X3 Frequency Multiplier

50Ω Output 3000 to 4500 MHz

AMK-3-452+

CASE STYLE: CD636
PRICE: $6.95 ea. QTY (10-49)

+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, 500
13"	500, 1000

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	6
OUTPUT	3
GROUND	1,4,5
NOT USED	2

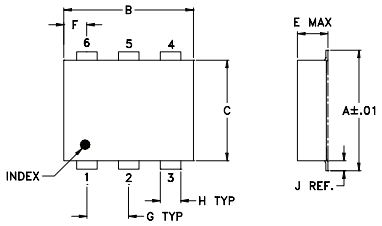
Features

- broadband
- low conversion loss, 14.5 dB typ.
- high rejection, F2 and F4, -55 dBc typ.
- low cost
- aqueous washable

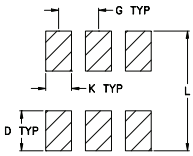
Applications

- synthesizers
- local oscillators
- satellite up and down converters

Outline Drawing



PCB Land Pattern



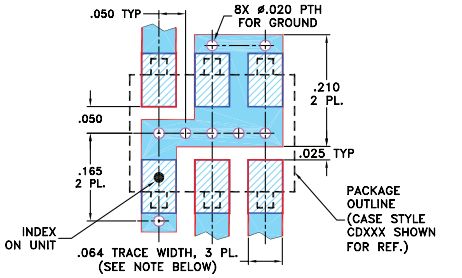
Suggested Layout,
Tolerance to be within ±.002

Outline Dimensions (inch / mm)

A	B	C	D	E	F	G
.272	.310	.220	.100	.162	.055	.100
6.91	7.87	5.59	2.54	4.11	1.40	2.54

H	J	K	L	wt
.030	.026	.065	.300	grams
0.76	0.66	1.65	7.62	0.25

Demo Board MCL P/N: TB-03
Suggested PCB Layout (PL-052)



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

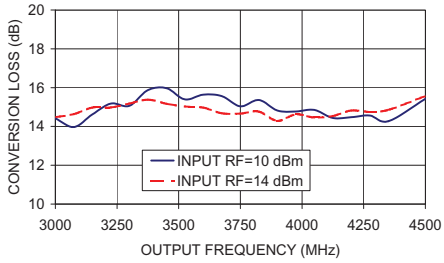
MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
	F1	F3					F1		F2		F4	
	Input	Output	Min.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Min.
3	1000-1500	3000-4500	10	14	14.5	17.5	-2	-10	55	40	55	40

* Harmonics of input frequency below the power level of F3

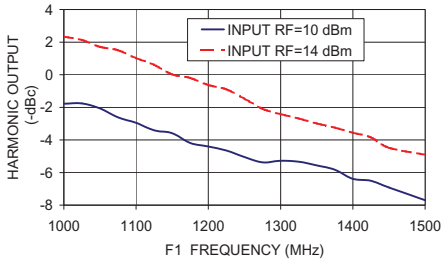
Typical Performance Data

	INPUT RF= 10 dBm				INPUT RF= 14 dBm			
Input Frequency (MHz)	Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)			Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)		
	F3	F1	F2	F4	F3	F1	F2	F4
1000.00	14.42	-1.78	66.74	63.78	14.48	2.33	61.25	64.54
1025.00	13.97	-1.76	65.56	62.33	14.64	2.13	58.51	62.11
1050.00	14.62	-2.06	62.78	59.95	14.97	1.71	54.89	59.68
1075.00	15.18	-2.61	55.64	47.55	14.98	1.50	54.04	55.77
1100.00	15.06	-2.95	53.98	54.12	15.18	1.02	56.41	54.30
1125.00	15.87	-3.41	56.68	59.70	15.38	0.61	57.57	60.48
1150.00	15.97	-3.59	56.36	58.48	15.17	0.02	58.34	59.21
1175.00	15.40	-4.19	55.24	59.64	15.03	-0.20	56.00	60.00
1200.00	15.64	-4.40	54.37	57.34	14.97	-0.63	53.87	58.89
1225.00	15.56	-4.65	53.05	56.57	14.68	-0.89	52.65	60.98
1250.00	15.04	-5.05	52.60	58.70	14.66	-1.47	52.35	62.39
1275.00	15.36	-5.38	51.97	59.52	14.76	-2.09	51.73	61.26
1300.00	14.82	-5.28	52.71	60.80	14.29	-2.42	51.72	62.21
1325.00	14.77	-5.34	52.47	62.02	14.62	-2.68	51.46	62.36
1350.00	14.85	-5.56	52.18	61.83	14.46	-2.99	51.68	61.33
1375.00	14.44	-5.83	53.05	61.01	14.54	-3.24	52.94	60.18
1400.00	14.48	-6.39	53.13	57.84	14.82	-3.56	52.94	59.01
1425.00	14.56	-6.51	54.06	60.46	14.75	-3.84	52.26	61.90
1450.00	14.27	-6.92	55.52	63.15	14.85	-4.48	52.09	64.87
1500.00	15.42	-7.70	56.27	54.19	15.56	-4.90	52.39	66.59

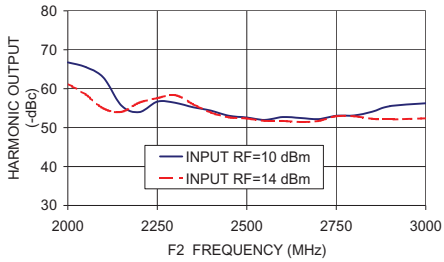
AMK-3-452+
CONVERSION LOSS



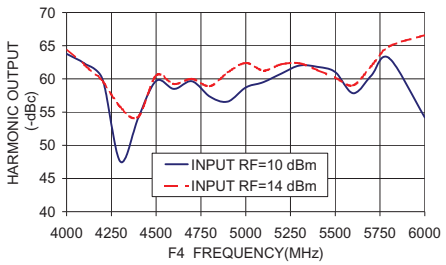
AMK-3-452+
HARMONIC OUTPUT F1



AMK-3-452+
HARMONIC OUTPUT F2



AMK-3-452+
HARMONIC OUTPUT F4



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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