

## Non-Catalog Model

# Frequency Mixer

## Level 7 (LO Power +7 dBm)

# RMS-1BM

### 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 : TT240**

ELECTRICAL SPECIFICATIONS 50Ω @ +25°C					
Parameter		Min.	Typ.	Max.	Units
<b>Frequency</b>	<b>LO</b> (fL to fU)	5		600	MHz
	<b>RF</b> (fL to fU)	5		600	MHz
	<b>IF</b>	0		600	MHz
<b>Conversion Loss</b>	<b>mid band</b>		6.0	7.0	dB
	<b>Total Range</b>			7.5	dB
<b>LO-RF Isolation</b>	<b>Low Range</b>	45	65		dB
	<b>Mid Range</b>	32	50		dB
	<b>Upper Range</b>	23	35		dB
<b>LO-IF Isolation</b>	<b>Low Range</b>	40	55		dB
	<b>Mid Range</b>	25	40		dB
	<b>Upper Range</b>	22	35		dB
<b>1 dB Comp. Input Power</b>			+1		dBm

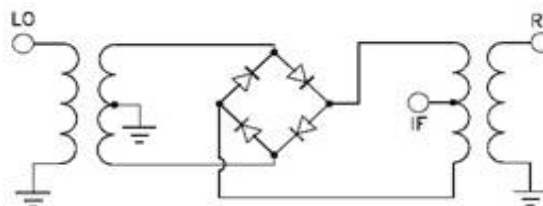
**Notes:** Low Range = [fL to 10fL]      Mid Range = [10fL to fU/2]      Upper Range = [fU/2 to fU]  
 mid band = [2fL to fU/2]

Phase detection, positive polarity  
Units are non-hermetic.

MAXIMUM RATINGS	
<b>Operating Temperature</b>	-40°C to 85°C
<b>Storage Temperature</b>	-55°C to 100°C
<b>RF Power</b>	50mW
<b>IF Current</b>	40mA

PIN CONNECTIONS	
<b>LO</b>	1
<b>RF</b>	4
<b>IF</b>	5
<b>GROUND</b>	2, 3, 6

### Electrical Schematics



# Frequency Mixer

# RMS-1BM

## 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=+1dBm (dB)		
		@LO (dBm)					@LO (dBm)					@LO (dBm)		
		+4	+7	+10			+4	+7	+10			+4	+7	+10
2.0	32.0	6.44	6.15	6.06	10.1	40.1	26.09	24.06	25.48	10.1	40.1	1.09	0.85	0.70
4.0	34.0	6.24	5.93	5.84	49.8	79.8	25.90	25.94	22.67	49.8	79.8	1.08	0.89	0.63
5.0	35.0	6.20	5.89	5.82	89.5	119.5	18.15	26.04	20.64	89.5	119.5	1.14	0.87	0.63
10.0	40.0	6.24	5.90	5.79	129.2	159.2	24.17	20.89	20.51	129.2	159.2	1.10	0.82	0.65
49.8	79.8	6.21	5.88	5.71	168.9	198.9	18.60	23.27	26.10	168.9	198.9	1.10	0.83	0.55
89.5	119.5	6.22	5.91	5.75	208.6	238.6	22.68	19.81	24.51	208.6	238.6	1.04	0.75	0.59
129.2	159.2	6.22	5.92	5.77	248.3	278.3	20.91	26.02	21.81	248.3	278.3	1.04	0.78	0.54
168.9	198.9	6.22	5.95	5.80	287.9	317.9	24.07	20.94	25.18	287.9	317.9	1.04	0.80	0.56
208.6	238.6	6.21	5.94	5.80	327.6	357.6	21.39	18.87	19.81	327.6	357.6	1.07	0.74	0.56
248.3	278.3	6.23	5.97	5.83	367.3	397.3	25.81	24.25	22.20	367.3	397.3	1.06	0.81	0.69
287.9	317.9	6.27	6.00	5.86	407.0	437.0	22.42	22.18	21.34	407.0	437.0	1.03	0.75	0.66
327.6	357.6	6.30	6.04	5.88	446.7	476.7	18.50	20.43	18.87	446.7	476.7	1.19	0.90	0.75
367.3	397.3	6.37	6.08	5.92	486.4	516.4	18.35	19.28	17.93	486.4	516.4	1.26	0.93	0.76
446.7	476.7	6.40	6.12	5.94	526.1	556.1	19.43	21.39	19.20	526.1	556.1	1.17	0.90	0.75
486.4	516.4	6.44	6.14	5.95	565.8	595.8	14.79	16.24	22.94	565.8	595.8	1.26	0.92	0.69
526.1	556.1	6.45	6.16	5.97	585.6	615.6	14.64	15.39	21.11	585.6	615.6	1.36	1.00	0.84
565.8	595.8	6.56	6.26	6.07	625.3	655.3	12.91	13.07	15.56	625.3	655.3	1.39	1.19	0.87
585.6	615.6	6.61	6.30	6.12	645.2	675.2	12.22	14.22	16.56	645.2	675.2	1.59	1.25	1.02
625.3	655.3	6.74	6.41	6.21	684.9	714.9	11.14	14.49	17.81	684.9	714.9	1.54	1.23	0.98
645.2	675.2	6.83	6.46	6.25	704.7	734.7	11.65	14.61	22.54	704.7	734.7	1.58	1.27	0.93
684.9	714.9	7.02	6.58	6.33	744.4	774.4	11.44	16.12	22.60	744.4	774.4	1.59	1.28	1.06
744.4	774.4	7.34	6.79	6.44	764.3	794.3	11.24	16.81	18.10	764.3	794.3	1.41	1.28	1.04
764.3	794.3	7.46	6.87	6.50	803.9	833.9	11.08	16.05	15.86	803.9	833.9	1.35	1.25	0.99
803.9	833.9	7.66	7.04	6.63	823.8	853.8	11.19	14.85	15.24	823.8	853.8	1.43	1.26	1.05
823.8	853.8	7.86	7.24	6.78	863.5	893.5	11.14	13.98	13.66	863.5	893.5	1.26	1.17	0.95
863.5	893.5	8.04	7.43	6.94	883.3	913.3	11.08	13.87	13.75	883.3	913.3	1.19	1.03	0.96
883.3	913.3	8.06	7.45	6.98	923.0	953.0	11.91	13.65	13.57	923.0	953.0	1.24	1.00	0.91
923.0	953.0	8.24	7.68	7.22	942.9	972.9	11.60	12.99	13.77	942.9	972.9	1.20	1.05	0.98
942.9	972.9	8.33	7.80	7.36	982.6	1012.6	12.70	13.79	13.25	982.6	1012.6	1.16	0.98	0.90
982.6	1012.6	8.50	8.01	7.61	1002.4	1032.4	12.84	13.80	13.81	1002.4	1032.4	1.15	0.96	0.87
1002.4	1032.4	8.64	8.15	7.78	1042.1	1072.1	15.84	14.40	17.17	1042.1	1072.1	0.98	0.77	0.73
1042.1	1072.1	8.83	8.38	8.04	1061.9	1091.9	16.13	15.85	15.09	1061.9	1091.9	1.09	0.74	0.60
1061.9	1091.9	8.91	8.45	8.15	1101.6	1131.6	15.58	15.03	14.92	1101.6	1131.6	1.19	0.79	0.67
1101.6	1131.6	9.09	8.65	8.42	1121.5	1151.5	13.07	13.18	13.88	1121.5	1151.5	1.07	0.85	0.63
1161.2	1191.2	9.41	9.02	8.90	1161.2	1191.2	12.07	12.01	13.70	1161.2	1191.2	1.12	0.83	0.66
1181.0	1211.0	9.57	9.18	9.08	1181.0	1211.0	11.22	12.62	12.97	1181.0	1211.0	1.00	0.80	0.81
1220.7	1250.7	9.75	9.47	9.47	1220.7	1250.7	11.22	12.15	14.85	1220.7	1250.7	0.90	0.75	0.63
1240.6	1270.6	10.05	9.70	9.70	1240.6	1270.6	10.14	12.31	14.01	1240.6	1270.6	1.13	0.73	0.56
1280.3	1310.3	10.53	10.19	10.21	1280.3	1310.3	10.17	12.59	13.48	1280.3	1310.3	1.06	0.76	0.54
1300.1	1330.1	10.78	10.48	10.52	1300.1	1330.1	10.43	13.48	13.17	1300.1	1330.1	1.09	0.68	0.60



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## Typical Performance Data

IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=300.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=10.1MHz (dB)	IF (OUT) (MHz)	LO (MHz)	CONVERSION LOSS VS. IF FREQUENCY @RF(IN)=600.1MHz (dB)
		@LO (dBm)			@LO (dBm)			@LO (dBm)
		+7			+7			+7
290.0	10.1	6.15	10.0	20.1	5.57	590.0	10.1	6.47
282.8	17.3	6.15	24.9	35.0	5.57	575.1	25.0	6.39
275.6	24.5	6.12	39.7	49.8	5.55	560.3	39.8	6.36
268.5	31.6	6.11	54.6	64.7	5.46	545.4	54.7	6.32
261.3	38.8	6.09	69.5	79.6	5.43	530.5	69.6	6.31
254.1	46.0	6.08	84.4	94.5	5.49	515.6	84.5	6.29
246.9	53.2	6.10	99.2	109.3	5.56	500.8	99.3	6.25
239.7	60.4	6.08	114.1	124.2	5.61	485.9	114.2	6.23
232.6	67.5	6.04	129.0	139.1	5.60	471.0	129.1	6.19
225.4	74.7	6.02	143.8	153.9	5.61	456.2	143.9	6.21
218.2	81.9	6.04	158.7	168.8	5.62	441.3	158.8	6.23
211.0	89.1	6.03	173.6	183.7	5.65	426.4	173.7	6.22
203.8	96.3	6.00	188.5	198.6	5.65	411.5	188.6	6.19
196.7	103.4	5.99	203.3	213.4	5.63	396.7	203.4	6.18
189.5	110.6	6.00	218.2	228.3	5.62	381.8	218.3	6.19
182.3	117.8	5.98	233.1	243.2	5.62	366.9	233.2	6.19
175.1	125.0	5.97	247.9	258.0	5.69	352.1	248.0	6.20
167.9	132.2	5.97	262.8	272.9	5.76	337.2	262.9	6.19
160.8	139.3	5.96	277.7	287.8	5.79	322.3	277.8	6.19
153.6	146.5	5.97	292.6	302.7	5.78	307.4	292.7	6.18
146.4	153.7	5.94	307.4	317.5	5.77	292.6	307.5	6.17
139.2	160.9	5.97	322.3	332.4	5.78	277.7	322.4	6.18
132.1	168.0	5.98	337.2	347.3	5.80	262.8	337.3	6.18
124.9	175.2	5.98	352.1	362.2	5.81	247.9	352.2	6.19
117.7	182.4	5.99	366.9	377.0	5.83	233.1	367.0	6.19
110.5	189.6	5.98	381.8	391.9	5.81	218.2	381.9	6.19
103.3	196.8	5.97	396.7	406.8	5.81	203.3	396.8	6.17
96.2	203.9	5.97	411.5	421.6	5.84	188.5	411.6	6.13
89.0	211.1	5.96	426.4	436.5	5.89	173.6	426.5	6.11
81.8	218.3	5.96	441.3	451.4	5.93	158.7	441.4	6.16
74.6	225.5	5.83	456.2	466.3	5.92	143.8	456.3	6.15
67.4	232.7	5.82	471.0	481.1	5.91	129.0	471.1	6.17
60.3	239.8	5.85	485.9	496.0	5.93	114.1	486.0	6.17
53.1	247.0	5.99	500.8	510.9	5.98	99.2	500.9	6.17
45.9	254.2	5.99	515.6	525.7	5.99	84.4	515.7	6.18
38.7	261.4	6.01	530.5	540.6	6.00	69.5	530.6	6.19
31.5	268.6	6.02	545.4	555.5	6.02	54.6	545.5	6.23
24.4	275.7	6.05	560.3	570.4	6.04	39.7	560.4	6.25
17.2	282.9	6.12	575.1	585.2	6.05	24.9	575.2	6.29
10.0	290.1	6.26	590.0	600.1	6.07	10.0	590.1	6.49

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## Typical Performance Data

LO (MHz)	LO-RF ISOLATION (dB)			LO-IF ISOLATION (dB)		
	@LO (dBm)			@LO (dBm)		
	+4	+7	+10	+4	+7	+10
2.0	76.36	77.45	78.57	61.46	62.05	62.37
4.0	76.01	77.30	78.72	61.31	61.60	61.92
5.0	75.18	76.89	78.20	61.28	61.49	61.60
10.0	71.36	74.36	77.17	60.46	60.26	59.90
49.8	61.05	58.03	56.23	63.32	67.31	61.34
89.5	57.51	53.85	51.74	59.42	59.58	58.15
129.2	55.33	51.12	48.83	58.08	57.67	56.08
168.9	53.36	49.10	46.78	55.79	55.63	54.35
208.6	51.52	47.47	45.17	52.12	53.29	52.85
248.3	49.38	45.71	43.54	49.08	51.28	51.83
287.9	47.61	44.50	42.43	47.07	49.61	51.04
327.6	45.62	43.01	41.17	45.00	47.58	49.48
367.3	43.57	41.24	39.62	43.47	46.00	48.16
446.7	41.85	39.95	38.36	41.39	44.61	47.63
486.4	40.84	39.41	37.89	40.20	43.31	46.14
526.1	39.23	38.38	37.02	38.90	41.50	43.64
565.8	37.84	37.38	36.29	37.47	39.66	41.24
585.6	37.13	36.83	35.92	36.98	39.00	40.44
625.3	36.18	35.99	35.32	36.06	37.81	38.94
645.2	35.71	35.50	34.86	35.92	37.53	38.40
684.9	35.07	34.96	34.49	35.67	37.06	37.58
744.4	34.24	34.35	34.15	34.90	35.59	35.29
764.3	33.94	34.09	33.96	34.48	34.93	34.42
803.9	33.26	33.57	33.61	33.15	32.95	32.07
823.8	32.91	33.19	33.15	32.54	31.92	30.80
863.5	31.93	32.38	32.39	31.02	30.13	28.90
883.3	31.63	32.18	32.29	30.44	29.38	28.06
923.0	30.76	31.35	31.44	28.88	27.66	26.29
942.9	30.32	30.96	31.08	28.33	27.10	25.69
982.6	29.42	30.11	30.24	26.97	25.80	24.44
1002.4	29.21	29.83	29.81	26.16	24.94	23.53
1042.1	28.29	28.96	28.90	24.81	23.71	22.31
1061.9	27.99	28.65	28.53	24.05	22.97	21.57
1101.6	27.21	27.83	27.52	22.57	21.51	20.03
1161.2	25.83	26.42	26.04	20.50	19.55	18.06
1181.0	25.30	25.83	25.39	19.73	18.80	17.34
1220.7	24.37	24.83	24.41	18.37	17.46	16.06
1240.6	23.87	24.19	23.75	17.68	16.75	15.38
1280.3	22.88	23.15	22.78	16.51	15.58	14.36
1300.1	22.30	22.56	22.24	15.95	15.09	13.91

RF (IN) (MHz)	LO (MHz)	RF-IF ISOLATION (dB)		
		@LO (dBm)		
		+4	+7	+10
10.1	40.1	48.26	44.55	43.44
49.8	79.8	33.73	33.89	33.97
89.5	119.5	29.47	29.43	29.62
129.2	159.2	26.81	26.85	26.95
168.9	198.9	25.17	25.28	25.39
208.6	238.6	24.06	24.22	24.32
248.3	278.3	23.48	23.63	23.71
287.9	317.9	23.15	23.39	23.58
327.6	357.6	23.04	23.35	23.60
367.3	397.3	23.24	23.54	23.76
407.0	437.0	23.92	24.18	24.41
446.7	476.7	24.64	25.13	25.47
486.4	516.4	24.54	25.25	25.86
526.1	556.1	23.32	23.89	24.41
565.8	595.8	21.24	21.52	21.72
585.6	615.6	20.30	20.45	20.60
625.3	655.3	18.25	18.25	18.28
645.2	675.2	17.48	17.43	17.42
684.9	714.9	16.03	15.89	15.86
704.7	734.7	15.47	15.32	15.28
744.4	774.4	14.55	14.40	14.35
764.3	794.3	14.22	14.07	14.04
803.9	833.9	13.66	13.55	13.56
823.8	853.8	13.45	13.37	13.37
863.5	893.5	13.10	13.07	13.11
883.3	913.3	12.92	12.95	13.04
923.0	953.0	12.62	12.73	12.88
942.9	972.9	12.48	12.63	12.82
982.6	1012.6	12.22	12.46	12.75
1002.4	1032.4	12.05	12.31	12.62
1042.1	1072.1	11.81	12.13	12.47
1061.9	1091.9	11.70	12.05	12.38
1101.6	1131.6	11.45	11.79	12.04
1121.5	1151.5	11.35	11.67	11.83
1161.2	1191.2	11.02	11.24	11.25
1181.0	1211.0	10.81	10.96	10.91
1220.7	1250.7	10.35	10.34	10.15
1240.6	1270.6	10.04	10.02	9.83
1280.3	1310.3	9.43	9.33	9.09
1300.1	1330.1	9.11	8.97	8.73

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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=600.1MHz (:1)		
		@LO (dBm)				@LO (dBm)				@LO (dBm)		
		+4	+7	+10		+4	+7	+10		+4	+7	+10
5.0	35.0	1.14	1.16	1.20	5.0	1.68	2.41	3.33	5.0	1.39	1.24	1.14
10.0	40.0	1.06	1.10	1.15	10.0	1.64	2.36	3.28	10.0	1.40	1.25	1.15
49.8	79.8	1.02	1.08	1.13	49.8	1.76	2.56	3.60	25.0	1.74	1.58	1.40
89.5	119.5	1.04	1.10	1.15	89.5	1.75	2.55	3.54	39.8	1.66	1.46	1.33
129.2	159.2	1.06	1.12	1.17	129.2	1.75	2.53	3.52	54.7	1.63	1.43	1.28
168.9	198.9	1.09	1.14	1.19	168.9	1.77	2.53	3.50	69.6	1.61	1.43	1.29
208.6	238.6	1.11	1.17	1.21	208.6	1.77	2.52	3.46	84.5	1.62	1.45	1.31
248.3	278.3	1.13	1.18	1.23	248.3	1.81	2.57	3.51	99.3	1.64	1.46	1.32
287.9	317.9	1.16	1.21	1.25	287.9	1.85	2.59	3.54	114.2	1.65	1.47	1.33
327.6	357.6	1.17	1.22	1.27	327.6	1.88	2.65	3.60	129.1	1.63	1.46	1.32
367.3	397.3	1.19	1.24	1.28	367.3	1.95	2.73	3.70	143.9	1.63	1.46	1.32
407.0	437.0	1.23	1.28	1.32	407.0	1.96	2.72	3.65	158.8	1.63	1.45	1.32
446.7	476.7	1.27	1.31	1.36	446.7	2.03	2.80	3.75	173.7	1.63	1.47	1.34
486.4	516.4	1.31	1.36	1.41	486.4	2.05	2.78	3.69	188.6	1.65	1.48	1.35
526.1	556.1	1.35	1.40	1.45	526.1	2.10	2.84	3.75	203.4	1.66	1.49	1.36
565.8	595.8	1.38	1.42	1.47	565.8	2.17	2.91	3.82	218.3	1.66	1.49	1.36
585.6	615.6	1.39	1.43	1.48	585.6	2.19	2.92	3.83	233.2	1.64	1.47	1.35
625.3	655.3	1.41	1.44	1.48	625.3	2.26	3.00	3.90	248.0	1.63	1.46	1.35
645.2	675.2	1.43	1.46	1.49	645.2	2.32	3.07	3.98	262.9	1.64	1.48	1.36
684.9	714.9	1.47	1.49	1.52	684.9	2.37	3.10	3.98	277.8	1.68	1.52	1.40
704.7	734.7	1.51	1.52	1.55	704.7	2.38	3.09	3.95	292.7	1.68	1.52	1.40
744.4	774.4	1.62	1.62	1.64	744.4	2.49	3.20	4.07	307.5	1.67	1.51	1.40
764.3	794.3	1.70	1.70	1.71	764.3	2.48	3.18	4.02	322.4	1.67	1.51	1.40
803.9	833.9	1.89	1.87	1.87	803.9	2.55	3.25	4.07	337.3	1.68	1.52	1.41
823.8	853.8	1.99	1.96	1.96	823.8	2.64	3.37	4.22	352.2	1.68	1.53	1.42
863.5	893.5	2.19	2.16	2.15	863.5	2.67	3.36	4.18	367.0	1.68	1.54	1.44
883.3	913.3	2.30	2.26	2.25	883.3	2.70	3.38	4.18	381.9	1.70	1.55	1.45
923.0	953.0	2.49	2.46	2.44	923.0	2.80	3.50	4.31	396.8	1.71	1.56	1.46
942.9	972.9	2.60	2.57	2.55	942.9	2.78	3.45	4.23	411.6	1.72	1.57	1.47
982.6	1012.6	2.78	2.75	2.73	982.6	2.82	3.45	4.19	426.5	1.73	1.58	1.49
1002.4	1032.4	2.84	2.82	2.80	1002.4	2.89	3.53	4.28	441.4	1.73	1.59	1.49
1042.1	1072.1	2.97	2.95	2.93	1042.1	2.91	3.51	4.22	456.3	1.74	1.60	1.50
1061.9	1091.9	3.02	3.00	2.99	1061.9	2.94	3.52	4.21	471.1	1.74	1.61	1.51
1101.6	1131.6	3.13	3.12	3.11	1101.6	2.97	3.52	4.17	486.0	1.75	1.61	1.52
1121.5	1151.5	3.19	3.17	3.16	1121.5	2.97	3.49	4.10	500.9	1.76	1.62	1.53
1161.2	1191.2	3.26	3.25	3.24	1161.2	2.98	3.45	4.01	515.7	1.76	1.63	1.54
1181.0	1211.0	3.30	3.29	3.27	1181.0	2.98	3.43	3.96	530.6	1.77	1.64	1.55
1220.7	1250.7	3.35	3.33	3.31	1220.7	3.00	3.40	3.88	545.5	1.80	1.66	1.57
1240.6	1270.6	3.35	3.34	3.31	1240.6	3.02	3.40	3.86	560.4	1.82	1.69	1.60
1280.3	1310.3	3.38	3.35	3.31	1280.3	2.99	3.32	3.71	575.2	1.83	1.70	1.61
1300.1	1330.1	3.36	3.32	3.29	1300.1	2.97	3.27	3.63	590.1	1.83	1.70	1.61

## Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	18	23	37	19	35	26	44	35	36
1	-	17	+0	27	12	30	19	37	35	39	39	39
2	103	65	69	63	68	63	67	66	60	71	59	68
3	127	77	74	79	69	77	64	80	71	80	70	75
4	111	95	97	96	90	88	89	96	93	91	100	97
5	114	107	109	113	88	88	88	89	98	106	91	99
6	119	109	102	102	98	101	89	92	102	94	102	106
7	114	104	112	103	102	108	90	83	95	102	99	103
8	110	102	107	106	102	103	101	94	83	98	97	100
9	117	100	102	104	110	107	111	101	106	83	86	97
10	111	106	106	109	104	107	114	109	107	99	78	99
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

### LO HARMONICS ORDER

Test conditions: RF IN: 300.1 MHz; -14.00 dBm.  
 LO IN: 330.01 MHz; +7.00 dBm  
 IF OUT: 29.91 MHz; -20.12 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	36	28	33	50	31	46	38	51	47	48
1	-	17	+0	27	12	31	19	40	35	44	40	44
2	99	57	59	58	59	76	58	64	50	65	54	72
3	115	56	51	55	54	60	48	62	48	64	56	56
4	111	68	73	64	87	62	97	61	70	65	70	71
5	113	77	68	67	60	68	57	66	56	95	58	73
6	120	86	95	78	84	81	81	84	79	85	85	78
7	131	87	85	84	75	97	78	82	81	79	77	86
8	119	95	95	94	92	84	92	85	91	87	98	83
9	116	97	103	100	93	90	90	107	94	91	93	112
10	118	100	113	106	104	104	98	91	107	91	99	100
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

### LO HARMONICS ORDER

Test conditions: RF IN: 300.1 MHz; -4.00 dBm.  
 LO IN: 330.01 MHz; +7.00 dBm  
 IF OUT: 29.91 MHz; -10.11 dBm

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

REV. X2  
 RMS-1BM  
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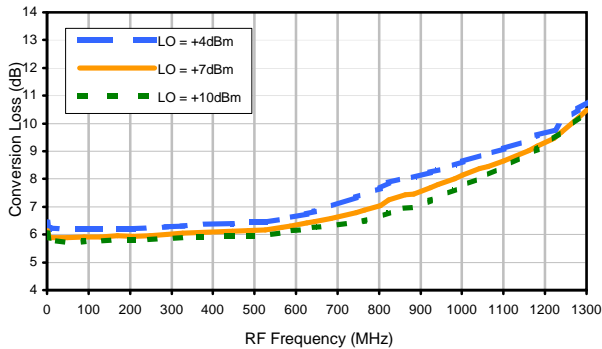


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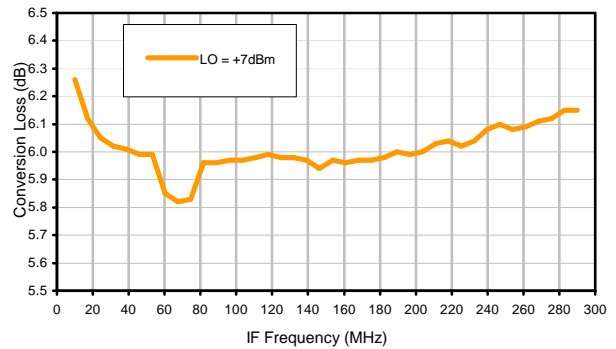


## Typical Performance Curves

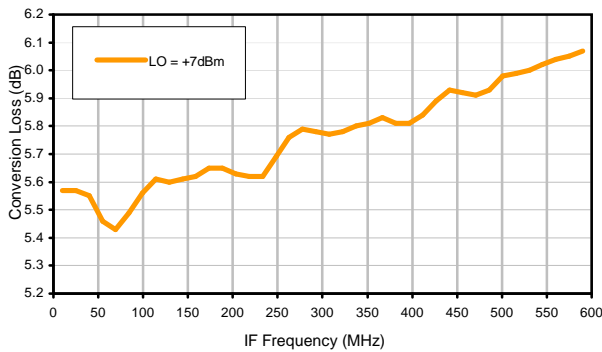
### Conversion Loss @ IF=30MHz



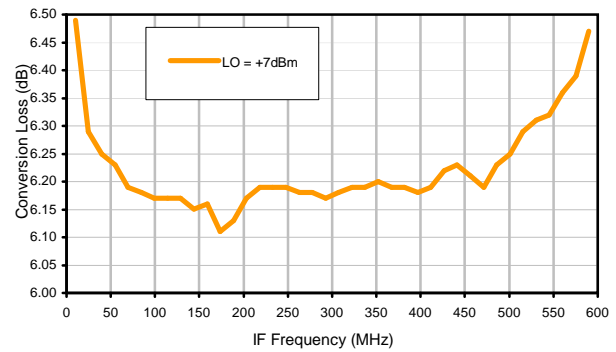
### Conversion Loss vs. IF @ RF=300.1MHz



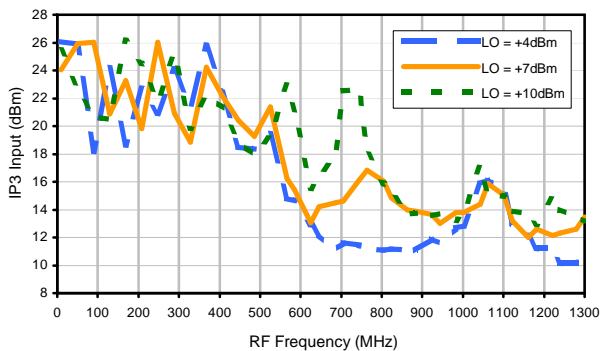
### Conversion Loss vs. IF @ RF=10.1MHz



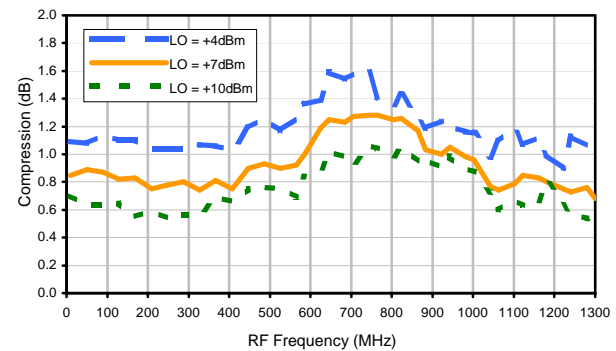
### Conversion Loss vs. IF @ RF=600.1MHz



### IP3 Input

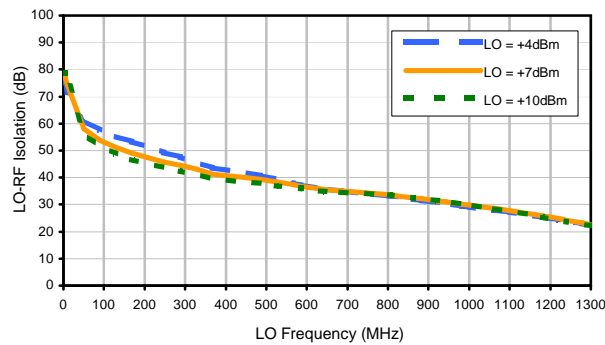


### Compression @ RF IN=+1dBm

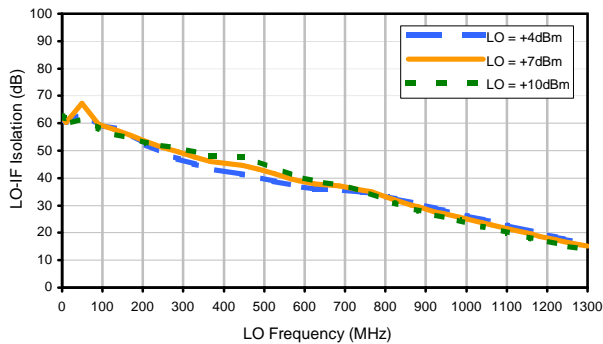


## Typical Performance Curves

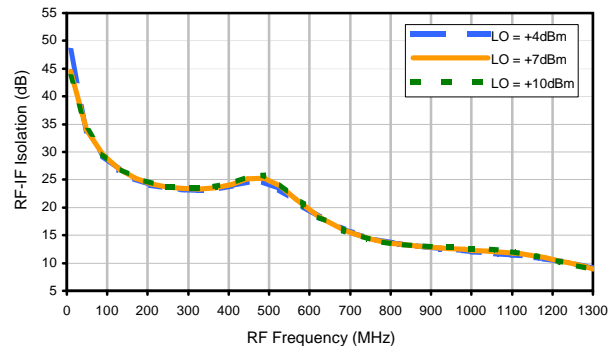
LO-RF Isolation



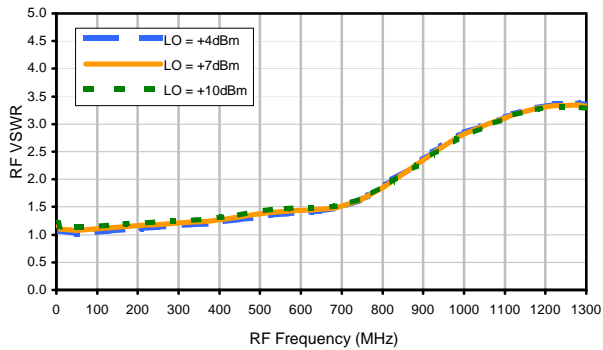
LO-IF Isolation



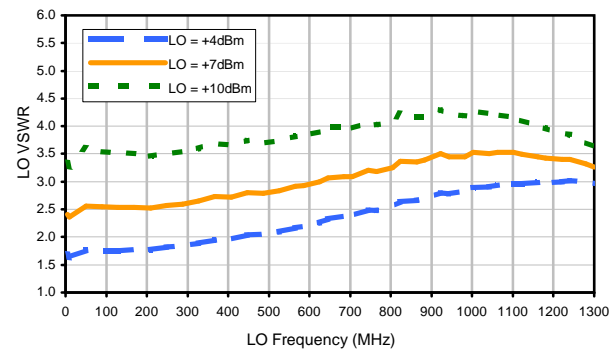
RF-IF Isolation



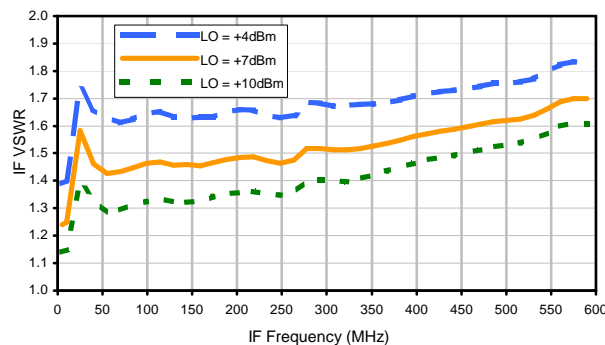
RF VSWR



LO VSWR



IF VSWR



## Harmonics Tables

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	26	18	23	37	19	35	26	44	35	36
1	-	17	+0	27	12	30	19	37	35	39	39	39
2	103	65	69	63	68	63	67	66	60	71	59	68
3	127	77	74	79	69	77	64	80	71	80	70	75
4	111	95	97	96	90	88	89	96	93	91	100	97
5	114	107	109	113	88	88	88	89	98	106	91	99
6	119	109	102	102	98	101	89	92	102	94	102	106
7	114	104	112	103	102	108	90	83	95	102	99	103
8	110	102	107	106	102	103	101	94	83	98	97	100
9	117	100	102	104	110	107	111	101	106	83	86	97
10	111	106	106	109	104	107	114	109	107	99	78	99
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

### LO HARMONICS ORDER

Test conditions: RF IN: 300.1 MHz; -14.00 dBm.  
 LO IN: 330.01 MHz; +7.00 dBm  
 IF OUT: 29.91 MHz; -20.12 dBm

RF HARMONICS ORDER

	(-dBm)	(-dBc)										
0	-	-	36	28	33	50	31	46	38	51	47	48
1	-	17	+0	27	12	31	19	40	35	44	40	44
2	99	57	59	58	59	76	58	64	50	65	54	72
3	115	56	51	55	54	60	48	62	48	64	56	56
4	111	68	73	64	87	62	97	61	70	65	70	71
5	113	77	68	67	60	68	57	66	56	95	58	73
6	120	86	95	78	84	81	81	84	79	85	85	78
7	131	87	85	84	75	97	78	82	81	79	77	86
8	119	95	95	94	92	84	92	85	91	87	98	83
9	116	97	103	100	93	90	90	107	94	91	93	112
10	118	100	113	106	104	104	98	91	107	91	99	100
	RF CAL	0	1	2	3	4	5	6	7	8	9	10

### LO HARMONICS ORDER

Test conditions: RF IN: 300.1 MHz; -4.00 dBm.  
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- Notes: 1. All Harmonics are in (dBc) relative to IF OUTPUT.  
 2. + entry denotes harmonics are in (dBc) above IF OUTPUT.  
 3. RF Cal represent the Harmonics level of the RF input signal to the mixer.

REV. X2  
 RMS-1BM  
 100817  
 Page 3 of 3

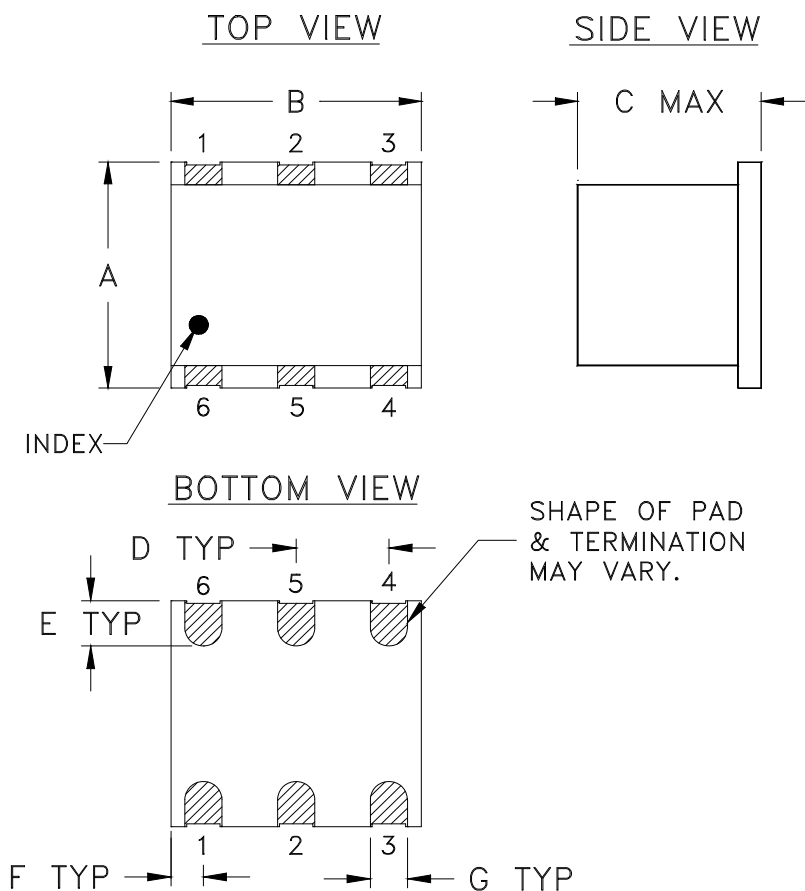


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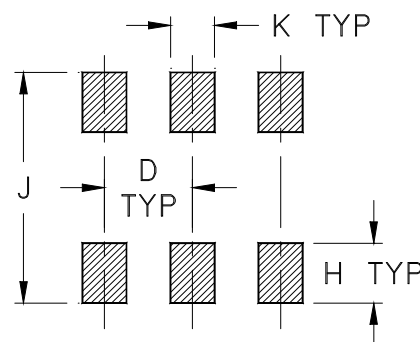


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### Outline Dimensions



### PCB Land Pattern



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

CASE #	A	B	C	D	E	F	G	H	J	K	WT. GRAM
TT240	.250 (6.35)	.31 (7.87)	.20 (5.08)	.100 (2.54)	.050 (1.27)	.055 (1.40)	.040 (1.02)	.070 (1.78)	.270 (6.86)	.050 (1.27)	.50

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

#### Notes:

- Case material: Ceramic.
- Termination finish:
  - For RoHS Case Styles: 2-10 $\mu$  inch (.05-.25 microns) Gold plate over 100-300  $\mu$  inch (2.54-7.62 microns) Nickel plate. All models, (+) suffix.
  - For RoHS-5 Case Styles: Tin-Lead plate. All models, no (+) suffix.



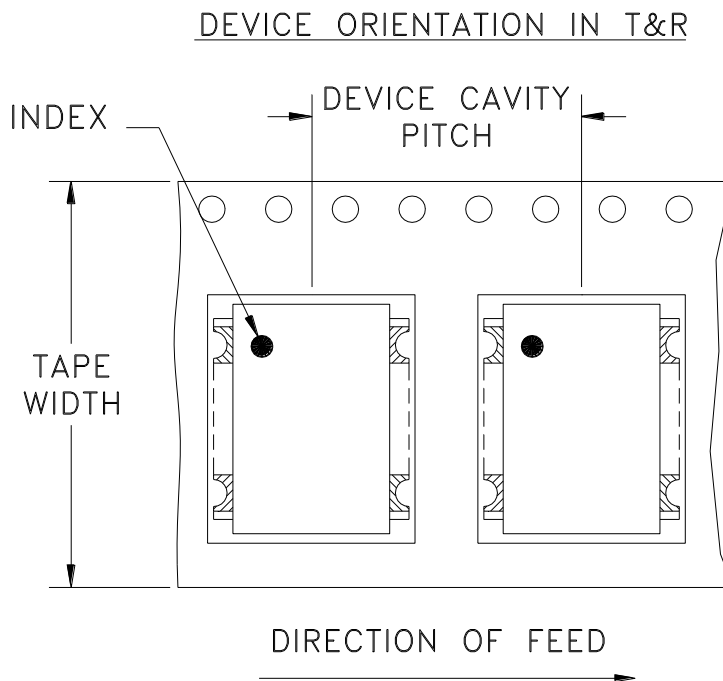
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RF/IF MICROWAVE COMPONENTS

# Tape & Reel Packaging TR-F2



Tape Width, mm	Device Cavity Pitch, mm	Reel Size, inches	Devices per Reel See note
16	12	7	10
			20
			50
			100
			200
		13	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](http://www.minicircuits.com/pages/pdfs/tape.pdf)



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THIRD ANGLE PROJECTION



REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
A	M101143	ADDED "gk" PIN CONNECTION, TT100 CASE STYLE & NOTE 2	10/10/05	MMG	DJ
B	M102713	ADDED "...WITH SMOBC"	01/17/06	MMG	IL
C	M108637	REMOVED "PIN 1", ADDED INDEX ON UNIT	12/01/06	MYG	FL

SUGGESTED MOUNTING CONFIGURATION  
FOR BH292, CD541/542/636/637, TT100/240 CASE  
STYLES, "gk", "ht", "hu", "nd", "w" PIN CONNECTIONS



- NOTES:** 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .030" ± .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 <b>MMG</b>	07/17/02
TOLERANCES ON:	CHECKED <b>WL</b>	08/02/02
2 PL DECIMALS ±	APPROVED <b>DJ</b>	08/05/02
3 PL DECIMALS ± .005		
ANGLES ±		
FRACTIONS ±		

**Mini-Circuits®** 13 Neptune Avenue  
 Brooklyn NY 11235

PL, gk/ht/hu/nd/w, BH292,  
 CD541/542/636/637, TT100/240, TB-03

SIZE <b>A</b>	CODE IDENT <b>15542</b>	DRAWING NO: <b>98-PL-052</b>	REV: <b>C</b>
FILE: <b>98PL052</b>	SCALE: <b>8:1</b>	SHEET: <b>1 OF 1</b>	

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REVISIONS

REV	ECN No.	DESCRIPTION	DATE	DR	AUTH
E	M119737	UPDATED PCB	10.08	MF	AD
F	M127659	UPDATED CARR	06.10	SW	SG
G	M127846	UPDATED SCHEMATIC DIAGRAM	06.10	SW	SG
H	M131840	UPDATED DWG	05.11	MF	AD



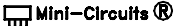
**NOTES:**

1. REFER TO -09 PAGE FOR ITEM DESCRIPTIONS.  
DESIGNATION NUMBERS ON -20 PAGE CORRESPOND TO THE NUMBERS ON -09 PAGE.
2. FOR TEXT HEIGHT & STYLE ON THE LABEL REFER TO: D3-G209.

UNLESS OTHERWISE SPECIFIED	INITIALS	DATE
DIMENSIONS ARE IN INCHES TOLERANCES ON: 2 PL DECIMALS ± 3 PL DECIMALS ± ANGLES ± FRACTIONS ±	DRAWN	S.WOLYNSKI 06.29.99
	CHECKED	SG 07.06.99
	APPROVED	MG 07.10.99

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Brooklyn NY 11235

TB,ADE,CD542/636,06MX01,50

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SIZE A	CODE IDENT 15542	DRAWING NO: TB-03-20	REV: H
FILE: WTB-03	SCALE: 1.5:1	SHEET: 1 OF 2	

# Evaluation Board and Circuit

For Pin Connections and DUT Orientation Refer to  
Data Sheet of the DUT



TB-03



Schematic Diagram

## Notes:

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

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