High Directivity

Monolithic Amplifier

NEW! VNA-23

50Ω 0.5 to 2.5 GHz

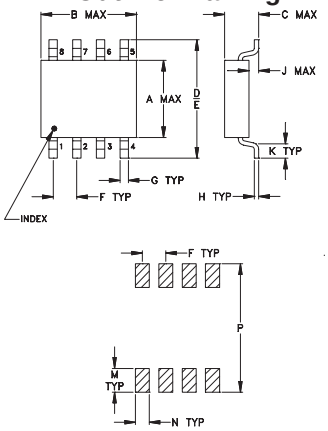
Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 150°C
DC Voltage	8V
Power	400mW
Input Power (no damage)	10 dBm

Pin Connections

RF IN	3
RF OUT	6
DC	1
GND EXT.	2,4,5,7,8

Outline Drawing

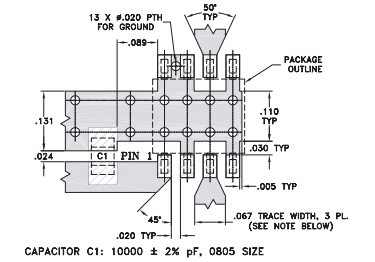


Outline Dimensions (inch / mm)

A	B	C	D	E	F	G	H
.163	.202	.077	.250	.220	.050	.017	.009
4.14	5.13	1.96	6.35	5.59	1.27	0.43	0.23

J	K	L	M	N	P	wt.
.025	.030	—	.050	.030	.270	grams
0.64	0.76	—	1.27	0.76	6.86	.10

Demo Board MCL P/N: TB-01
Suggested PCB Layout (PL-077)



CAPACITOR C1: 10000 ± 2% pF, 0805 SIZE

NOTE:
1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350 WITH DIELECTRIC THICKNESS .030" ± .002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED
2. PTH LOCATIONS AS PER ARTWORK OF TEST BOARD B14-TB-01 (CONTACT MINI-CIRCUITS).
3. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.

DENOTES PCB COPPER LAYOUT

DENOTES COPPER LAND PATTERN FREE OF SOLDERMASK

Features

- 3V & 5V operation
- no external biasing circuit required
- high directivity, 18 dB typ.
- wide bandwidth, 0.5 to 2.5 GHz
- low noise figure, 5 dB typ.
- output power, up to +10 dBm typ.
- low cost



CASE STYLE: XX211
PRICE: $1.90 ea. QTY. (25)

Applications

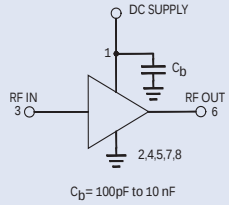
- buffer amplifier
- cellular
- PCN

Electrical Specifications (T_{AMB}=25°C)

FREQ. (GHz)	DC VOLTS (V)	GAIN (dB) Typical 0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz	MAXIMUM POWER (dBm) Output 1 dB Comp. Typ.	DYNAMIC RANGE NF (dB) Typ. at 1 GHz	IP3 (dBm) Typ.	VSWR* (:1) Typ. In	Out	DIRECTIVITY (dB) (isolation-gain) Typ.	DC OPERATING CURRENT at Pin 3 (mA) Typ.	Max.	THERMAL RESISTANCE θjc Typ. °C/W
0.5-2.5	5.0	15.1	18.6	18.3	16.9	14.6	15.4	10	4.7	21	1.5	1.3	15-20	32	45	110
	2.8	14.6	17.6	17.1	15.9	13.9	—	8.5	4.7	19	1.5	1.5	14-21	29	—	

*VSWR above .75 GHz

biasing configuration



C_b= 100pF to 10 nF

Typical Performance Data at 25°C

Frequency (MHz)	Gain (dB) 2.8V	5.0V	Pout (dBm) (@1dB COMPR) 2.8V	5.0V	N.F. (dB) 2.8V	5.0V	VSWR IN 2.8V	5.0V	VSWR OUT 2.8V	5.0V
500.00	14.88	15.33	10.38	11.94	4.55	4.52	3.99	4.01	1.27	1.34
750.00	17.51	18.19	10.28	11.58	4.59	4.57	2.03	2.05	1.53	1.57
1000.00	18.00	18.90	9.59	10.42	4.84	4.74	1.73	1.69	1.65	1.67
1300.00	17.71	18.83	8.95	9.86	4.51	4.52	1.96	1.91	1.62	1.62
1500.00	17.36	18.48	8.69	9.49	4.45	4.42	2.09	2.05	1.56	1.53
1800.00	16.51	17.65	8.42	9.44	4.69	4.80	1.94	1.91	1.45	1.38
2000.00	16.02	17.08	8.59	9.60	4.75	4.82	1.69	1.65	1.39	1.28
2100.00	15.74	16.78	8.67	9.57	4.74	4.81	1.54	1.51	1.36	1.23
2300.00	14.97	15.92	8.95	9.92	4.80	4.97	1.22	1.22	1.32	1.13
2500.00	14.14	14.94	9.13	10.05	4.77	4.77	1.06	1.09	1.33	1.06

