Freescale Semiconductor
Technical Data

Document Number: MHW8222BN
Rev. 6, 4/2006

RoHS

CATV Amplifier Module

MHW8222BN

860 MHz
22.7 dB GAIN
128-CHANNEL
CATV AMPLIFIER MODULE

Features

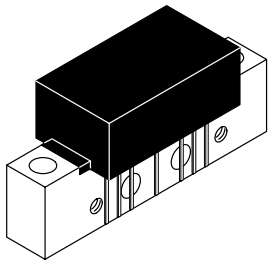
- Specified for 77-, 110- and 128-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

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 Module
- Replaced MHW8222B. There are no form, fit or function changes with this part replacement.
- RoHS Compliant



CASE 1302-01, STYLE 1

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°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

LIFETIME BUY

LAST ORDER 31 DEC 07 LAST SHIP 30 JUN 08

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Table 2. Electrical Characteristics (V_{CC} = 24 Vdc, T_C = +30°C, 75 Ω system unless otherwise noted) **(continued)**

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

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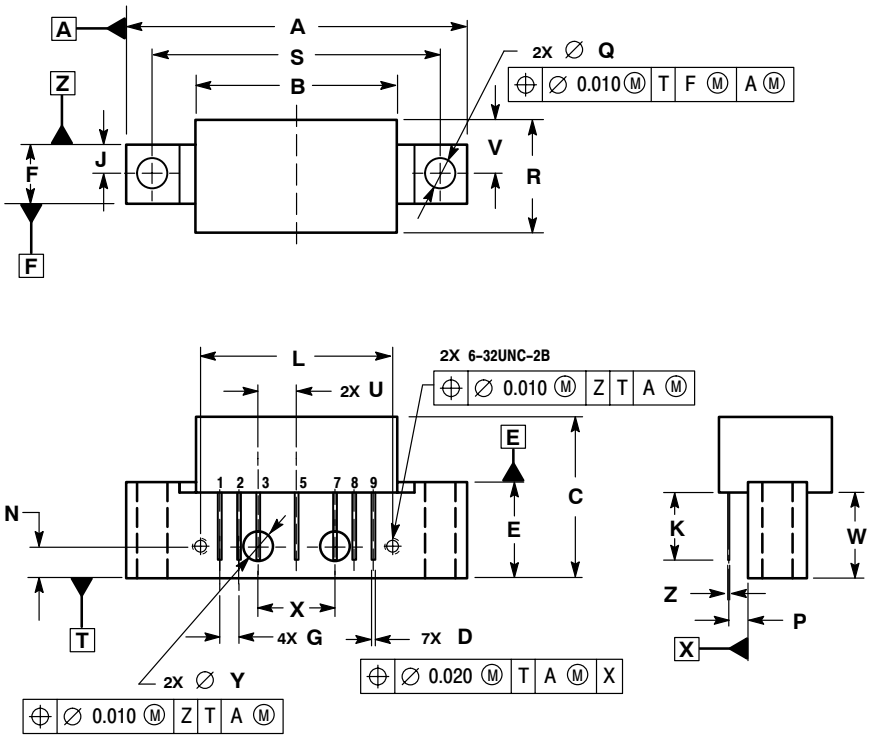
PACKAGE DIMENSIONS



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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