

## The RF Line **CATV Amplifier Module**

### Features

- Specified for 77-, 110- and 128-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

### Applications

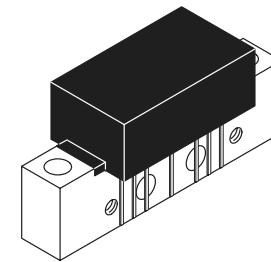
- CATV Systems Operating in the 40 to 860 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications
- Output Stage Amplifier on Applications Requiring Low Power Dissipation

### Description

- 24 Vdc Supply, 40 to 860 MHz, CATV Forward Amplifier

**MHW8222B**

860 MHz  
22.7 dB GAIN  
128-CHANNEL  
CATV AMPLIFIER



CASE 1302-01, STYLE 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

### ELECTRICAL CHARACTERISTICS ( $V_{CC} = 24$ Vdc, $T_C = +30$ °C, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	860	MHz
Power Gain $f = 50$ MHz $f = 860$ MHz	$G_p$	21.4 21.8	21.9 22.7	22.4 24	dB
Slope ( $f = 40$ –860 MHz)	S	0.1	0.8	1.5	—
Gain Flatness (Peak To Valley) ( $f = 40$ –860 MHz)	$G_F$	—	0.4	0.6	—
Input/Output Return Loss @ $f = 40$ MHz	IRL/ORL	20	24	—	dB
Derate Return Loss @ $f > 40$ MHz	RLD	—	—	0.009	dB/MHz
Composite Second Order ( $V_{out} = +38$ dBmV/ch; 128 Channels) ( $V_{out} = +40$ dBmV/ch; 110 Channels) ( $V_{out} = +44$ dBmV/ch; 77 Channels)	$CSO_{128}$ $CSO_{110}$ $CSO_{77}$	— — —	-68 -64 -65	-60 -61 -62	dBc

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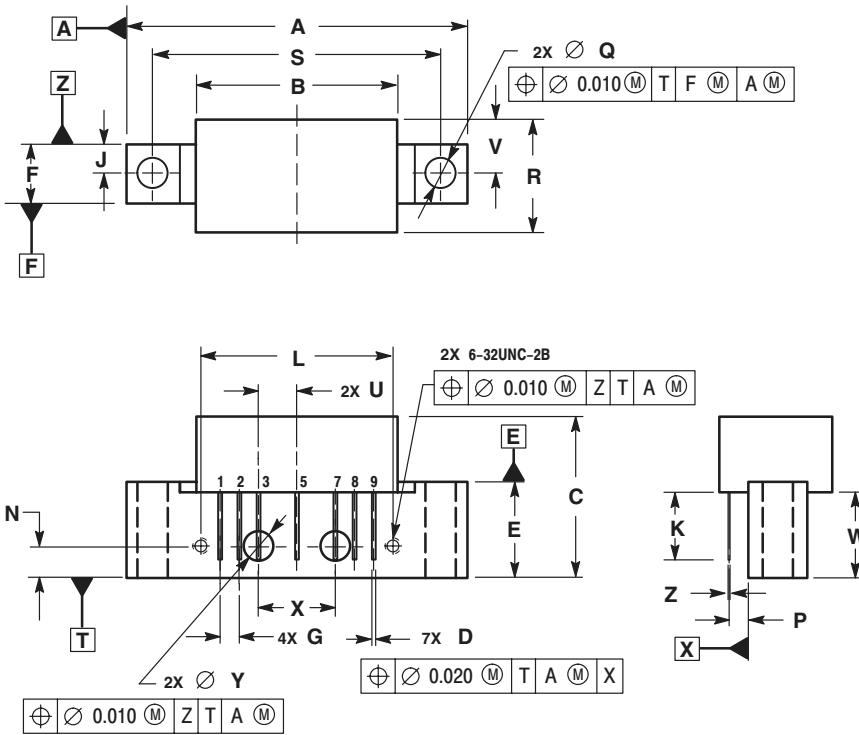
ELECTRICAL CHARACTERISTICS — continued ( $V_{CC} = 24$  Vdc,  $T_C = +30^\circ\text{C}$ ,  $75\ \Omega$  system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion ( $V_{out} = +38$ dBmV/ch, 128-Channel @ $F_m = 55.25$ MHz) ( $V_{out} = +40$ dBmV/ch, 110-Channel @ $F_m = 55.25$ MHz) ( $V_{out} = +44$ dBmV/ch, 77-Channel @ $F_m = 55.25$ MHz)	XMD <sub>128</sub> XMD <sub>110</sub> XMD <sub>77</sub>	— — —	-65 -63 -59	-63 -60 -56	dBc
Composite Triple Beat ( $V_{out} = +38$ dBmV/ch, 128-Channels, Worst Case) ( $V_{out} = +40$ dBmV/ch, 110-Channels, Worst Case) ( $V_{out} = +44$ dBmV/ch, 77-Channels, Worst Case)	CTB <sub>128</sub> CTB <sub>110</sub> CTB <sub>77</sub>	— — —	-66 -64 -65	-64 -61 -62	dBc
Noise Figure $f = 50$ MHz $f = 750$ MHz $f = 860$ MHz	NF	— — —	3.7 5 5.6	4.5 6.5 7	dB
DC Current	$I_{DC}$	180	220	240	mA

**NOTES**

# Freescale Semiconductor, Inc.

## 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:  
 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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