

X7 Frequency Multiplier

RMK-7-81+

50Ω Output 52.5 to 80.5 MHz

The Big Deal

- High rejection of adjacent harmonics, >45 dBc
- 50 Ω in/out, no tuning necessary



CASE STYLE: TT1224

Product Overview

The RMK-7-81+ is a cost-effective X7 frequency multiplier that utilizes specially selected silicon Schottky diodes and compatible filter circuitry to achieve a low conversion loss, yet have a high rejection of unwanted harmonics near its F7 output. It makes the RMK-7-81+ ideal for a wide range of applications. The tiny plastic case, 0.25" x 0.31" x 0.16" high, is aqueous washable and RoHS compliant.

Feature	Advantages
<30 dB conversion loss	Efficient choice for converting 7.5 MHz source to 52.5 MHz output while maintaining useful signal power, especially for reference crystal oscillators. Only 12 dBm input required for -10 dBm output, especially useful for low-loss systems such as instrumentation
>45 dB rejection of F6 and F8	Proprietary internal circuitry achieves high suppression and minimizes filter requirements for undesired signals, as in wireless Tx/Rx for military applications, aircraft, cordless telephones, remote control and PMR.
Internally balanced to 50Ω in/out, no DC power required	Saves PCB space and simplifies application design, with no external matching or biasing circuits required
Small surface mount package	Easily integrated in systems with minimal PCB area available

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



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Maximum Ratings

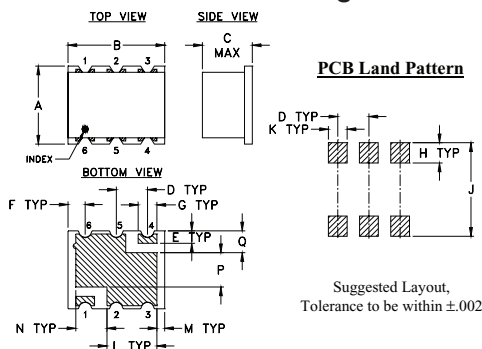
Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	20 dBm

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

Pin Connections

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

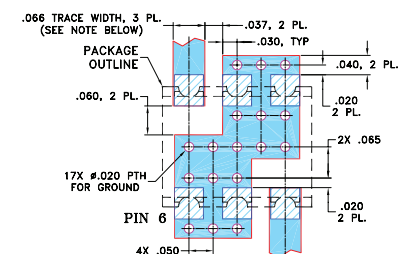
Outline Drawing



Outline Dimensions (inch/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)



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Features

- low conversion loss, 27 dB typ.
- high adjacent harmonic rejection, 45 dBc typ.
- aqueous washable

Applications

- synthesizers
- local oscillators
- satellite up and down converters



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

Electrical Specifications at 25°C

Parameter	Min.	Typ.	Max.	Unit
Multiplier Factor		7		
Frequency Range, Input (F1)	7.5	—	11.5	MHz
Frequency Range, Output (F7)	52.5	—	80.5	MHz
Input Power	8	—	12	dBm
Conversion Loss	—	27	30	dB
Harmonic Output*	F1	-5	3	—
	F2	36	55	—
	F3	-10	-5	—
	F4	28	48	—
	F5	-10	-5	—
	F6	26	47	—
	F8	25	45	—

* Harmonics of input frequency below the power level of F7

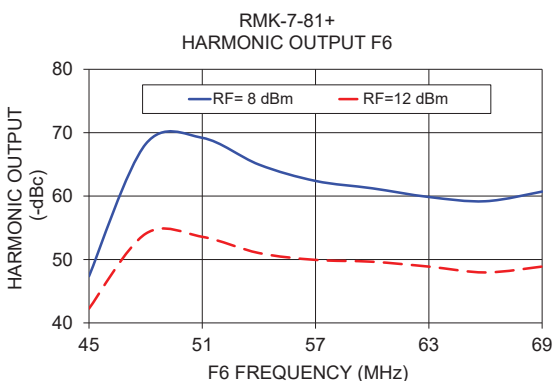
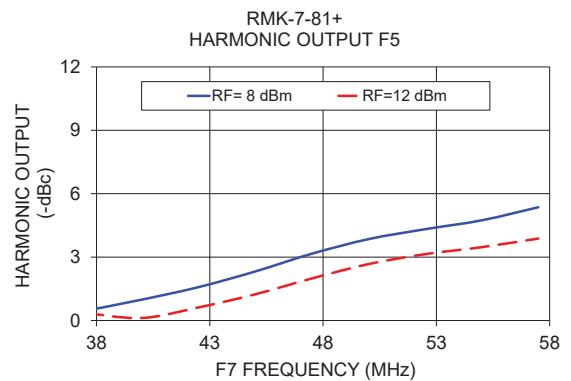
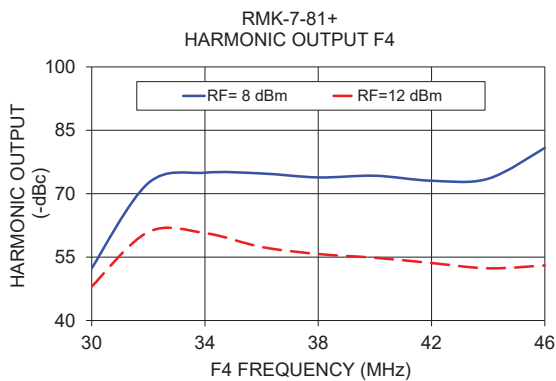
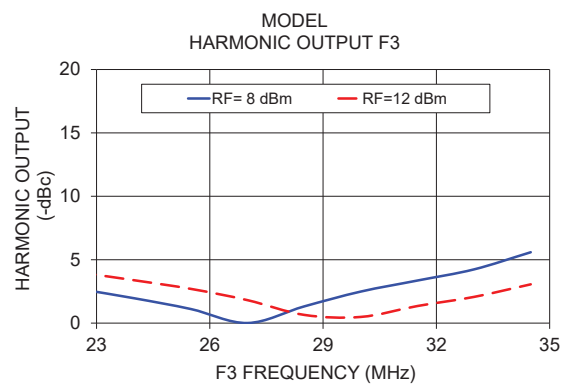
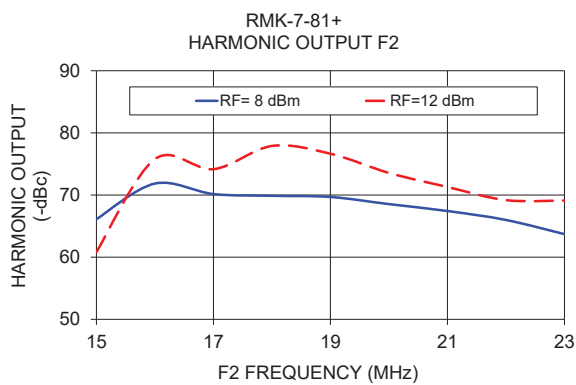
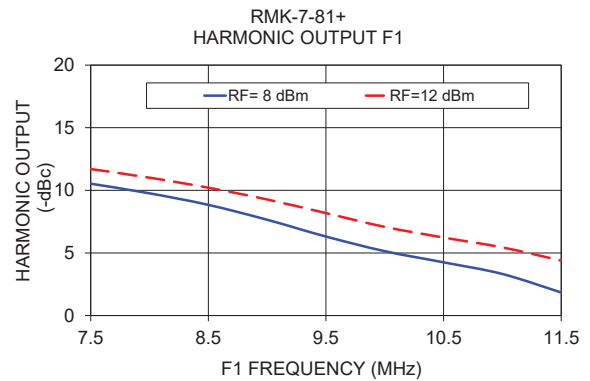
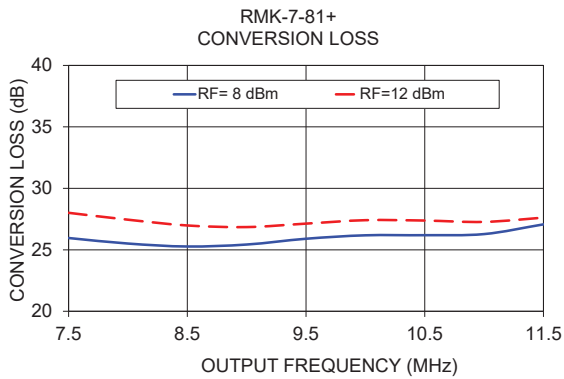
Typical Performance Data

Input (MHz)	Output (MHz)	Conv. Loss (dB) F7	Harmonic Rejection Below F7 (dBc) at RF Input Power 8 dBm							
			F1	F2	F3	F4	F5	F6	F8	
7.5	52.5	25.96	10.53	66.11	2.71	52.37	0.46	47.38	46.47	
8.0	56.0	25.51	9.76	71.85	1.96	72.52	0.99	68.21	62.54	
8.5	59.5	25.27	8.84	70.16	1.11	74.97	1.58	69.19	63.37	
9.0	63.0	25.43	7.65	69.88	0.01	74.79	2.32	64.97	61.80	
9.5	66.5	25.90	6.31	69.69	1.32	73.85	3.16	62.39	61.23	
10.0	70.0	26.18	5.14	68.54	2.49	74.25	3.85	61.23	60.96	
10.5	73.5	26.19	4.25	67.43	3.36	73.07	4.32	59.86	60.21	
11.0	77.0	26.28	3.32	65.99	4.24	73.54	4.74	59.19	60.08	
11.5	80.5	27.07	1.84	63.71	5.59	80.83	5.36	60.71	61.83	

at RF Input Power 12 dBm

7.5	52.5	28.01	11.70	60.82	4.02	48.04	0.36	42.27	40.62
8.0	56.0	27.45	11.01	75.79	3.38	60.96	0.12	54.07	51.87
8.5	59.5	26.98	10.21	74.16	2.70	60.69	0.62	53.58	51.78
9.0	63.0	26.85	9.27	77.90	1.81	57.39	1.24	51.02	50.10
9.5	66.5	27.13	8.18	76.65	0.65	55.74	1.99	49.94	49.83
10.0	70.0	27.41	7.08	73.56	0.49	54.85	2.67	49.65	50.10
10.5	73.5	27.38	6.23	71.30	1.35	53.60	3.14	48.88	49.62
11.0	77.0	27.27	5.44	69.18	2.07	52.35	3.47	47.96	48.83
11.5	80.5	27.62	4.39	69.12	3.06	53.03	3.88	48.89	49.96

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