

Monolithic Amplifier

NEW!

VNA-21

50Ω 0.5 to 2.5 GHz

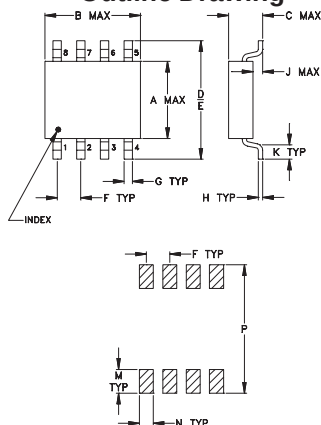
Maximum Ratings

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

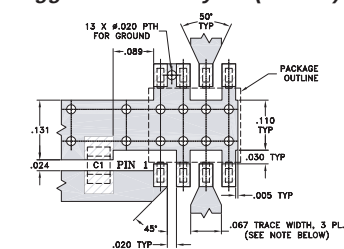
Outline Drawing



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, 20 dB typ.
- wide bandwidth, 0.5 to 2.5 GHz
- low noise figure, 6.4 dB typ.
- output power, up to +10.2 dBm typ.
- excellent repeatability
- low cost

Applications

- buffer amplifier
- cellular
- PCN



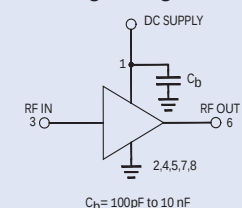
CASE STYLE: XX211
PRICE: \$1.80 ea. QTY. (25)

Electrical Specifications (T_{AMB}=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 RESIS- TANCE θjc Typ. °C/W
		0.5	1.0	1.5	2.0	2.5	Min. at 2 GHz	NF (dB) Typ.		IP3 (dBm) Typ.	In	Out	Typ.		Typ.	Max.	
0.5-2.5	5.0 2.8	9.8 9.1	12.5 11.5	13.5 12.3	13.7 12.4	13.1 11.8	12.6 —	8.5 7.0	6.4 6.4	20 19	1.4 1.4	1.3 1.3	18-24 18-25	31 29	45 —	105	

*VSWR above .75 GHz

biasing configuration



Typical Performance Data at 25°C

Frequency (MHz)	Gain (dB)		Pout (dBm) (@1dB COMPR)		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	9.29	9.87	8.43	9.94	6.62	6.59	2.79	2.94	1.21	1.34
600.00	10.06	10.70	9.00	10.54	6.64	6.60	2.12	2.22	1.15	1.29
700.00	10.65	11.35	8.91	10.43	6.57	6.55	1.75	1.82	1.17	1.30
800.00	11.10	11.86	8.67	10.36	6.48	6.41	1.50	1.56	1.21	1.32
900.00	11.47	12.26	8.39	9.96	6.38	6.34	1.32	1.38	1.24	1.34
1000.00	11.78	12.63	8.13	9.66	6.78	6.45	1.19	1.24	1.27	1.36
1500.00	12.56	13.65	7.04	8.41	6.48	6.45	1.29	1.27	1.31	1.34
1800.00	12.48	13.75	6.65	8.20	6.28	6.07	1.49	1.48	1.29	1.27
2000.00	12.41	13.75	6.58	8.01	6.41	6.33	1.57	1.57	1.28	1.20
2500.00	11.72	13.11	6.13	7.81	6.64	6.59	1.61	1.60	1.34	1.07

