

# High Directivity Monolithic Amplifier

**NEW!**  
VNA-22

50Ω 0.5 to 2.5 GHz

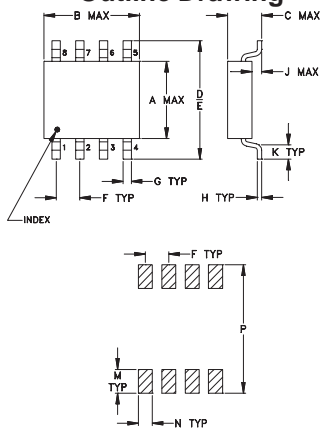
## Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 150°C
DC Voltage	8V
Power	800mW
Input Power (no damage)	10 dBm

## Pin Connections

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

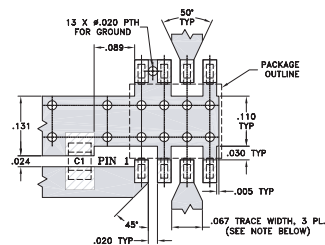
## Outline Drawing



## 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".  
 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, 20 dB typ.
- wide bandwidth, 0.5 to 2.5 GHz
- low noise figure, 6.6 dB typ.
- output power, up to +17 dBm typ.
- low cost

## Applications

- buffer amplifier
- cellular
- PCN



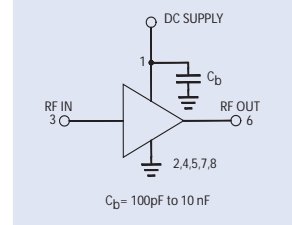
CASE STYLE: XX211  
PRICE: \$2.20 ea. QTY. (25)

## Electrical Specifications (T<sub>AMB</sub>=25°C)

FREQ. (GHz)	DC VOLTS (V)	GAIN (dB) Typical						MAXIMUM POWER (dBm) Output 1 dB Comp. Typ.	DYNAMIC RANGE		VSWR* (:1) Typ.		DIRECTIVITY (dB) (isolation-gain) Typ.	DC OPERATING CURRENT at Pin 3 (mA)		THERMAL RESISTANCE θ <sub>jc</sub> Typ. °C/W
		0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz		NF (dB) Typ. at 1 GHz	IP3 (dBm) Typ.	In	Out		Typ.	Typ.	
0.5-2.5	5.0 2.8	10.3	13.3	13.8	13.3	12.2	11.8	17.0 14.0	6.7 7.0	29 26	1.6 1.6	1.4 1.5	17-27 17-29	80 72	95 80	102

\*VSWR above .75 GHz

## biasing configuration



## Typical Performance Data at 25°C

Frequency (MHz)	Gain (dB)		Pout (dBm) (@1dB COMP)		N.F. (dB)		VSWR IN		VSWR OUT	
	2.8V	5.0V	2.8V	5.0V	2.8V	5.0V	2.8V	5.0V	2.8V	5.0V
500.00	9.56	10.28	13.97	17.06	6.68	6.80	2.34	2.33	2.72	2.69
600.00	10.59	11.41	14.72	18.32	6.75	6.81	1.93	1.93	2.08	2.05
750.00	11.43	12.38	15.18	18.88	6.62	6.78	1.54	1.56	1.62	1.56
1000.00	12.27	13.30	15.17	18.56	6.95	6.86	1.19	1.21	1.32	1.22
1200.00	12.46	13.62	15.05	18.14	6.56	6.67	1.17	1.19	1.27	1.09
1500.00	12.54	13.76	14.69	17.43	6.81	6.96	1.36	1.38	1.31	1.02
1800.00	12.20	13.55	14.20	17.13	6.59	6.74	1.55	1.58	1.37	1.05
2000.00	11.91	13.30	13.86	16.62	6.80	6.91	1.61	1.65	1.43	1.08
2200.00	11.41	12.91	13.57	16.04	6.95	7.08	1.65	1.69	1.48	1.12
2500.00	10.92	12.25	12.95	15.63	7.19	7.31	1.60	1.64	1.59	1.21

