Freescale Semiconductor
Technical Data

Document Number: MHW8182CN
Rev. 3, 4/2006

RoHS

CATV Amplifier Module

MHW8182CN

860 MHz
19.1 dB GAIN
128-CHANNEL
CATV AMPLIFIER MODULE

Features

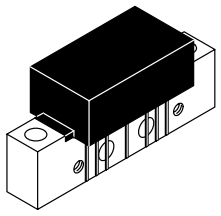
- Specified for 77-, 110- and 128-Channel Loading
- Excellent Distortion Performance
- Superior Gain, Return Loss and DC Current Stability over Temperature
- Silicon Bipolar Transistor Technology
- Unconditionally Stable Under All Load Conditions

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 MHW8182C. 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
RF Voltage Input (Single Tone)	V_{in}	+70	dBmV
DC Supply Voltage	V_{CC}	+28	Vdc
Operating Case Temperature Range	T_C	-20 to +100	°C
Storage Temperature Range	T_{stg}	-40 to +100	°C

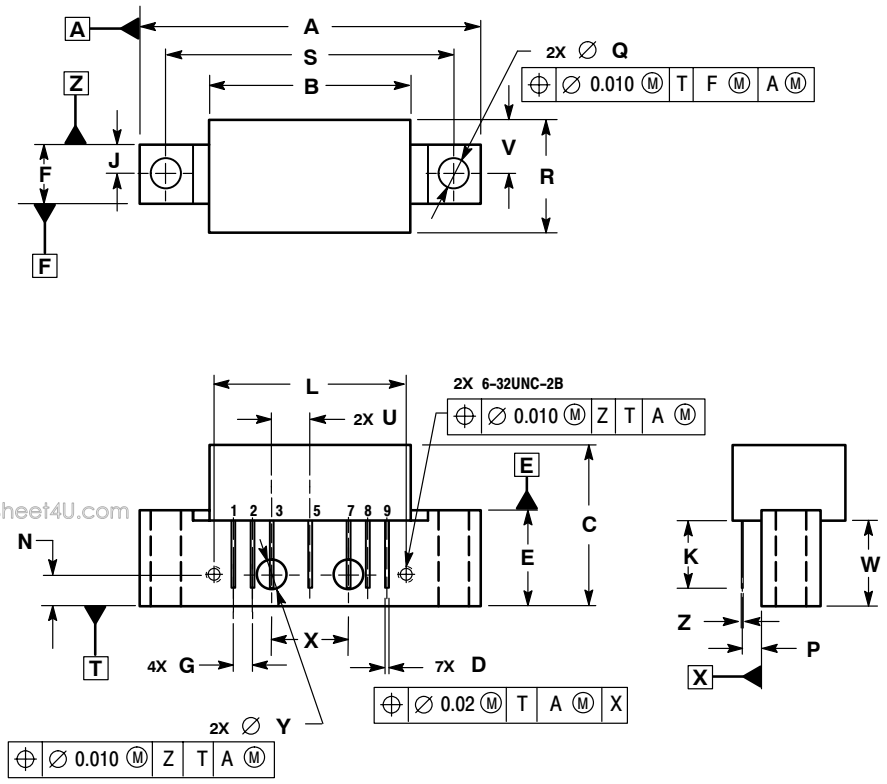
Table 2. Electrical Characteristics (V_{CC} = 24 Vdc, T_C = +30°C, 75 Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Frequency Range		BW	40	—	860	MHz
Power Gain	50 MHz 860 MHz	G_p	18 18.2	18.5 19.1	19 20.5	dB
Slope	40 - 860 MHz	S	0	0.7	2.5	dB
Gain Flatness (40 - 860 MHz, Peak to Valley)		G_F	—	0.3	0.6	dB
Return Loss — Input/Output (Z_o = 75 Ohms) @ 40 MHz @ f > 40 MHz (Derate)		IRL/ORL	 20 —	 — —	 — 0.005	 dB dB/MHz
Composite Second Order (V_{out} = +38 dBmV/ch., Worst Case) (V_{out} = +40 dBmV/ch., Worst Case) (V_{out} = +44 dBmV/ch., Worst Case)	 128-Channel FLAT 110-Channel FLAT 77-Channel FLAT	 CSO_{128} CSO_{110} CSO_{77}	 — — —	 -71 -70 -70	 -64 -63 -64	dBc

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 @ Ch 2						dBc
(V_{out} = +38 dBmV/ch., FM = 55 MHz)	128-Channel FLAT	XMD_{128}	—	-68	-65	
(V_{out} = +40 dBmV/ch., FM = 55 MHz)	110-Channel FLAT	XMD_{110}	—	-66	-64	
(V_{out} = +44 dBmV/ch., FM = 55 MHz)	77-Channel FLAT	XMD_{77}	—	-61	-59	
Composite Triple Beat						dBc
(V_{out} = +38 dBmV/ch., Worst Case)	128-Channel FLAT	CTB_{128}	—	-69	-66	
(V_{out} = +40 dBmV/ch., Worst Case)	110-Channel FLAT	CTB_{110}	—	-68	-66	
(V_{out} = +44 dBmV/ch., Worst Case)	77-Channel FLAT	CTB_{77}	—	-66	-64	
Noise Figure	50 MHz	NF	—	4.0	5.0	dB
	550 MHz		—	4.5	—	
	750 MHz		—	5.0	6.5	
	860 MHz		—	5.5	7.5	
DC Current (V_{DC} = 24 V, T_C = 30°C)		I_{DC}	180	220	240	mA

PACKAGE DIMENSIONS



NOTES:
1. CONTROLLING DIMENSION: INCH.
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	7.620	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	----	15.240
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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