

X2 Frequency Multiplier

50Ω Output 10 to 20 GHz

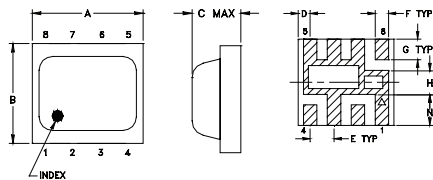
Maximum Ratings

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.	

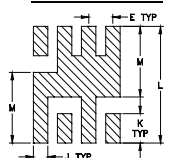
Pin Connections

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

Outline Drawing



PCB Land Pattern

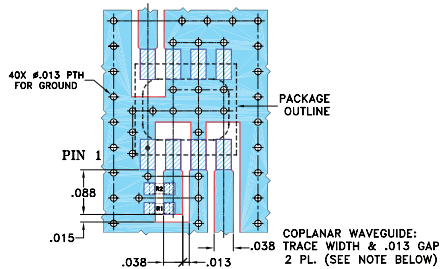


Suggested Layout,
Tolerance to be within ±.002

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, 11.5 dB typ.
- high fundamental & harmonic suppression, F1, 30 dBc typ.; F3, 35 dBc typ.; F4, 25 dBc typ.
- LTCC design
- low profile, 0.085"
- aqueous washable

Applications

- synthesizers
- local oscillators

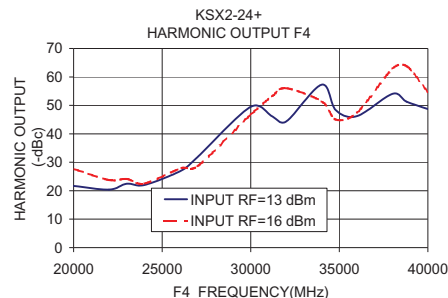
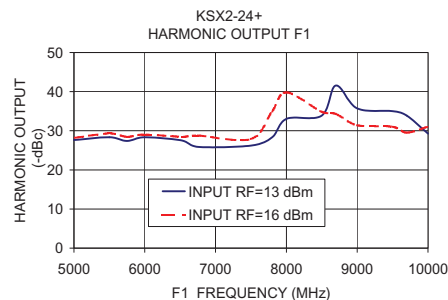
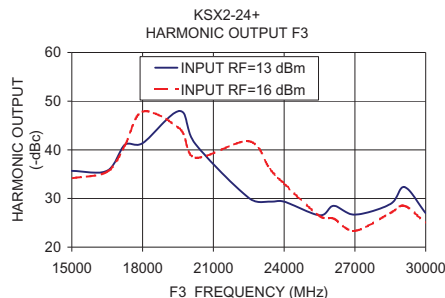
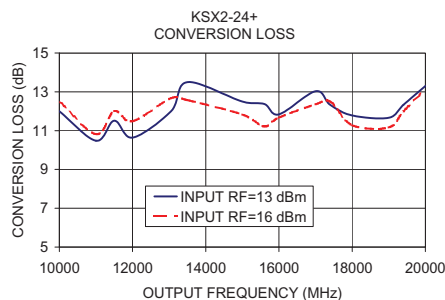
Electrical Specifications

MULTIPLICATION FACTOR	FREQUENCY (GHz)		INPUT POWER (dBm)	CONVERSION LOSS (dB)	*HARMONIC OUTPUT (dBc)							
	F1	F2			F1		F3		F4			
	Input	Output			Typ.	Max.	Typ.	Min.	Typ.	Min.		
2	5 - 8	10 - 16	13	16	11.5	15	30	18	35	23	25	15
			10	13	15	18	21	14	30	18	20	13
	8 - 10	16 - 20	13	16	12	15	33	20	27	17	50	35
			10	13	15	18.5	30	16	23	16	40	30

* Harmonics of input frequency below the power level of F2

Typical Performance Data

INPUT RF= 13dBm					INPUT RF= 16dBm			
Input Frequency (MHz)	Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)			Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)		
	F2	F1	F3	F4		F2	F1	F3
5000.00	12.00	27.66	35.68	21.67	12.50	28.16	34.16	27.66
5500.00	10.48	28.33	35.69	20.40	10.81	29.34	35.52	23.74
5750.00	11.51	27.39	41.04	22.47	12.01	28.45	40.87	24.16
6000.00	10.64	28.35	41.35	22.02	11.48	29.02	47.85	22.52
6525.00	12.00	27.53	47.97	27.17	12.67	28.45	44.30	28.00
6750.00	13.50	25.87	41.12	31.83	12.57	28.77	38.39	28.54
7500.00	12.50	26.19	30.10	49.49	11.83	27.87	41.77	46.76
7800.00	12.37	28.34	29.35	46.17	11.21	34.97	36.01	53.17
8000.00	11.84	33.06	29.35	44.32	11.67	39.81	33.03	56.06
8500.00	13.03	33.87	26.54	57.26	12.36	34.83	26.38	51.43
8700.00	12.33	41.57	28.51	48.32	12.50	34.33	25.85	44.99
9000.00	11.78	35.72	26.68	46.24	11.28	31.39	23.35	47.40
9500.00	11.66	35.01	28.85	54.08	11.16	31.02	27.02	62.92
9700.00	12.33	33.85	32.33	51.30	12.00	29.51	28.50	63.80
10000.00	13.30	29.27	26.97	48.71	13.13	31.03	24.97	54.71



KSX2-24+



CASE STYLE: HV1195
PRICE: \$ 7.95 ea. QTY (10-49)

+RoHS Compliant

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