

# CATV Amplifier Module

## Features

- Specified for 77- and 110-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

## Applications

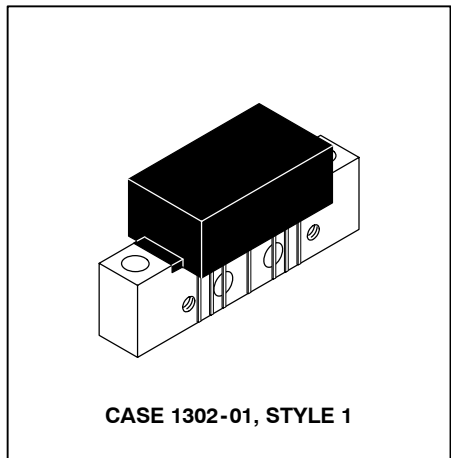
- CATV Systems Operating in the 40 to 750 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Output Stage Amplifier on Applications Requiring Low Power Dissipation

## Description

- 24 Vdc Supply, 40 to 750 MHz, CATV Forward Amplifier Module
- Replaced MHW7222B. There are no form, fit or function changes with this part replacement.
- RoHS Compliant

**MHW7222BN**

**750 MHz  
22.7 dB GAIN  
110-CHANNEL  
CATV AMPLIFIER MODULE**



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**Table 1. Maximum Ratings**

Rating	Symbol	Value	Unit
DC Supply Voltage	$V_{CC}$	+28	Vdc
RF Input Voltage (Single Tone)	$V_{in}$	+70	dBmV
Operating Case Temperature Range	$T_C$	-20 to +100	°C
Storage Temperature Range	$T_{stg}$	-40 to +100	°C

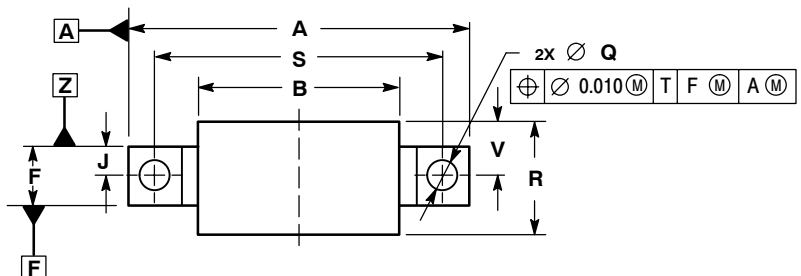
**Table 2. Electrical Characteristics** ( $V_{CC} = 24$  Vdc,  $T_C = +30^\circ\text{C}$ , 75  $\Omega$  system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	750	MHz
Power Gain f = 50 MHz f = 750 MHz	$G_p$	21.4 22.2	21.9 22.7	22.4 23.2	dB
Slope (f = 40 - 750 MHz)	S	0.2	0.7	1.2	—
Gain Flatness (Peak To Valley) (f = 40 - 750 MHz)	$G_F$	—	0.4	0.6	—
Input/Output Return Loss @ f = 40 MHz	IRL/ORL	20	25	—	dB
Derate Return Loss @ f > 40 MHz	RLD	—	—	0.006	dB/MHz
Composite Second Order ( $V_{out} = +40$ dBmV/ch; 110 Channels) ( $V_{out} = +44$ dBmV/ch; 77 Channels)	CSO <sub>110</sub> CSO <sub>77</sub>	— —	-67 -67	-60 -60	dBc

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

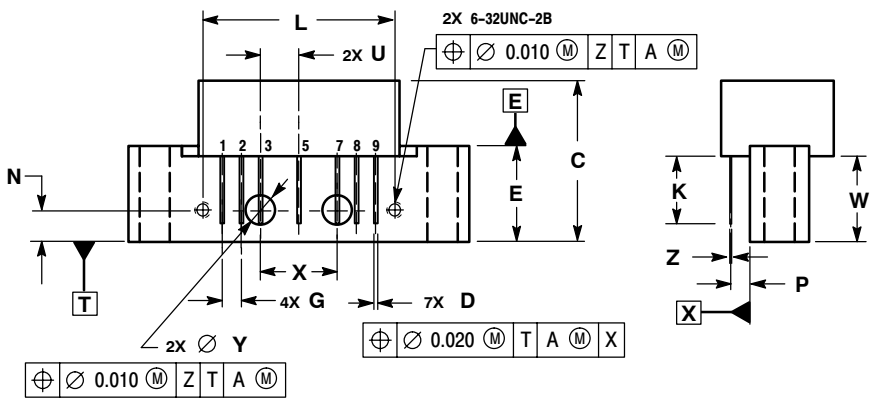
Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion ( $V_{out} = +40 \text{ dBmV/ch}$ , 110-Channel @ $F_m = 55.25 \text{ MHz}$ ) ( $V_{out} = +44 \text{ dBmV/ch}$ , 77-Channel @ $F_m = 55.25 \text{ MHz}$ )	XMD <sub>110</sub> XMD <sub>77</sub>	— —	- 63 - 59	- 60 - 56	dBc
Composite Triple Beat ( $V_{out} = +40 \text{ dBmV/ch}$ , 110-Channels, Worst Case) ( $V_{out} = +44 \text{ dBmV/ch}$ , 77-Channels, Worst Case)	CTB <sub>110</sub> CTB <sub>77</sub>	— —	- 64 - 65	- 61 - 62	dBc
Noise Figure f = 50 MHz f = 750 MHz	NF	— —	3.7 5	4.5 6.5	dB
DC Current	I <sub>DC</sub>	180	220	240	mA

### PACKAGE DIMENSIONS



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

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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