The RF Line

General Purpose Linear Amplifier Module

MHW1345

10–200 MHz
34.5 dB
800 mW
GENERAL PURPOSE
LINEAR AMPLIFIER MODULE

Features

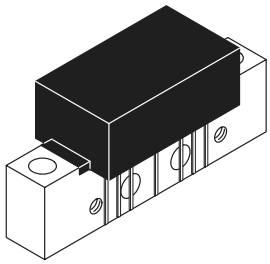
- 34.5 dB Typical Gain @ 100 MHz
- Silicon Bipolar Technology
- Class A Operation
- Typical ITO = +44 dBm @ 200 MHz
- Unconditionally Stable Under All Load Conditions

Applications

- Driver Amplifier in 50 Ohm Systems Requiring High Linearity
- Instrumentation Amplifiers
- Return Path Amplifier on CATV Systems Operating in the 10 to 200 MHz Frequency Range
- Possible Replacement for CA2830C

Description

- 24 Vdc Supply, 10 to 200 MHz, General Purpose Linear Amplifier Module



CASE 1302–01, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
DC Supply Voltage	V_{CC}	28	Vdc
RF Power Input	P_{in}	+5	dBm
Operating Case Temperature Range	T_C	–20 to +100	°C
Storage Temperature Range	T_{stg}	–40 to +100	°C

ELECTRICAL CHARACTERISTICS (T_C = 25°C, V_{CC} = 24 V, 50 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	10	—	200	MHz
Gain Flatness (f = 10–200 MHz)	G_F	—	±0.5	±1	dB
Power Gain (f = 100 MHz)	G_p	33.5	34.5	35.5	dB
Noise Figure, Broadband (f = 200 MHz)	NF	—	3.8	4.5	dB
Power Output — 1 dB Compression (f = 10–200 MHz)	P_{1dB}	630	800	—	mW
Power Output — 1 dB Compression (f = 10–200 MHz, V_{CC} = 28 V)	P_{1dB}	1000	1260	—	mW
Third Order Intercept (See Figure 2, f_1 = 200 MHz)	ITO	43	44	—	dBm
Input/Output VSWR (f = 10–200 MHz)	VSWR	—	1.5:1	2:1	—
Second Harmonic Distortion (Tone at 100 mW, f_{2H} = 150 MHz)	d_{so}	—	–60	–50	dB
Peak Envelope Power (Two Tone Distortion Test — See Figure 2) (f = 10–200 MHz @ –32 dB IMD)	PEP	600	800	—	mW
Supply Current	I_{CC}	270	310	330	mA

Biased at 24 Volts **T = 25°C Z_o = 50Ω**

Frequency (MHz)	S11		S21		S12		S22	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
10	–19.3	45.5	34.6	–0.6	–47.0	2.3	–14.5	76.8
50	–15.6	35.0	34.2	–56.7	–47.5	–30.3	–12.6	45.0
100	–13.2	34.4	33.9	–114	–47.9	–62.9	–10.8	10.7
200	–11.1	30.1	33.5	134	–48.3	–128	–14.9	–42.6

Magnitude in dB, Phase Angle in degrees.

Table 1. S–Parameters

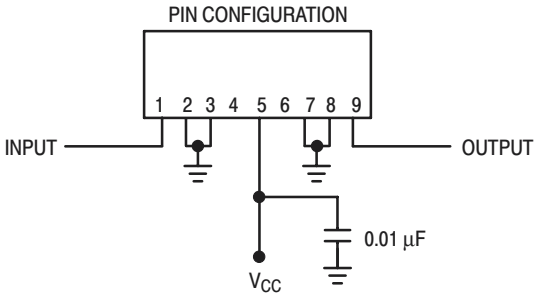
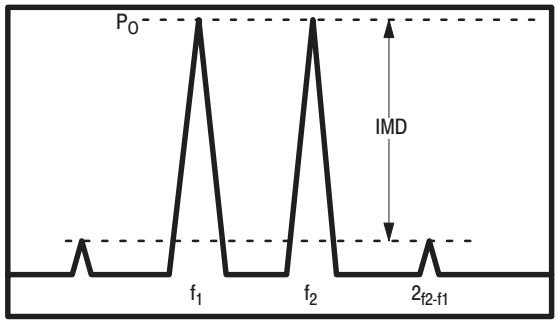


Figure 1. External Connections



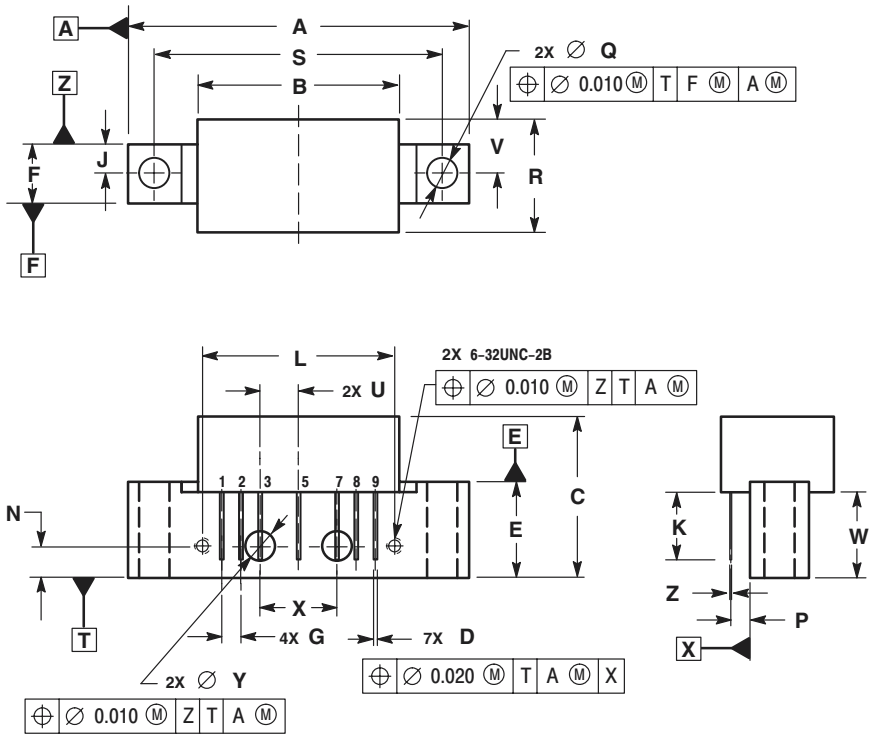
$$ITO = P_O + \frac{IMD}{2} \text{ @ IMD} > 60dB$$

PEP = 4X P_O @ IMD = –32dB

Figure 2. Intermodulation Test

NOTES

PACKAGE DIMENSIONS



NOTES:
1. DIMENSIONS ARE IN INCHES.
2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	---	1.775	---	45.085
B	---	1.085	---	27.559
C	---	0.840	---	21.336
D	0.015	0.021	0.381	0.533
E	0.465	0.510	11.811	12.954
F	0.300	0.325	7.62	8.255
G	0.100 BSC		2.540 BSC	
J	0.156 BSC		3.962 BSC	
K	0.315	0.355	8.001	9.017
L	1.000 BSC		25.400 BSC	
N	0.165 BSC		4.191 BSC	
P	0.100 BSC		2.540 BSC	
Q	0.148	0.168	3.759	4.267
R	---	0.600	---	15.24
S	1.500 BSC		38.100 BSC	
U	0.200 BSC		5.080 BSC	
V	---	0.250	---	6.350
W	0.435	---	11.049	---
X	0.400 BSC		10.160 BSC	
Y	0.152	0.163	3.861	4.140
Z	0.009	0.011	0.229	0.279

STYLE 1:
PIN 1. RF INPUT
2. GROUND
3. GROUND
4. DELETED
5. VDC
6. DELETED
7. GROUND
8. GROUND
9. RF OUTPUT

CASE 1302–01
ISSUE B

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