

X3 Frequency Multiplier

RMK-3-1052+

50Ω Output 6600 to 10500 MHz

The Big Deal

- Broadband, output frequency 6600 to 10500 MHz
- High rejection of adjacent harmonics, 52dB below the carrier, F3
- Small package size, 0.25" x 0.3"
- Low cost \$7.45, quantity of 1000



CASE STYLE: TT1224

Product Overview

The RMK-3-1052+ is a self contained frequency tripler that does not require external components. It is constructed using a specially designed diode quad ring configuration to enable high rejection of adjacent harmonics. The tripler is packaged in a miniature 0.3" x 0.25" case, with wrap-around terminations to enable convenient high density assembly.

Key Features

Feature	Advantages
Broadband frequency tripler Input 2200 to 3500 MHz Output 6600 to 10500 MHz	Enables the use of low frequency VCO's and Synthesizers to provide high frequency sources at low cost.
Low conversion loss, 14.5 dB	Enables output power to be sufficiently high so that amplifier gain requirements following the tripler is reduced.
High rejection of adjacent harmonics, F2, 52 dB and F4, 50 dB	Extremely high rejection of F2 and F4 harmonics enables a significant reduction of unwanted signals without the need for filters.
Low cost	Enables a practical solution to achieve high frequency sources from low cost, lower frequency VCO's and synthesizers.

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-Circuit's 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



X3 Frequency Multiplier

50Ω Output 6600 to 10500 MHz

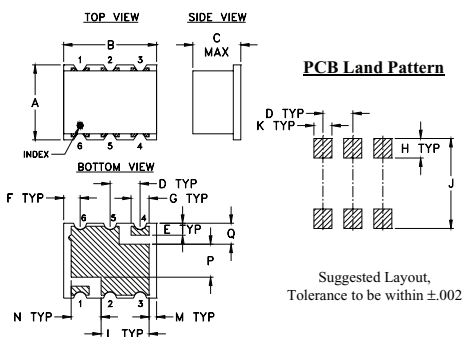
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	13 dBm

Pin Connections

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

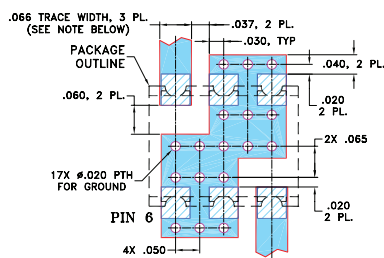
Outline Drawing



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 RO4350B 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

Features

- broadband
- high rejection F2, -52 dBc typ.; F4, -50 dBc typ.
- low cost
- aqueous washable

Applications

- synthesizers
- local oscillators
- satellite up and down converters

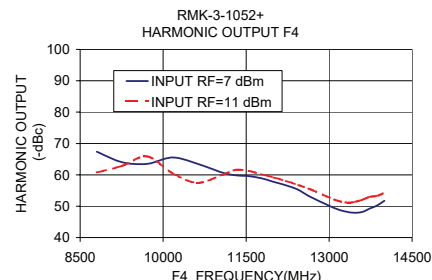
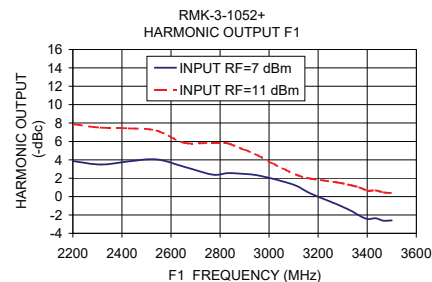
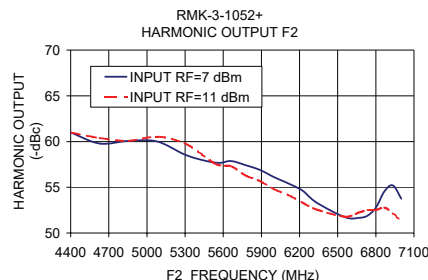
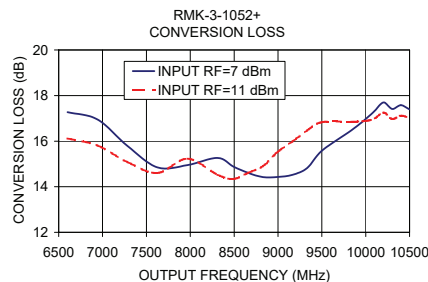
Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)	*HARMONIC OUTPUT (dBc)					
	F1 Input	F3 Output	Min.	Max.		F1 Typ.	F1 Min.	F2 Typ.	F2 Min.	F4 Typ.	F4 Min.
3	2200-3500	6600-10500	7	11	14.5 19.5	6	-5	52	35	50	35

* Harmonics of input frequency below the power level of F3

Typical Performance Data

INPUT RF= 7 dBm					INPUT RF= 11 dBm			
Input Frequency (MHz)	Conversion Loss (dB) F3	Harmonic Output Below F3 (-dBc) F1	F2	F4	Conversion Loss (dB) F3	Harmonic Output Below F3 (-dBc) F1	F2	F4
2200.00	17.27	3.87	60.99	67.36	16.12	7.88	60.99	60.76
2314.00	16.95	3.48	59.77	64.02	15.81	7.50	60.39	62.82
2428.00	15.79	3.83	60.08	63.52	15.08	7.41	60.08	65.89
2542.00	14.85	4.04	59.99	65.54	14.60	7.17	60.53	60.52
2656.00	14.95	3.22	58.49	63.51	15.23	5.85	59.69	57.47
2770.00	15.26	2.39	57.68	60.64	14.53	5.87	57.56	60.01
2831.00	14.88	2.55	57.87	59.82	14.34	5.79	57.31	61.63
2887.00	14.61	2.48	57.42	59.58	14.61	5.22	56.31	61.24
2943.00	14.42	2.35	56.92	58.91	14.90	4.64	55.69	60.22
2999.00	14.43	2.04	56.12	57.78	15.52	3.82	54.81	59.17
3055.00	14.52	1.65	55.44	56.63	15.98	3.08	54.17	58.04
3111.00	14.82	1.18	54.64	55.19	16.47	2.37	53.32	56.73
3167.00	15.58	0.35	53.32	52.95	16.83	1.96	52.57	55.33
3279.00	16.48	-0.87	51.73	49.26	16.85	1.53	51.80	51.98
3335.00	16.99	-1.56	51.66	48.14	16.89	1.23	52.26	51.16
3368.00	17.34	-2.07	51.91	47.93	17.00	1.00	52.51	51.41
3401.00	17.70	-2.44	52.80	48.19	17.25	0.65	52.52	52.07
3434.00	17.41	-2.37	54.56	49.29	16.97	0.67	52.78	52.98
3467.00	17.58	-2.62	55.20	50.24	17.12	0.45	52.15	53.27
3500.00	17.39	-2.59	53.76	51.74	17.02	0.39	51.29	54.26



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

Reel Size	Devices/Reel
7"	10, 20, 50, 100, 200
13"	500



www.minicircuits.com P.O. Box 350166, Brooklyn, NY 11235-0003 (718) 934-4500 sales@minicircuits.com

REV. B
M151107
RMK-3-1052+
ED-13614
DJ/CP/AM
200813
Page 2 of 2

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Mini-Circuits:](#)

[RMK-3-1052+](#)