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Freescale Semiconductor
Technical Data

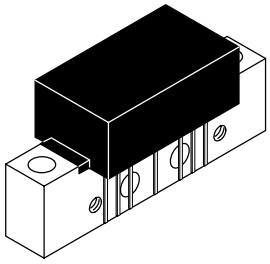
Document Number: MHW1345N
Rev. 3, 5/2006

RoHS

General Purpose Linear Amplifier Module

MHW1345N

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



CASE 1302-01, STYLE 1

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
- Replaced MHW1345. There are no form, fit or function changes with this part replacement.
- RoHS Compliant

Table 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

Table 2. 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

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Table 3. S-Parameters (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.

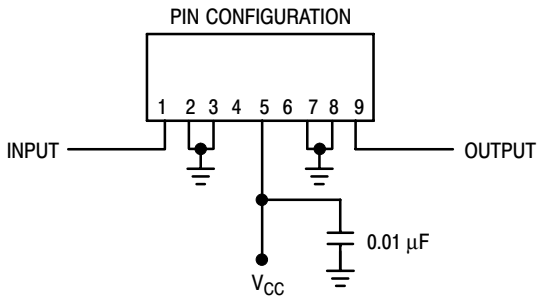
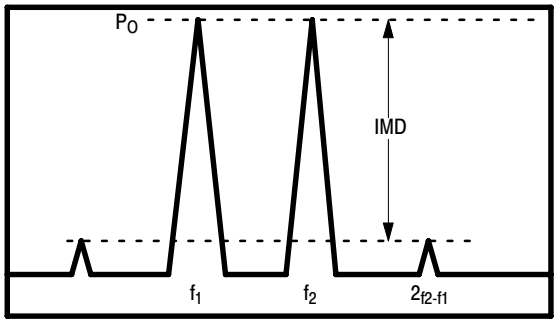


Figure 1. External Connections



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

PEP = 4X P_O @ IMD = -32dB

Figure 2. Intermodulation Test

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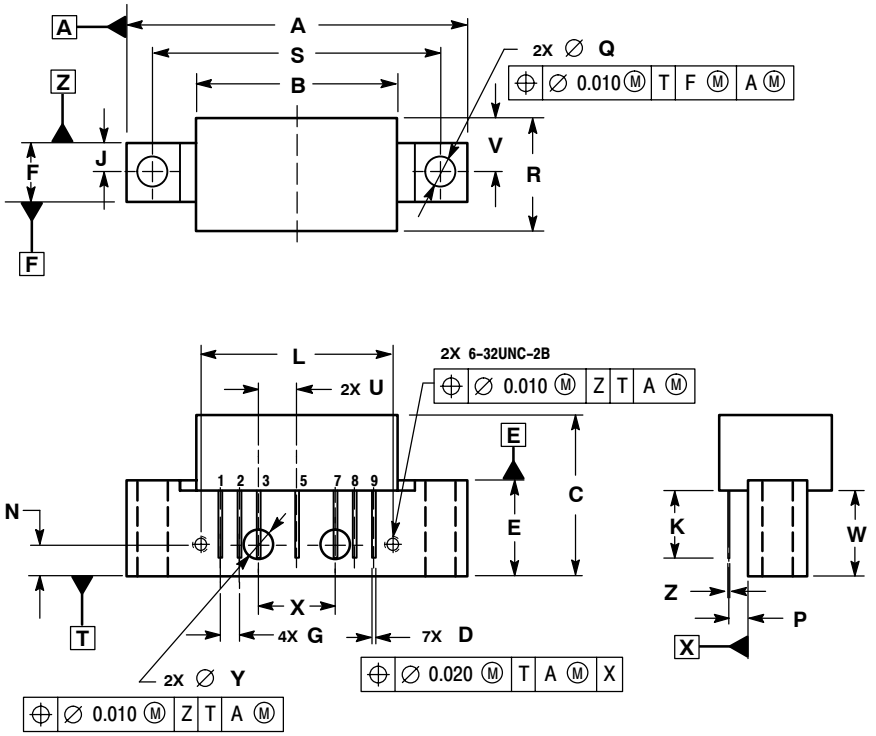
PACKAGE DIMENSIONS



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 E

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Document Number: MHW1345N
Rev. 3, 5/2006