

Gallium Arsenide CATV Amplifier Module

Features

- Specified for 79-, 112- and 132-Channel Loading
- Excellent Distortion Performance
- Built-in Input Diode Protection
- GaAs FET Transistor Technology
- Unconditionally Stable Under All Load Conditions

Applications

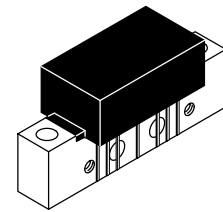
- CATV Systems Operating in the 40 to 1000 MHz Frequency Range
- Input Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Output Stage Amplifier on Applications Requiring Low Power Dissipation and High Output Performance
- Driver Amplifier in Linear General Purpose Applications

Description

- 24 Vdc Supply, 40 to 1000 MHz, CATV GaAs Forward Amplifier Module
- RoHS Compliant

MHW10186N

**1000 MHz
18.5 dB GAIN
132-CHANNEL
GaAs CATV AMPLIFIER MODULE**



CASE 1302-01, STYLE 1

Table 1. Maximum Ratings

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+65	dBmV
DC Supply Voltage	V_{CC}	+26	Vdc
Operating Case Temperature Range	T_C	-20 to +100	°C
Storage Temperature Range	T_{stg}	-40 to +100	°C

Table 2. ESD Maximum Ratings

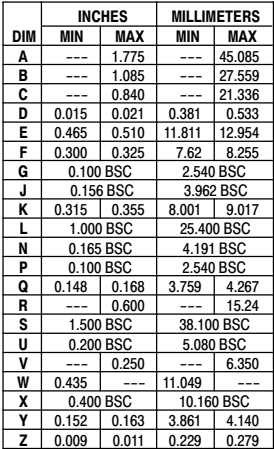
Rating	Input Value	Output Value	Unit
Surge Voltage per IEC 1000-4-5	300	300	V
Human Body Model per Mil. Std. 1686	2	2	kV

Table 3. Electrical Characteristics ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	1000	MHz
Power Gain 1000 MHz	G_p	18	18.5	19.5	dB
Slope 40-1000 MHz	S	0.2	0.6	1.2	dB
Gain Flatness (40-1000 MHz, Peak-to-Valley)	G_F	—	0.3	0.8	dB
Return Loss — Input ($Z_o = 75$ Ohms)	IRL	20 19 18 15	— — — —	— — — —	dB
Return Loss — Output ($Z_o = 75$ Ohms)	ORL	20 19 18 17	— — — —	— — — —	dB

Table 3. Electrical Characteristics ($V_{CC} = 24$ Vdc, $T_C = +30^\circ\text{C}$, $75\ \Omega$ system unless otherwise noted) (continued)

Characteristic		Symbol	Min	Typ	Max	Unit
Composite Second Order						dBc
($V_{out} = +48$ dBmV/ch., Worst Case)	79-Channel FLAT	CSO_{79}	—	-72	-64	
($V_{out} = +46$ dBmV/ch., Worst Case)	112-Channel FLAT	CSO_{112}	—	-65	-61	
($V_{out} = +44$ dBmV/ch., Worst Case)	132-Channel FLAT	CSO_{132}	—	-67	-60	
Cross Modulation Distortion @ Ch 2						dBc
($V_{out} = +48$ dBmV/ch., FM = 55 MHz)	79-Channel FLAT	XMD_{79}	—	-58	—	
($V_{out} = +46$ dBmV/ch., FM = 55 MHz)	112-Channel FLAT	XMD_{112}	—	-58	—	
($V_{out} = +44$ dBmV/ch., FM = 55 MHz)	132-Channel FLAT	XMD_{132}	—	-58	—	
Composite Triple Beat						dBc
($V_{out} = +48$ dBmV/ch., Worst Case)	79-Channel FLAT	CTB_{79}	—	-64	-60	
($V_{out} = +46$ dBmV/ch., Worst Case)	112-Channel FLAT	CTB_{112}	—	-61	-58	
($V_{out} = +44$ dBmV/ch., Worst Case)	132-Channel FLAT	CTB_{132}	—	-62	-58	
Noise Figure	50 MHz	NF	—	4	5	dB
	870 MHz		—	3.7	5	
	1000 MHz		—	4.1	5	
DC Current ($V_{DC} = 24$ V, $T_C = -20^\circ$ to $+100^\circ\text{C}$)		I_{DC}	230	250	265	mA



STYLE 1:
PIN 1. RF INPUT
2. GROUND
3. GROUND
4. DELETED
5. VDC
6. DELETED
7. GROUND
8. GROUND
9. RF OUTPUT

RF Device Data
Freescale Semiconductor

REVISION HISTORY

The following table summarizes revisions to this document.

Revision	Date	Description
0	Nov. 2006	Initial Release of Data Sheet

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