

X2 Frequency Multiplier

50Ω Output 5000 to 10000 MHz

KSX2-14+

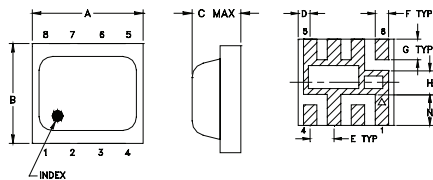
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input, 25°C	100 mW
Permanent damage may occur if any of these limits are exceeded.	

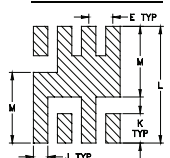
Pin Connections

INPUT	4
OUTPUT	8
50Ω TERMINATE EXT.	2
GROUND	1,3,5,6,7

Outline Drawing



PCB Land Pattern

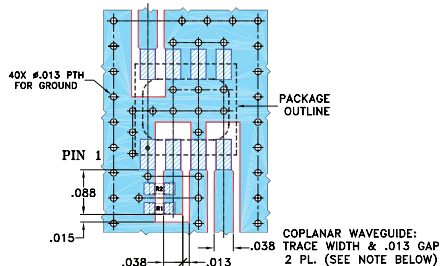


Suggested Layout,
Tolerance to be within ±0.02

Outline Dimensions (inch)

A	B	C	D	E	F	G
.200	.180	.087	.025	.050	.028	.043
5.08	4.57	2.21	0.64	1.27	0.71	1.09
H	J	K	L	M	N	wt
.050	.030	.060	0.238	0.144	0.065	grams
1.27	0.76	1.52	6.05	3.66	1.65	0.08

Demo Board MCL P/N: TB-473+ Suggested PCB Layout (PL-287)



RESISTORS R1, R2: 100 Ohm, 0402 SIZE

- NOTES: 1. COPLANAR WAVEGUIDE PARAMETERS ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .020" ± .0015"; 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-Circuits' 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

Features

- low conversion loss, 12 dB typ.
- high fundamental & harmonic suppression, F1, 22 dBc typ.; F3, 30 dBc typ.; F4, 15 dBc typ.
- LTCC design
- low profile, 0.085"
- aqueous washable

Applications

- synthesizers
- local oscillators

Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (MHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)	*HARMONIC OUTPUT (dBc)			
	F1 Input	F2 Output	Min.	Max.		F1 Typ. Min.	F3 Typ. Min.	F4 Typ. Min.	
2	2500-3600	5000-7200	13	17	12 15	22 15	33 22	12 7	
	3600-5000	7200-10000	13	17	12 15	22 15	29 20	19 12	

* Harmonics of input frequency below the power level of F2

Typical Performance Data

Input Frequency (MHz)	INPUT RF= 13 dBm				INPUT RF= 17 dBm			
	Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)			Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)		
	F2	F1	F3	F4	F2	F1	F3	F4
2500.00	12.37	25.84	36.55	15.32	12.41	22.40	42.01	13.59
2650.00	13.11	23.43	33.03	10.38	12.84	20.79	35.80	11.88
2950.00	12.65	20.52	35.09	14.71	12.10	22.60	40.40	16.25
3250.00	11.17	20.69	39.66	19.86	11.13	22.72	35.01	22.27
3400.00	11.02	21.65	38.24	20.97	10.97	23.66	34.49	29.39
3600.00	11.84	21.22	31.35	19.22	11.46	24.06	30.95	18.17
3700.00	12.04	20.92	29.07	18.76	11.46	24.38	30.44	18.57
3850.00	12.87	19.94	26.95	18.55	12.21	23.02	27.31	16.18
4000.00	12.00	21.20	29.60	19.09	12.05	21.96	29.80	16.13
4100.00	12.14	19.80	30.30	22.19	11.63	20.70	38.78	18.02
4300.00	11.60	27.55	33.42	25.38	10.76	24.67	34.27	21.10
4500.00	12.08	27.72	44.95	26.65	11.58	34.31	36.29	22.37
4600.00	11.56	29.19	44.66	30.33	11.38	33.92	38.18	27.85
4900.00	12.00	35.63	27.43	39.29	11.71	30.26	26.93	34.31
5000.00	11.98	29.52	25.76	45.31	11.81	29.92	24.65	41.43

