

Frequency Multiplier

50Ω Output 7000 to 10000 MHz

Maximum Ratings

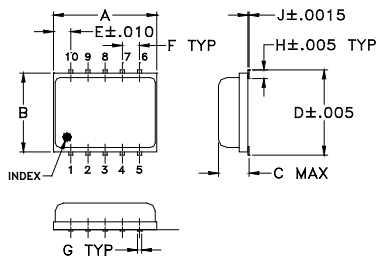
Operating Temperature	-55°C to 100°C
Storage Temperature	-55°C to 100°C
RF Input, 25°C	200mW

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

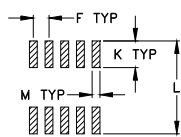
Pin Connections

INPUT	10
OUTPUT	5
50Ω TERMINATE EXT.	3
GROUND	1,2,4,6,7,8,9

Outline Drawing



PCB Land Pattern



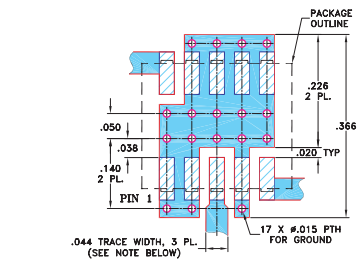
Suggested Layout,
Tolerance to be within ± 0.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F	G
.30	.250	.085	.266	.050	.050	.012
7.62	6.35	2.16	6.76	1.27	1.27	0.30
H	J	K	L	M		wt
.029	.004	.085	.296	.030		grams
0.74	0.10	2.16	7.52	0.76		0.25

Demo Board MCL P/N: TB-144

Suggested PCB Layout (PL-045)



NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS R04350B WITH DIELECTRIC THICKNESS .020" $\pm$.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

Features

- low conversion loss, 12.5 dB typ.
- LTCC design
- low profile, 0.085"
- low cost

Applications

- synthesizers
- local oscillators

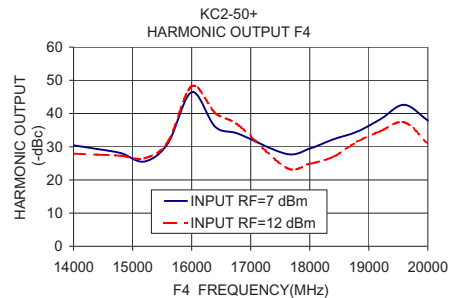
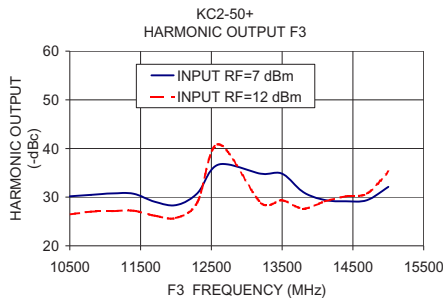
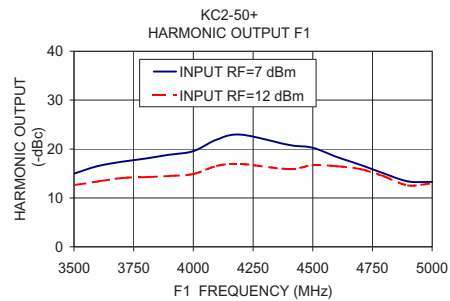
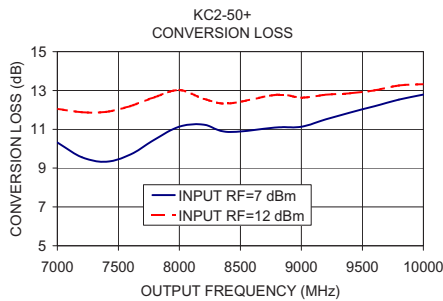
Electrical Specifications

Multiplication Factor	Frequency (MHz)		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.	Min.
2	3500-5000	7000-10000	7	12	12.5	16.0	15	8	28	20	30	17
	3800-4500	7600-9000	7	12	11.3	14.8	20	10	30	20	30	17

* Harmonics of input frequency below the power level of F2

Typical Performance Data

INPUT RF= 7 dBm					INPUT RF= 12 dBm				
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
3500.00	10.32	14.96	30.18	30.40	12.06	12.62	26.45	27.92	
3600.00	9.56	16.50	30.47	29.30	11.88	13.35	27.01	27.62	
3700.00	9.33	17.40	30.75	28.08	11.90	14.05	27.10	27.25	
3800.00	9.70	18.06	30.71	25.52	12.20	14.25	27.20	26.48	
3900.00	10.48	18.85	29.06	31.04	12.66	14.48	26.19	31.51	
4000.00	11.14	19.55	28.37	46.43	13.02	14.86	25.74	48.15	
4100.00	11.24	21.94	30.76	35.98	12.57	16.55	28.84	40.09	
4200.00	10.86	22.93	36.69	33.86	12.33	16.93	40.86	36.40	
4400.00	11.10	20.85	34.82	27.84	12.78	15.90	28.80	23.70	
4500.00	11.13	20.24	34.83	29.44	12.63	16.71	29.36	24.84	
4600.00	11.51	18.37	31.04	32.23	12.78	16.48	27.63	26.98	
4700.00	11.86	16.75	29.43	34.50	12.86	15.88	29.13	31.46	
4800.00	12.19	14.98	29.14	38.31	13.01	14.38	30.17	34.73	
4900.00	12.53	13.36	29.37	42.60	13.26	12.55	30.72	37.35	
5000.00	12.79	13.28	32.10	37.90	13.32	13.00	35.23	30.94	



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.

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