

X2 Frequency Multiplier

KBA-20+

50Ω Output 3200 to 4400 MHz



Generic photo used for illustration purposes only
CASE STYLE: SM2

Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C
RF Input Power	200mW

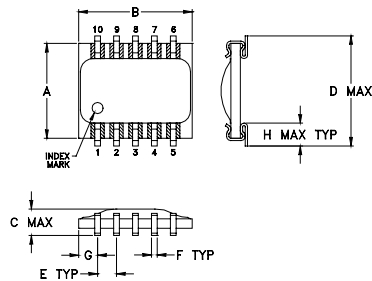
Permanent damage may occur if any of these limits are exceeded.

Pin Connections

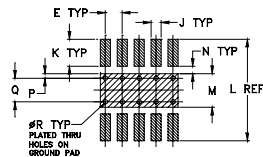
INPUT	10
OUTPUT	5
SAMPLE*	3
GROUND	1,2,4,6,7,8,9

* Sample port output power, -10 dBc typ.
Terminate in 50 ohms if not used.

Outline Drawing



PCB Land Pattern

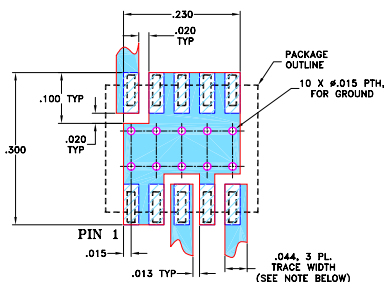


Suggested Layout,
Tolerance to be within ±.002
ADJACENT GROUND PINS SHALL BE CONNECTED TO EACH OTHER AND TO GROUND PAD

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G	H	
.250	.300	.095	.290	.050	.015	.050	.060	
6.35	7.62	2.41	7.37	1.27	0.38	1.27	1.52	
J	K	L	M	N	P	Q	R	wt
.030	.080	.300	.100	.020	.015	.070	.014	grams
0.76	2.03	7.62	2.54	0.51	0.38	1.78	0.36	0.3

Demo Board MCL P/N: TB-99 Suggested PCB Layout (PL-066)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.020" ± 0.0015". 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-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

Features

- low conversion loss, 12 dB typ.
- low profile, 0.070" max.
- aqueous washable
- protected by US patent 5,534,830

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.	Typ.	Max.	F1		F3		F4	
	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.	Typ.	Min.
2	1600-2200	3200-4400	11	15	12	15.8	12	7	20	13	23	10

* Harmonics of input frequency below the power level of F2

Typical Performance Data 25°C

Input Frequency (MHz)	Conversion Loss (dB)	Harmonic Output (-dBc)		
		F1	F3	F4
1600.00	12.49	10.21	23.69	22.41
1700.00	12.07	11.36	22.56	24.44
1750.00	11.92	11.20	22.00	22.24
1800.00	11.70	12.27	23.75	22.35
1850.00	11.55	12.67	24.11	22.75
1900.00	11.38	13.23	23.71	21.07
1950.00	11.55	14.25	24.05	20.49
2000.00	11.60	14.11	22.15	18.03
2100.00	11.56	13.51	21.61	15.05
2200.00	11.74	11.80	23.02	14.68

