(-dBm)	(-dBc)										
0	-	-	11	37	28	36	18	43	29	48	39	53
1	-	17	+0	37	14	29	36	49	45	38	54	45
2	67	62	55	61	60	66	62	70	51	62	62	66
3	>90	63	56	68	54	61	55	67	68	73	66	74
4	>90	>79	>79	>79	75	>79	75	>79	>79	>79	>79	>79
5	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 666 MHz; -3.00 dBm.
LO IN: 702 MHz; +13.00 dBm
IF OUT: 36 MHz; -10.82 dBm

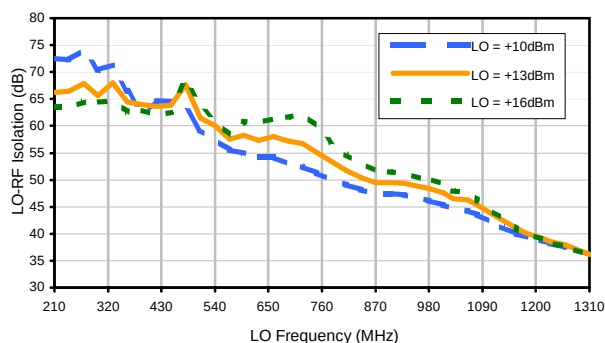
- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.
2. + entry denotes harmonics are in (dBc) above IF OUTPUT.
3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

Typical Performance Curves

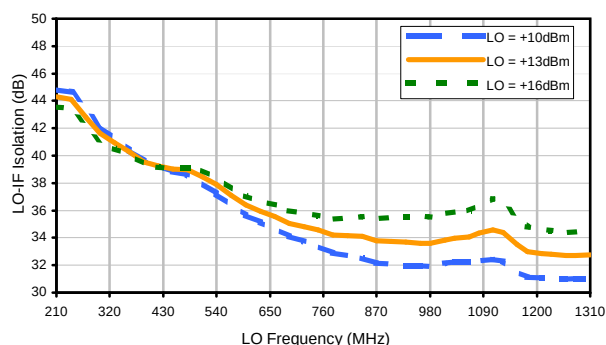


Typical Performance Curves

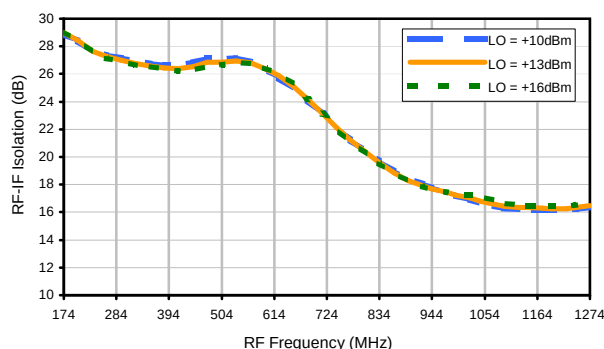
LO-RF Isolation



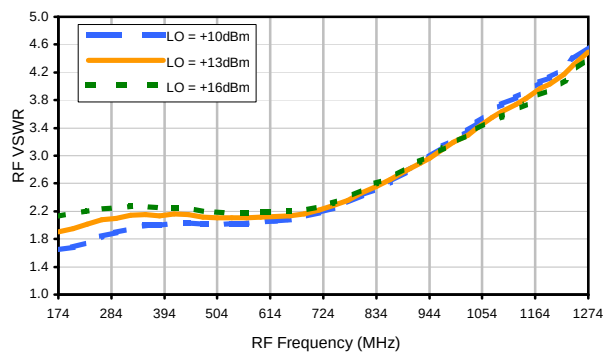
LO-IF Isolation



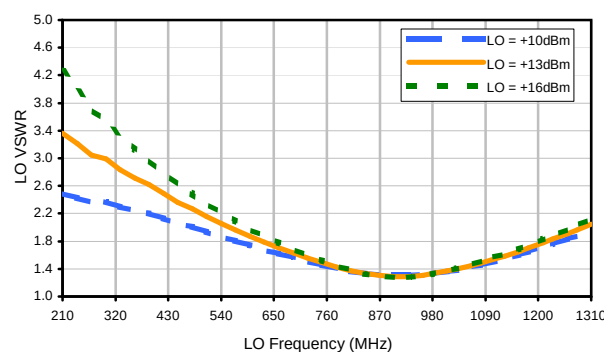
RF-IF Isolation



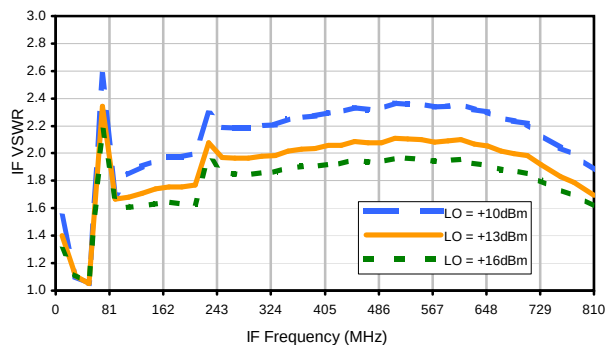
RF VSWR



LO VSWR



IF VSWR



Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	1	27	18	25	7	31	19	38	28	42
1	-	17	+0	38	14	29	37	48	43	37	52	45
2	87	>69	64	>69	68	>69	>69	>69	61	>69	69	>69
3	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
4	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
5	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
6	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
7	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
8	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
9	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
10	>90	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69	>69
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

LO HARMONICS ORDER

Test conditions: RF IN: 666 MHz; -13.00 dBm.
LO IN: 702 MHz; +13.00 dBm
IF OUT: 36 MHz; -20.81 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	11	37	28	36	18	43	29	48	39	53
1	-	17	+0	37	14	29	36	49	45	38	54	45
2	67	62	55	61	60	66	62	70	51	62	62	66
3	>90	63	56	68	54	61	55	67	68	73	66	74
4	>90	>79	>79	>79	75	>79	75	>79	>79	>79	>79	>79
5	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
6	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
7	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
8	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
9	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
10	>90	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79	>79
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

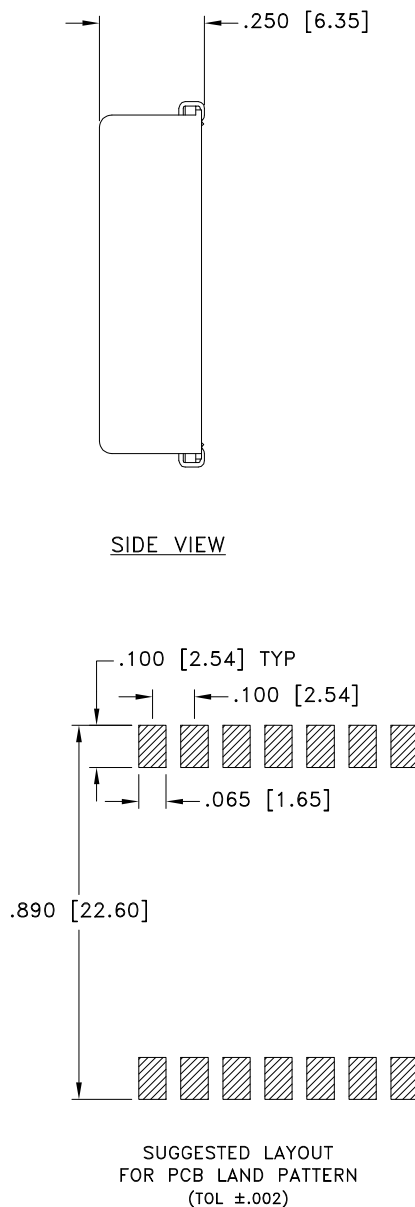
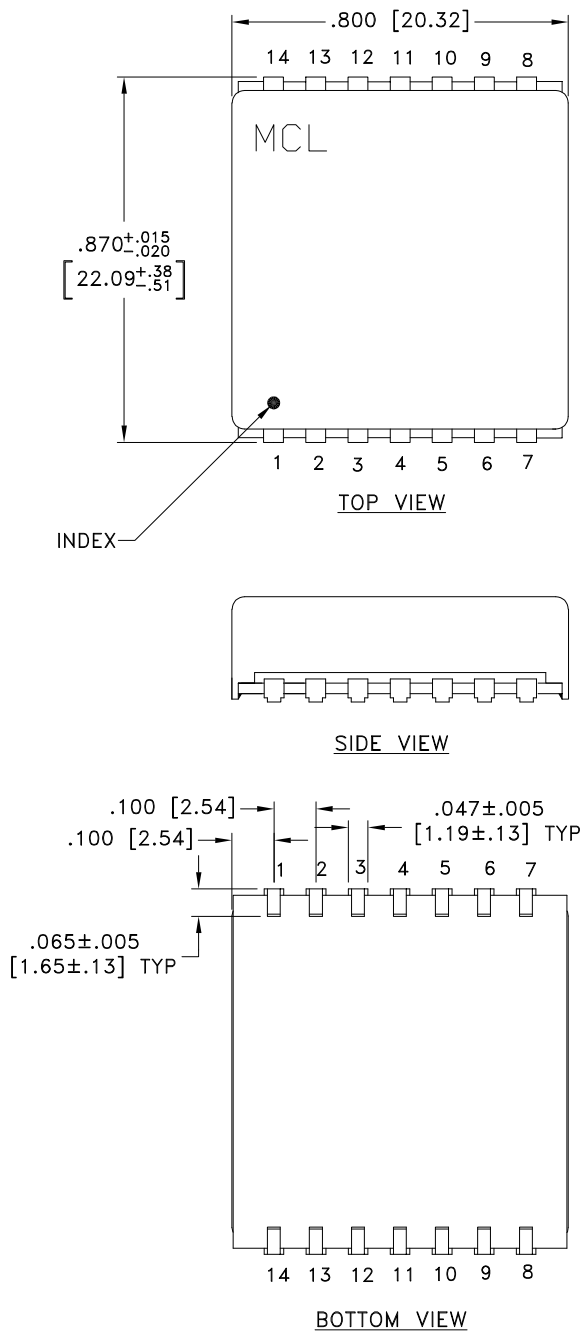
LO HARMONICS ORDER

Test conditions: RF IN: 666 MHz; -3.00 dBm.
LO IN: 702 MHz; +13.00 dBm
IF OUT: 36 MHz; -10.82 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

BG291



 DENOTES METALLIZATION

Weight: 4 gram

Dimensions are in inches[mm]. Tolerances: 2PL $\pm$ 0.03[0.76]; 3 PL $\pm$ 0.015 [0.381] inches[mm], unless otherwise specified

Notes:

1. Case material: Copper-Nickel alloy.
2. Base material: Printed wiring laminate.
3. 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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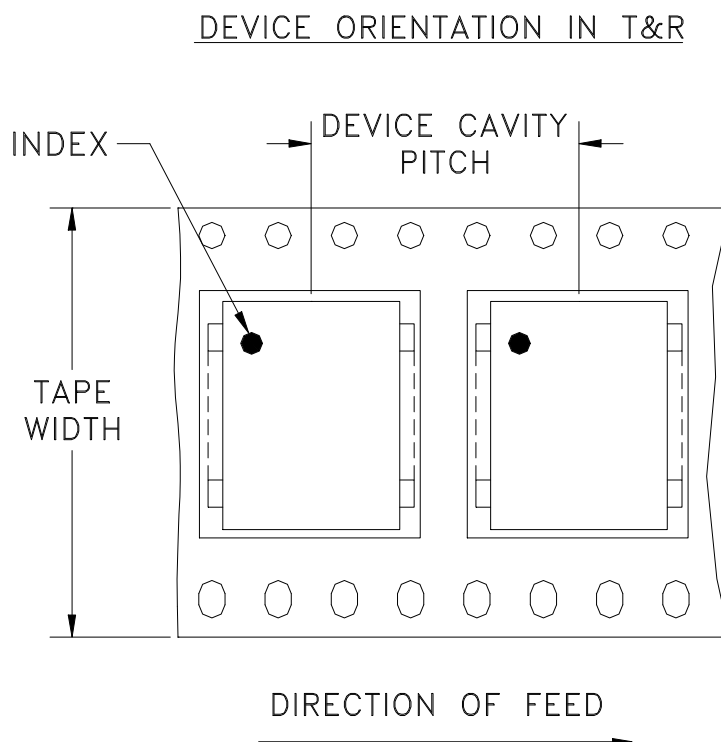
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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: www.minicircuits.com

RF/IF MICROWAVE COMPONENTS

Tape & Reel Packaging TR-F21



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel
32	32	13	200

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



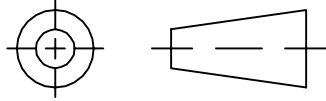
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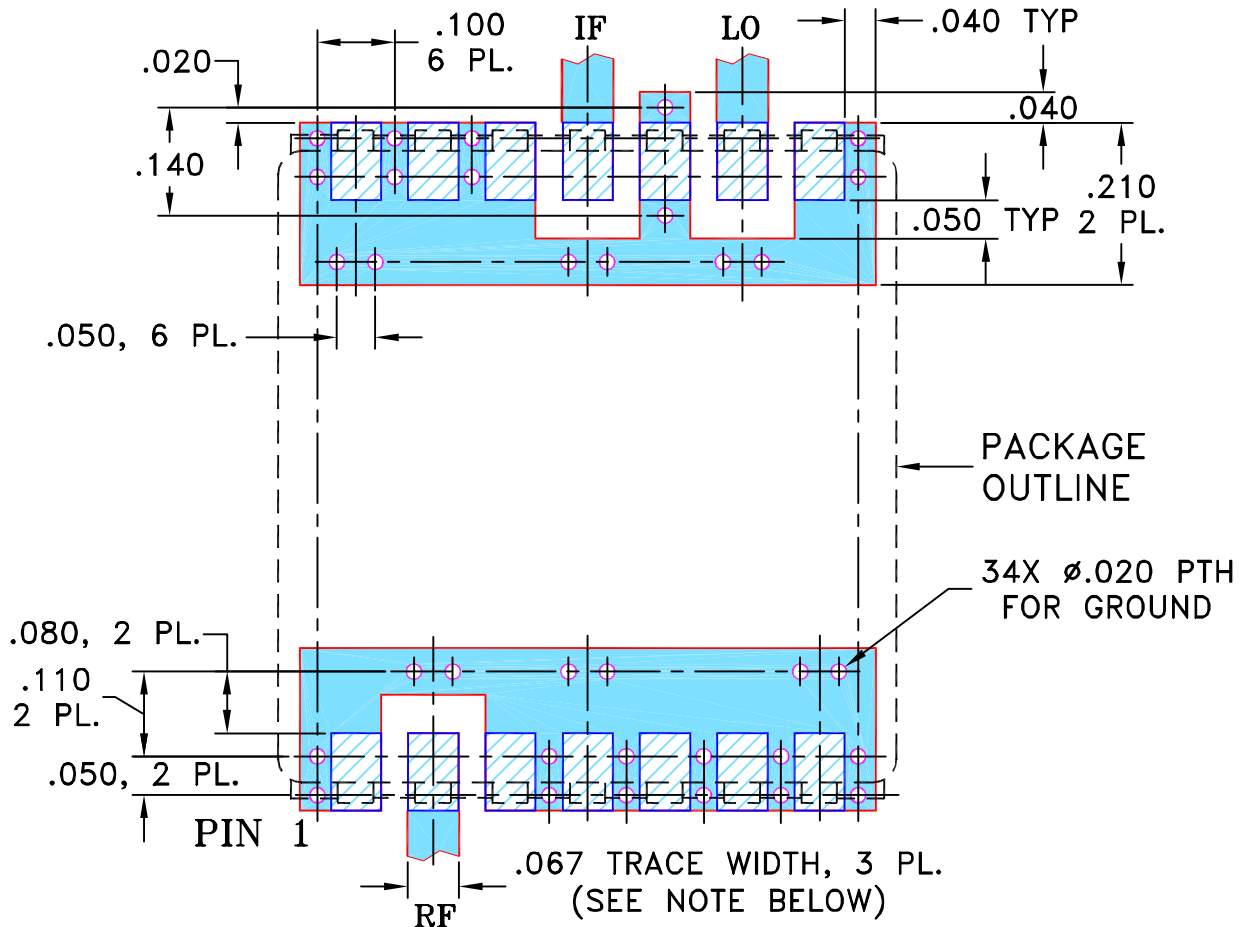
THIRD ANGLE PROJECTION



REVISIONS

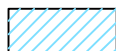
REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
OR	M101311	NEW RELEASE	11/21/05	MMG	WL
A	M102713	ADDED "...WITH SMOBC"	01/12/06	GT	IL

**SUGGESTED MOUNTING CONFIGURATION
FOR BG291 CASE STYLE, "kk" PIN CONNECTION.**



- NOTE: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B 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

INITIALS

DATE

DIMENSIONS ARE IN INCHES

DRAWN

MMG

11/10/05

TOLERANCES ON:

CHECKED

AY

11/21/05

2 PL DECIMALS $\pm$

APPROVED

WL

11/25/05

3 PL DECIMALS $\pm$.005ANGLES $\pm$ FRACTIONS $\pm$
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ASHEETA1.DWG REV:A DATE:01/12/95



Mini-Circuits®

13 Neptune Avenue
Brooklyn NY 11235

PL, kk, BG291, JCIR-25, TB-367

SIZE

A

CODE IDENT

15542

DRAWING NO:

98-PL-212

REV:

A

FILE: 98PL212

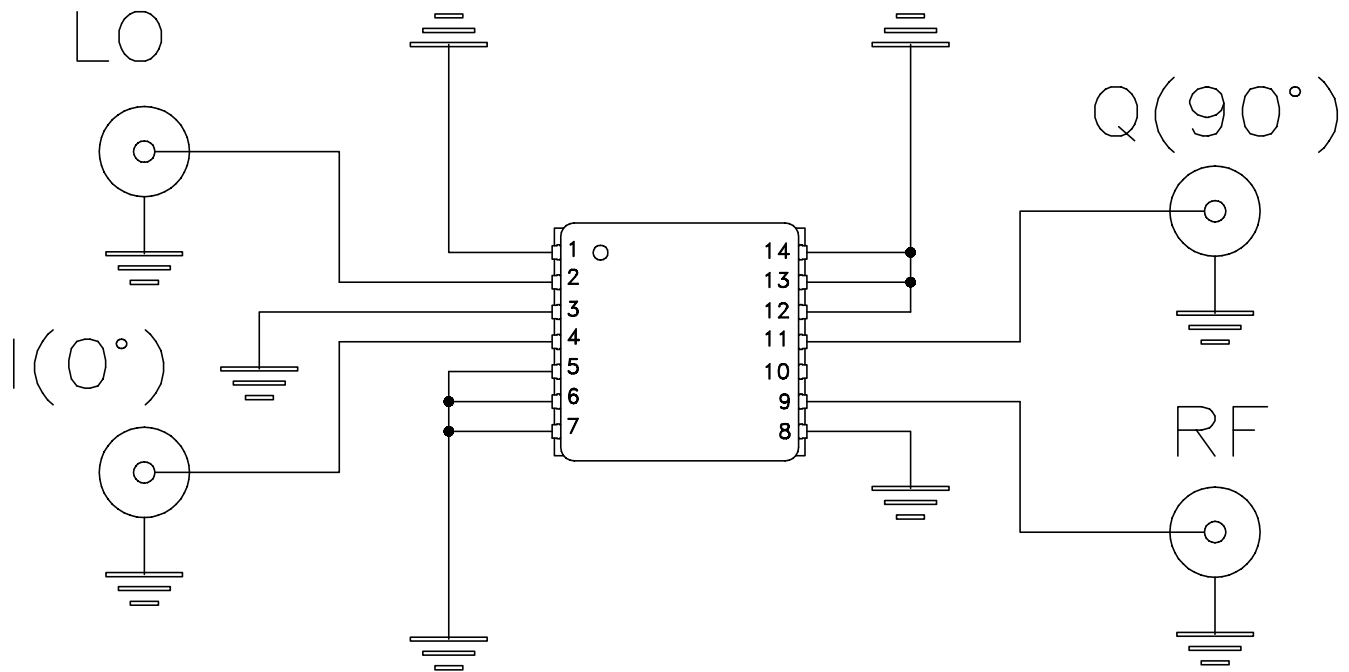
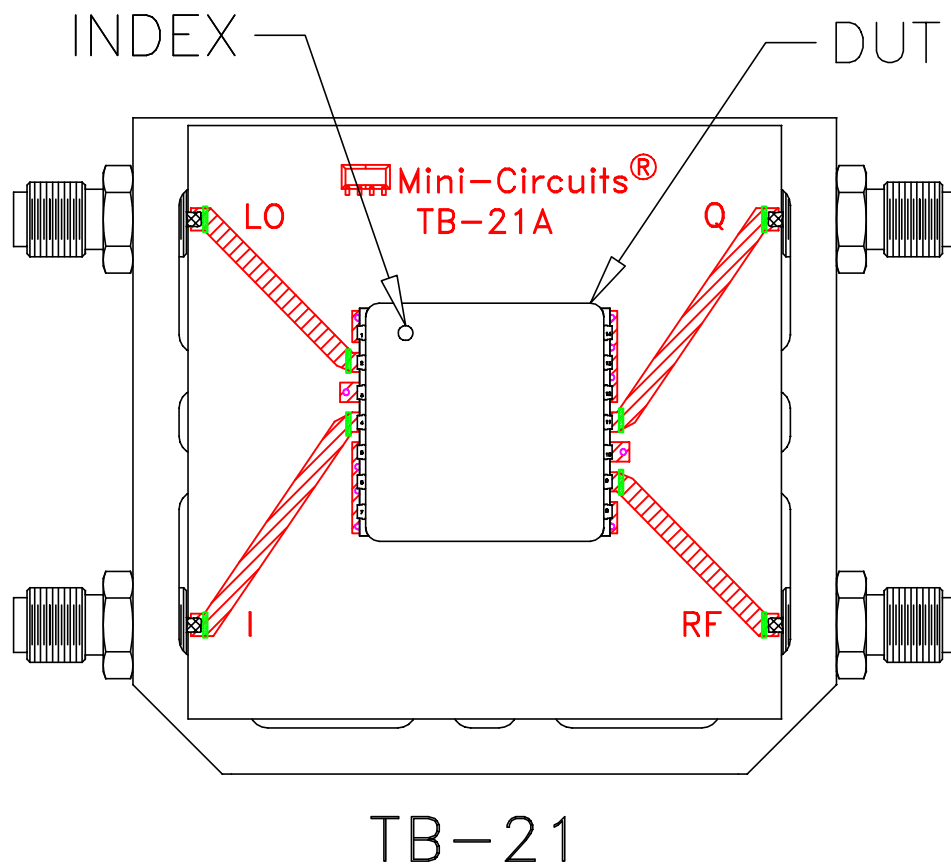
SCALE:

4:1

SHEET:

1 OF 1

Evaluation Board and Circuit



Schematic Diagram

Notes:

1. 50 Ohm SMA Female connectors.
2. PCB Material: R04350 or equivalent.
Dielectric Constant=3.5, Thickness=.030 inch.

 **Mini-Circuits®**



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 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 Eutetic Process: 225°C peak Pb-Free Process 245° - 250°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