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Freescale Semiconductor  
 Technical Data

Document Number: MHW1254LAN  
 Rev. 5, 5/2006



# CATV Amplifier Module

## Features

- Specified for 6- and 10-Channel Loading
- Excellent Distortion Performance
- Low Power Consumption
- Capable of Handling Multiple Channels in the Return Path with Good Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

## Applications

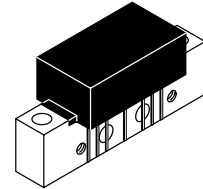
- CATV Systems Operating in the 5 to 65 MHz Frequency Range
- Specified for Use as a Return Path Amplifier for Low-Split 2-Way Cable TV Systems

## Description

- 24 Vdc Supply, 5 to 65 MHz, CATV Reverse Amplifier Module
- Replaced MHW1254LA. There are no form, fit or function changes with this part replacement.
- RoHS Compliant

**MHW1254LAN**

**5-65 MHz, 25.5 dB, 10-CHANNEL  
 CATV LOW CURRENT  
 AMPLIFIER MODULE**



CASE 1302-01, STYLE 1

**Table 1. Maximum Ratings**

Parameter	Symbol	Value	Unit
DC Supply Voltage	$V_{CC}$	+28	Vdc
RF Input Voltage (Single Tone)	$V_{in}$	+60	dBmV
Operating Case Temperature Range	$T_C$	-20 to +100	°C
Storage Temperature Range	$T_{stg}$	-40 to +100	°C

**Table 2. Electrical Characteristics** ( $V_{CC} = 24$  Vdc,  $T_C = 30^\circ\text{C}$ ,  $75 \Omega$  system, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Bandwidth All	BW	5	—	65	MHz
Power Gain (f = 5 MHz)	$G_p$	25	25.5	26	dB
Slope (5-65 MHz)	S	-0.2	—	0.5	dB
Gain Flatness (Peak To Valley) (5-65 MHz)	$G_F$	—	—	0.4	dB
Return Loss — Input/Output (@ f = 5-65 MHz)	IRL/ORL	20	—	—	dB
Composite Second Order ( $V_{out} = +50$ dBmV per Ch., Worst Case)					dBc
6-Channel FLAT	$CSO_6$	—	-73	-68	
10-Channel FLAT	$CSO_{10}$	—	-71	-66	

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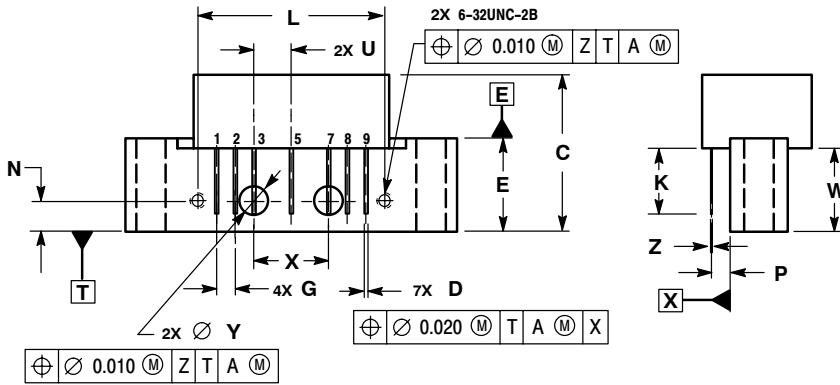
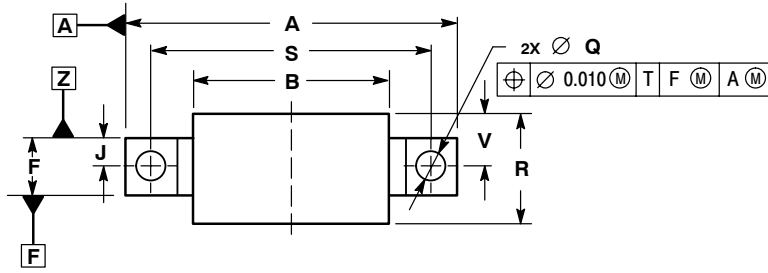
**Table 2. Electrical Characteristics** ( $V_{CC} = 24$  Vdc,  $T_C = 30^\circ\text{C}$ ,  $75 \Omega$  system, unless otherwise noted) (continued)

Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion ( $V_{out} = +50$ dBmV per Ch., Worst Case)	6-Channel FLAT	—	-69	-65	dBc
	10-Channel FLAT	—	-64	-61	
Composite Triple Beat ( $V_{out} = +50$ dBmV per Ch., Worst Case)	6-Channel FLAT	—	-78	-75	dBc
	10-Channel FLAT	—	-69	-66	
Noise Figure ( $f = 5-65$ MHz)	NF	—	5.8	6.5	dB
DC Current	$I_{DC}$	85	95	110	mA

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PACKAGE DIMENSIONS



DIM	INCHES		MILLIMETERS	
	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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