X3 Frequency Multiplier

RMK-3-451+

50Ω Output 300 to 450 MHz

CASE STYLE: TT1224

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

Maximum Ratings

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

Pin Connections

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

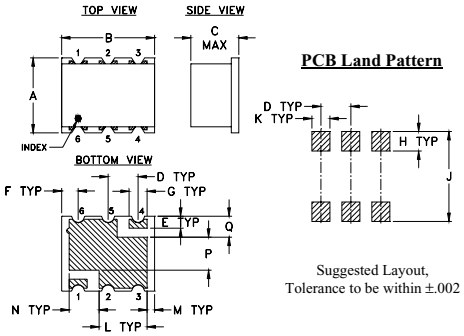
Features

- broadband
- low conversion loss, 13.2 dB typ.
- high rejection F2, -52 dBc typ.; F4, -50 dBc typ.
- low cost
- aqueous washable

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

Electrical Specifications

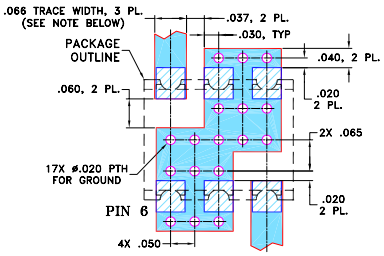
MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
	F1 Input	F3 Output	Min.	Max.	Typ.	Max.	F1 Typ.	F1 Min.	F2 Typ.	F2 Min.	F4 Typ.	F4 Min.
3	100-150	300-450	12	17	13.2	16	4	-7	52	40	50	37

* Harmonics of input frequency below the power level of F3

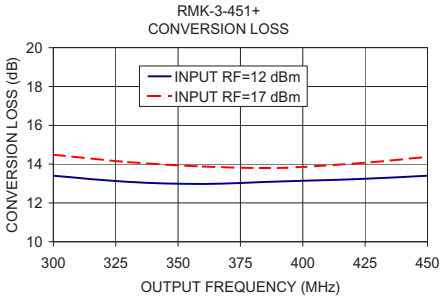
Typical Performance Data

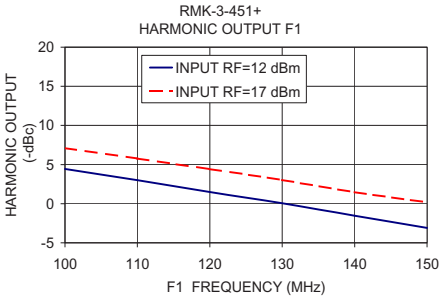
Input Frequency (MHz)	INPUT RF= 12 dBm Conversion Loss (dB) F3	Harmonic Output Below F3 (-dBc) F1	F2	F4	INPUT RF= 17 dBm Conversion Loss (dB) F3	Harmonic Output Below F3 (-dBc) F1	F2	F4
100.00	13.40	4.43	53.95	54.52	14.49	7.11	52.92	47.80
110.00	13.09	3.00	50.23	49.20	14.10	5.78	50.69	49.32
120.00	12.98	1.49	57.22	56.49	13.88	4.41	57.92	58.21
130.00	13.10	-0.05	62.62	71.51	13.80	3.03	67.71	70.53
140.00	13.22	-1.53	61.72	72.27	14.02	1.47	66.97	71.68
150.00	13.40	-3.09	61.54	71.44	14.37	-0.19	66.43	70.17

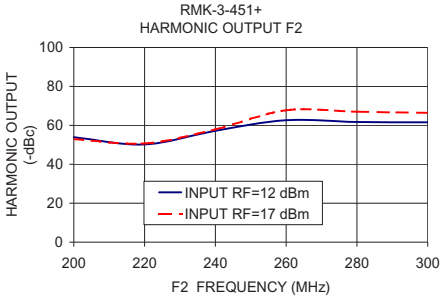
Demo Board MCL P/N: TB-393
Suggested PCB Layout (PL-258)

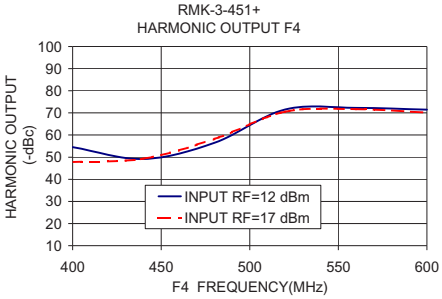


NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .030" ± .002"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK









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.
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