

X2 Frequency Multiplier

50Ω Output 10 to 20 GHz

KSX2-24+



Generic photo used for illustration purposes only

CASE STYLE: HV1195

+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, 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

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

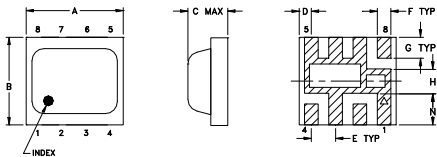
MULTIPLICATION FACTOR	FREQUENCY (GHz)		INPUT POWER (dBm)		CONVERSION LOSS (dB)		*HARMONIC OUTPUT (dBc)					
	F1	F2					F1		F3		F4	
	Input	Output	Min.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	
2	5 - 8	10 - 16	13	16	11.5	15	30	18	35	23	25	15
			10	13	15	18	21	14	30	18	20	13
	8 - 10	16 - 20	13	16	12	15	33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

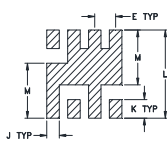
Typical Performance Data

Input Frequency (MHz)	INPUT RF= 13dBm					INPUT RF= 16dBm				
	Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)				Conversion Loss (dB)	Harmonic Output Below F2 (-dBc)			
	F2	F1	F3	F4	F2	F1	F3	F4		
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		

Outline Drawing



PCB Metal Land Pattern

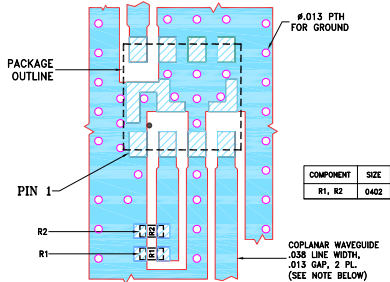


Suggested Layout, Tolerance to be within .002

Outline Dimensions (inch/mm)

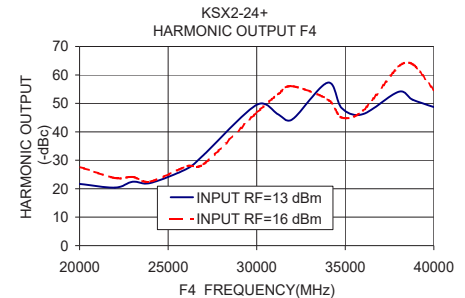
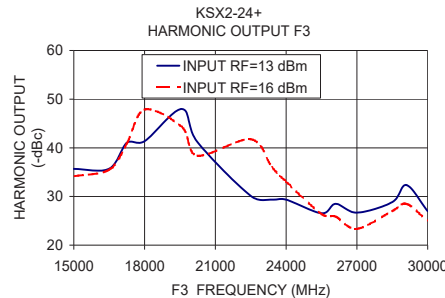
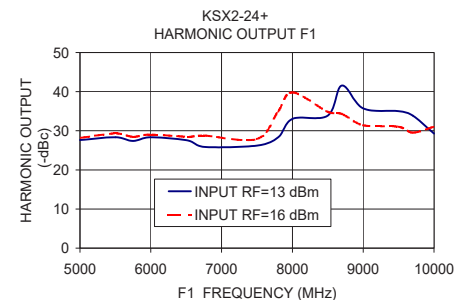
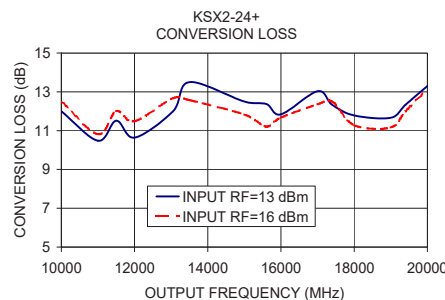
A	B	C	D	E	F	G		
.200	.180	.087	.025	.050	.028	.043		
5.08	4.57	2.2098	0.64	1.27	0.71	1.09		
H	J	K	L	M	N		wt	
.050	.030	.043	.204	.127	0.065	grams		
1.27	0.76	1.09	5.18	3.23	1.65	0.08		

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



- NOTES:
1. TRACE WIDTH AND GAP ARE SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS .0018/.0018"; COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH AND GAP MAY NEED TO BE MODIFIED.
 2. CHIP COMPONENT FOOT PRINTS SHOWN FOR REFERENCE. FOR COMPONENT VALUES REFER TO TB-473+.
 3. 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.
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