WINSOURCE ELECTRONICS

THE DATASHEET OF

RMK-5-83+

X5 Frequency Multiplier

RMK-5-83+

50Ω Output 5000 to 8000 MHz

The Big Deal

- Wideband, 5000 to 8000 MHz output
- Wide input power range, +7 to +11 dBm
- High harmonic suppression, F4, 56 dBc; F6, 58 dBc

CASE STYLE: TT1224

Product Overview

Mini-Circuits' RMK-5-83+ frequency multiplier provides a multiplication factor of 5, converting input frequencies from 1000 to 1600 MHz to output frequencies from 5000 to 8000 MHz, supporting applications such as synthesizers, local oscillators, satellite up and down converters and more. The unit provides an input power range from +7 to +11 dBm, 28 dB conversion loss, and good harmonic suppression. The multiplier comes housed in a miniature, surface-mount package (0.25 x 0.31 x 0.16") ideal for dense circuit board layouts.

Feature	Advantages
Wide bandwidth	With an output frequency range spanning 5000-8000 MHz, this multiplier covers a wide range of applications.
Very good harmonic suppression • F4, 56 dBc • F6, 58 dBc	Reduces spurious signals and the need for additional filtering.
Wide input power range, +7 to +11 dBm	Wide input power signal range accommodates different input signal levels while still maintaining a low conversion loss.
Low cost	Provides an easy, cost-effective solution for generating high-frequency signals from a lower frequency signal source.
Small size	Measuring only 0.25 x 0.31 x 0.16", the RMK-5-52+ saves space in crowded PCB layouts.

Notes
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RMK-5-83+

50Ω Output 5000 to 8000 MHz

Generic photo used for illustration purposes only

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+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

Maximum Ratings

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

Permanent damage may occur if any of these limits are exceeded.

Pin Connections

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

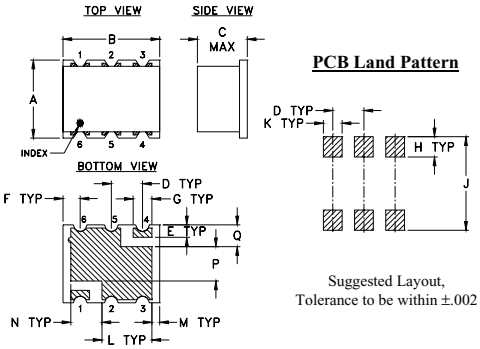
Features

- high rejection of adjacent harmonic, 56 dBc typ.
- aqueous washable
- broadband
- low input power required

Applications

- synthesizers
- local oscillators
- satellite up and down converters

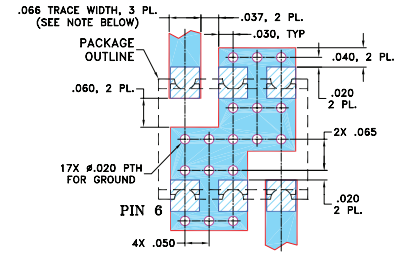
Outline Drawing



Outline Dimensions (inch / mm)

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.

DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)

DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Electrical Specifications at 25°C

Parameter		Min.	Typ.	Max.	Unit
Multiplier Factor			5		
Frequency Range, Input (F1)		1000		1600	MHz
Frequency Range, Output (F5)		5000		8000	MHz
Input Power		7	—	11	dBm
Conversion Loss		—	28	34.5	dB
Harmonic Ouput*	F1	-15	-3.5	—	-dBc
	F2	32	62.5	—	
	F3	-15	-4.2	—	
	F4	32	56.2	—	
	F6	30	58.3	—	
	F7	-4	10.2	—	

* Harmonics of input frequency below the power level of F5

Typical Performance Data

Frequency		Conv. Loss (dB)	Harmonic Rejection Below F5, (dBc) *at RF Input Power 11 dBm*					
Input (MHz)	Output (MHz)	F5	F1	F2	F3	F4	F6	F7
1000.00	5000.00	25.21	-4.33	-76.63	-4.01	-72.11	-67.47	-6.22
1020.00	5100.00	24.96	-4.35	-76.49	-4.01	-72.86	-67.84	-6.73
1040.00	5200.00	24.84	-4.22	-76.85	-3.95	-73.05	-67.60	-7.42
1060.00	5300.00	24.60	-4.23	-76.95	-3.97	-73.86	-67.72	-8.10
1080.00	5400.00	24.51	-4.04	-76.48	-3.94	-74.18	-67.69	-8.77
1100.00	5500.00	24.60	-3.78	-76.76	-3.45	-75.15	-67.11	-9.55
1120.00	5600.00	24.63	-3.45	-76.11	-3.22	-75.79	-66.93	-10.59
1140.00	5700.00	24.51	-3.37	-75.54	-3.04	-77.22	-66.71	-11.61
1160.00	5800.00	24.96	-2.69	-75.06	-2.33	-77.29	-66.21	-11.70
1180.00	5900.00	25.44	-2.08	-73.74	-1.59	-76.38	-65.83	-12.25
1200.00	6000.00	25.43	-1.88	-72.93	-1.14	-74.19	-58.63	-13.37
1250.00	6250.00	28.37	6.80	-65.69	2.44	-67.94	-65.54	-13.75
1300.00	6500.00	28.77	7.37	-65.24	3.82	-65.97	-66.85	-15.02
1350.00	6750.00	28.87	7.71	-66.48	4.70	-65.80	-66.77	-15.98
1400.00	7000.00	29.03	8.15	-65.80	5.66	-66.60	-65.53	-15.79
1450.00	7250.00	29.31	8.79	-64.33	6.77	-67.08	-62.27	-13.97
1500.00	7500.00	30.12	10.02	-63.85	8.06	-66.23	-58.72	-11.94
1520.00	7600.00	29.97	10.03	-64.10	8.17	-66.82	-58.06	-11.86
1540.00	7700.00	30.22	10.46	-63.86	8.46	-66.92	-56.64	-11.36
1560.00	7800.00	30.27	10.59	-63.90	8.69	-66.50	-56.26	-11.19
1580.00	7900.00	30.51	11.15	-63.42	9.12	-65.90	-55.95	-10.83
1600.00	8000.00	30.45	11.29	-62.96	9.28	-65.77	-55.63	-10.79

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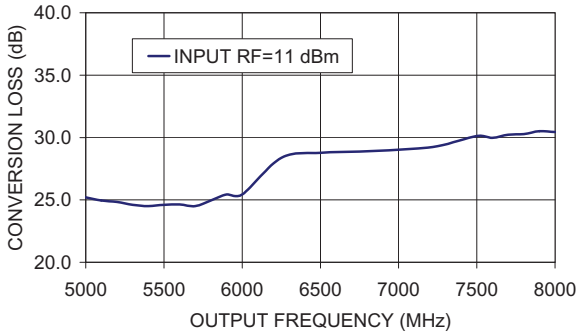
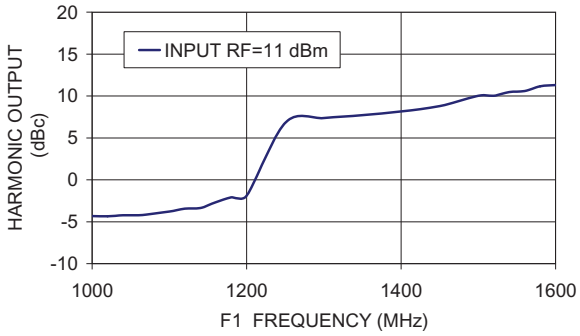
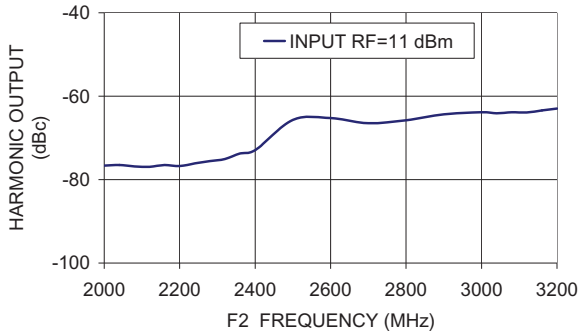
RMK-5-83+
CONVERSION LOSS



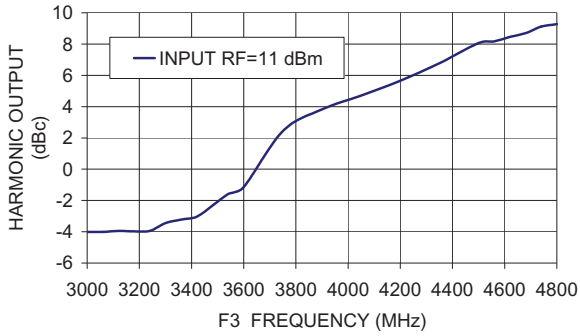
RMK-5-83+
HARMONIC OUTPUT F1



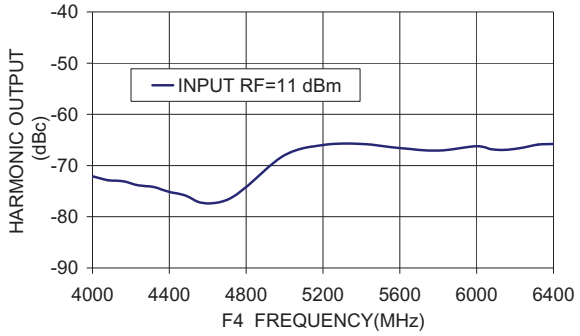
RMK-5-83+
HARMONIC OUTPUT F2



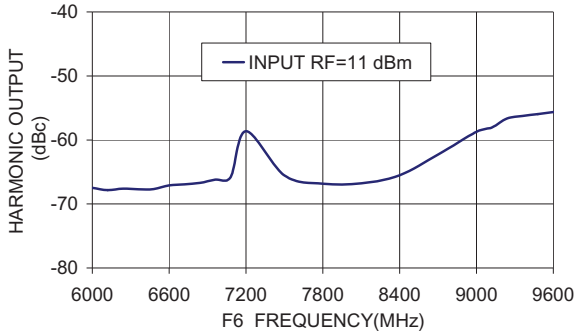
RMK-5-83+
HARMONIC OUTPUT F3



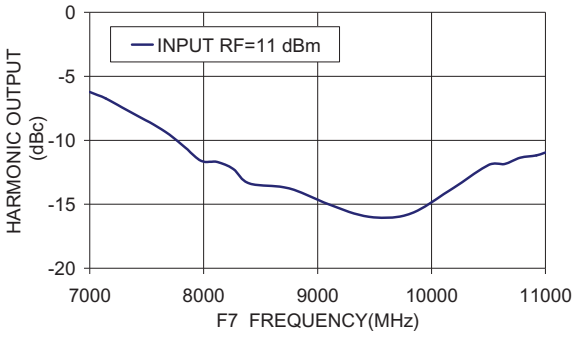
RMK-5-83+
HARMONIC OUTPUT F4



RMK-5-83+
HARMONIC OUTPUT F6



RMK-5-83+
HARMONIC OUTPUT F7



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