

X3 Frequency Multiplier

50Ω Output 900 to 1200 MHz

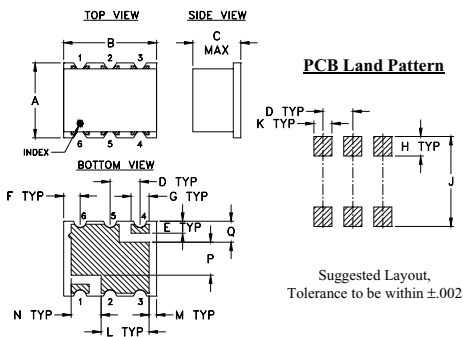
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	17 dBm
Permanent damage may occur if any of these limits are exceeded.	

Pin Connections

INPUT	1
OUTPUT	4
GROUND	2,3,5,6

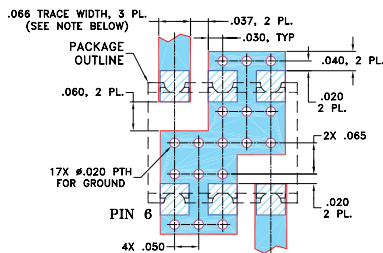
Outline Drawing



Outline Dimensions (inch)

A	B	C	D	E	F	G	H
.25	.31	.16	.100	.040	.055	.060	.065
6.35	7.87	4.06	2.54	1.02	1.40	1.52	1.65
J	K	L	M	N	P	Q	wt.
.300	.060	.160	.025	.100	.110	.070	grams
7.62	1.52	4.06	0.64	2.54	2.79	1.78	0.16

Demo Board MCL P/N: TB-393 Suggested PCB Layout (PL-258)



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

Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the Standard Terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/MCLStore/terms.jsp

Features

- broadband
- low conversion loss, 14.5 dB typ.
- high rejection F2, -48 dBc typ.; F4, -52 dBc typ.
- low cost
- aqueous washable

Applications

- synthesizers
- local oscillators
- satellite up and down converters

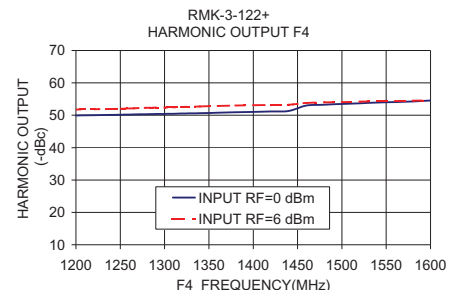
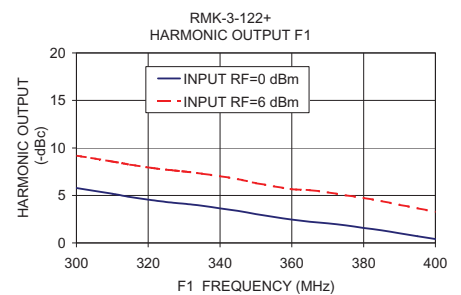
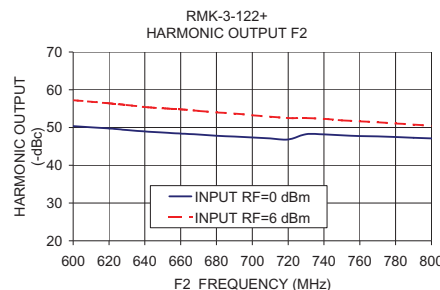
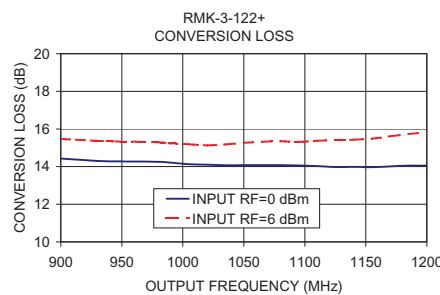
Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)	*HARMONIC OUTPUT (dBc)		
	F1 Input	F3 Output	Min.	Max.		F1 Typ. Min.	F2 Typ. Min.	F4 Typ. Min.
3	300-400	900-1200	0	6	14.5 18	6 -3	48 33	52 40

* Harmonics of input frequency below the power level of F3

Typical Performance Data

INPUT RF= 0 dBm					INPUT RF= 6 dBm				
Input Frequency (MHz)	Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)			Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)			
	F3	F1	F2	F4		F3	F1	F2	F4
300.00	14.43	5.78	50.39	49.94	15.47	9.19	57.23	51.74	
310.00	14.30	5.17	49.76	50.11	15.37	8.56	56.40	51.93	
315.00	14.28	4.84	49.36	50.23	15.34	8.24	55.95	52.07	
321.00	14.27	4.50	48.88	50.36	15.32	7.89	55.34	52.31	
327.00	14.25	4.23	48.56	50.46	15.29	7.63	55.00	52.44	
330.00	14.21	4.12	48.41	50.53	15.24	7.52	54.81	52.59	
335.00	14.13	3.92	48.15	50.64	15.19	7.29	54.41	52.71	
340.00	14.10	3.64	47.81	50.79	15.13	7.02	54.00	52.88	
345.00	14.07	3.37	47.61	50.93	15.18	6.71	53.71	53.02	
350.00	14.08	3.03	47.35	51.03	15.26	6.29	53.27	53.11	
355.00	14.08	2.74	47.10	51.17	15.32	5.96	52.88	53.16	
360.00	14.08	2.45	46.82	51.33	15.35	5.65	52.49	53.26	
365.00	14.06	2.22	48.25	53.03	15.31	5.56	52.52	53.78	
370.00	14.03	2.07	48.18	53.27	15.37	5.32	52.29	53.97	
375.00	13.98	1.85	47.96	53.50	15.42	5.01	51.91	54.04	
380.00	13.99	1.58	47.75	53.70	15.43	4.74	51.63	54.21	
385.00	13.97	1.32	47.64	53.91	15.49	4.40	51.41	54.31	
390.00	14.01	1.01	47.48	54.07	15.61	4.02	51.06	54.34	
395.00	14.05	0.71	47.30	54.26	15.73	3.66	50.79	54.52	
400.00	14.05	0.41	47.11	54.53	15.82	3.26	50.42	54.57	



Generic photo used for illustration purposes only
CASE STYLE: TT1224

+RoHS Compliant
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

Available Tape and Reel at no extra cost	
Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500



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