

# X3 Frequency Multiplier

50Ω Output 3000 to 4500 MHz

## AMK-3-452+



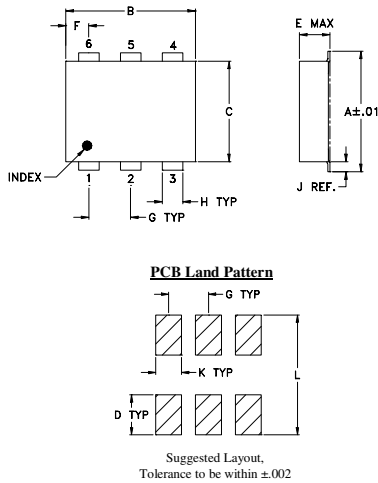
### Maximum Ratings

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

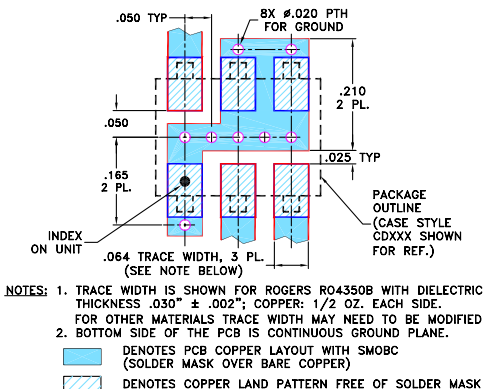
### Outline Drawing



### 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.  
3. DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)  
4. DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

### 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

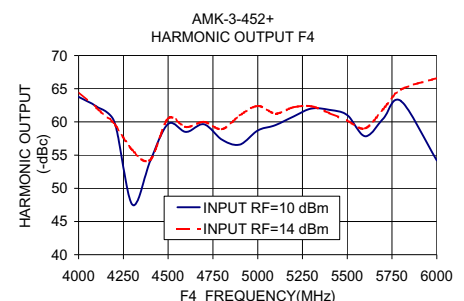
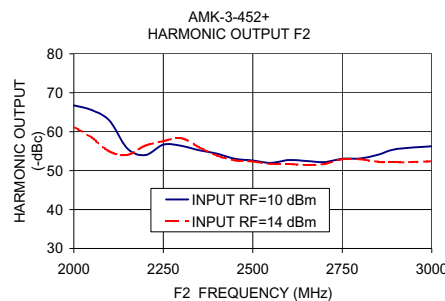
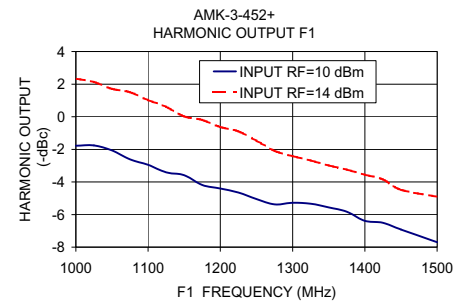
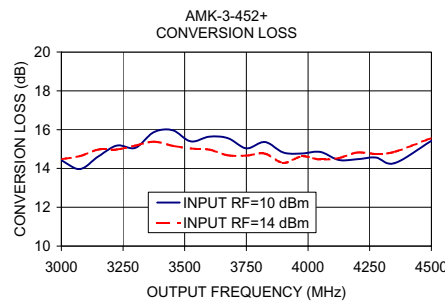
### Electrical Specifications

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

\* Harmonics of input frequency below the power level of F3

### Typical Performance Data

Input Frequency (MHz)	INPUT RF= 10 dBm				INPUT RF= 14 dBm			
	Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)			Conversion Loss (dB)	Harmonic Output Below F3 (-dBc)		
		F3	F1	F2		F4	F3	F1
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



**Mini-Circuits**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED  
IF/RF MICROWAVE COMPONENTS

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