Freescale Semiconductor
Technical Data

Document Number MHW7222BN
Rev. 6, 5/2006

RoHS

CATV Amplifier Module

MHW7222BN

750 MHz
22.7 dB GAIN
110-CHANNEL
CATV AMPLIFIER MODULE

Features

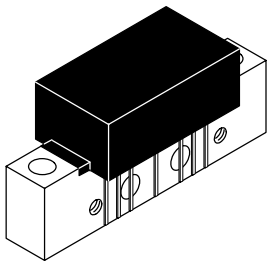
- Specified for 77- and 110-Channel Loading
- Excellent Distortion Performance
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

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



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	—	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_{110} CSO_{77}	 — —	 - 67 - 67	 - 60 - 60	dBc

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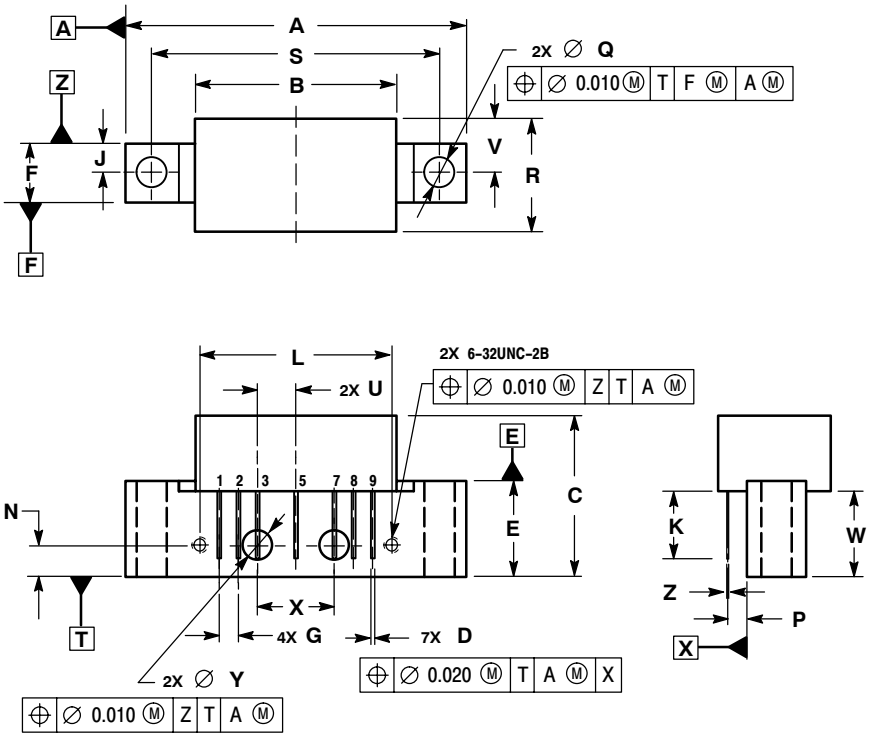
Table 2. Electrical Characteristics (V_{CC} = 24 Vdc, T_C = +30°C, 75 Ω system unless otherwise noted) **(continued)**

Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion (V_{out} = +40 dBmV/ch, 110-Channel @ Fm = 55.25 MHz) (V_{out} = +44 dBmV/ch, 77-Channel @ Fm = 55.25 MHz)	 XMD_{110} XMD_{77}	 — —	 - 63 - 59	 - 60 - 56	dBc
Composite Triple Beat (V_{out} = +40 dBmV/ch, 110-Channels, Worst Case) (V_{out} = +44 dBmV/ch, 77-Channels, Worst Case)	 CTB_{110} CTB_{77}	 — —	 - 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_{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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How to Reach Us:

Home Page:
www.freescale.com

E-mail:
support@freescale.com

USA/Europe or Locations Not Listed:
Freescale Semiconductor
Technical Information Center, CH370
1300 N. Alma School Road
Chandler, Arizona 85224
+1-800-521-6274 or +1-480-768-2130
support@freescale.com

Europe, Middle East, and Africa:
Freescale Halbleiter Deutschland GmbH
Technical Information Center
Schatzbogen 7
81829 Muenchen, Germany
+44 1296 380 456 (English)
+46 8 52200080 (English)
+49 89 92103 559 (German)
+33 1 69 35 48 48 (French)
support@freescale.com

Japan:
Freescale Semiconductor Japan Ltd.
Headquarters
ARCO Tower 15F
1-8-1, Shimo-Meguro, Meguro-ku,
Tokyo 153-0064
Japan
0120 191014 or +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:
Freescale Semiconductor Hong Kong Ltd.
Technical Information Center
2 Dai King Street
Tai Po Industrial Estate
Tai Po, N.T., Hong Kong
+800 2666 8080
support.asia@freescale.com

For Literature Requests Only:
Freescale Semiconductor Literature Distribution Center
P.O. Box 5405
Denver, Colorado 80217
1-800-441-2447 or 303-675-2140
Fax: 303-675-2150
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