X5 Frequency Multiplier

RMK-5-751+

50Ω Output 500 to 750 MHz

CASE STYLE: TT1224

The Big Deal

- High rejection of adjacent harmonics, >60 dBc
- 50 Ω in/out, no tuning necessary
- Very low cost, $19.95 (qty. 10-49)

Product Overview

The RMK-5-751+ is a cost-effective X5 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 F5 output. It makes the RMK-5-751+ 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
<22 dB conversion loss	Efficient choice for converting 100 MHz source to 500 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
>60 dB rejection of F4 and F6	Proprietary internal circuitry achieves high suppression and minimizes filter requirements for undesired signals, as in wireless Tx/Rx applications including broadcast TV, SAP/SAB, medical telemetry, 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

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Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	21 dBm

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

Pin Connections

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

Features

- low conversion loss, 22 dB typ.
- high adjacent harmonic rejection, F4, 60 dBc typ., F6, 67 dBc typ.
- aqueous washable

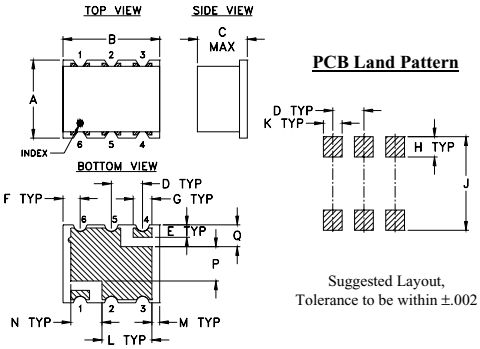
Applications

- synthesizers
- local oscillators
- satellite up and down converters

+RoHS Compliant

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

Outline Drawing

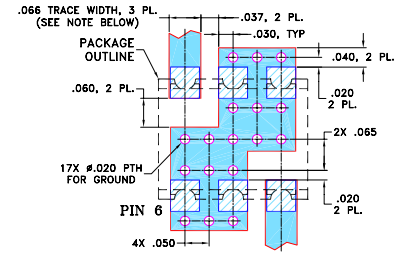


Outline Dimensions (inch / mm)

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)		100		150	MHz
Frequency Range, Output (F5)		500		750	MHz
Input Power		—	17.0	—	dBm
Conversion Loss		—	22	24.5	dB
Harmonic Ouput*	F1	-3	-1.0	—	dB
	F2	40	62	—	
	F3	-10	-6.8	—	
	F4	40	60	—	
	F6	40	67	—	
	F7	3	7.0	—	

* Harmonics of input frequency below the power level of F5

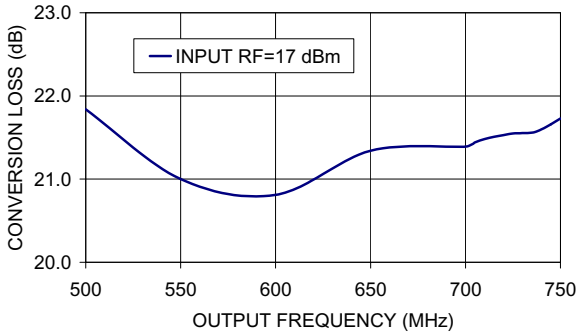
Typical Performance Data

Frequency		Conv. Loss (dB)	Harmonic Rejection Below F5, (dB) *at RF Input Power 17 dBm*					
Input (MHz)	Output (MHz)	F5	F1	F2	F3	F4	F6	F7
100.0	500.0	21.84	6.32	70.63	-0.62	62.49	74.25	7.32
110.0	550.0	21.00	5.45	72.18	-1.72	61.85	70.59	6.99
120.0	600.0	20.81	4.08	81.19	-3.24	62.22	73.65	7.03
130.0	650.0	21.34	2.16	81.77	-4.85	63.14	73.68	7.87
140.0	700.0	21.39	0.82	73.31	-5.76	62.99	71.81	7.69
141.0	705.0	21.44	0.60	72.45	-5.93	62.86	71.58	7.71
142.0	710.0	21.48	0.47	71.83	-6.02	62.77	71.26	7.63
143.0	715.0	21.51	0.26	71.06	-6.15	62.84	70.96	7.68
144.0	720.0	21.53	0.15	70.56	-6.20	62.85	70.53	7.64
145.0	725.0	21.55	-0.03	69.95	-6.29	62.90	70.42	7.73
147.0	735.0	21.56	-0.31	68.73	-6.40	63.07	69.88	7.92
148.0	740.0	21.60	-0.42	68.19	-6.44	63.08	69.42	7.90
149.0	745.0	21.66	-0.61	67.52	-6.57	63.11	69.02	7.93
150.0	750.0	21.73	-0.80	66.82	-6.69	63.17	68.72	7.95

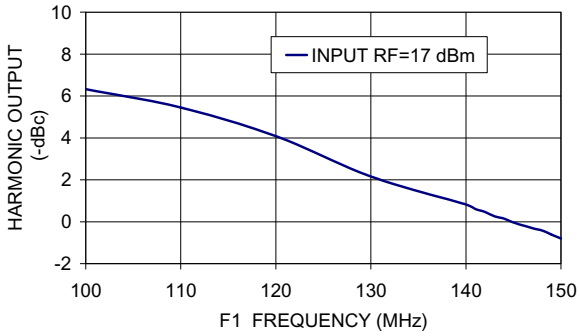
Notes

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

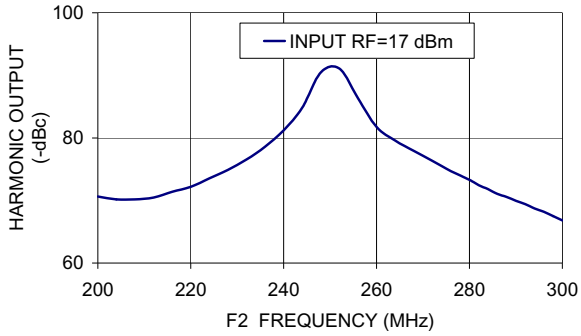
RMK-5-751+
CONVERSION LOSS



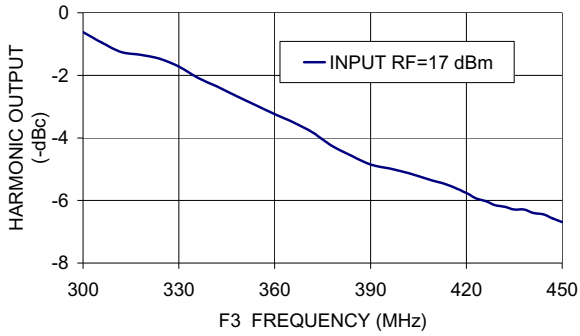
RMK-5-751+
HARMONIC OUTPUT F1



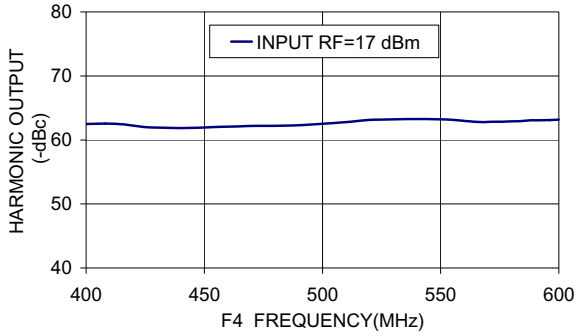
RMK-5-751+
HARMONIC OUTPUT F2



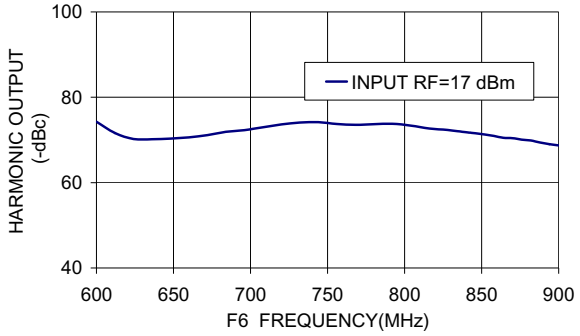
RMK-5-751+
HARMONIC OUTPUT F3



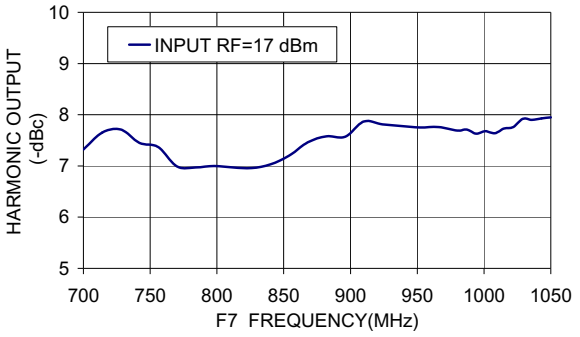
RMK-5-751+
HARMONIC OUTPUT F4



RMK-5-751+
HARMONIC OUTPUT F6



RMK-5-751+
HARMONIC OUTPUT F7



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