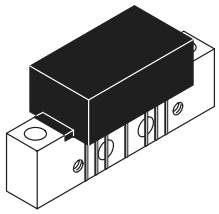
The RF Line

Gallium Arsenide CATV Amplifier Module

MHW9186

870 MHz
18.5 dB GAIN
132–CHANNEL
GaAs CATV AMPLIFIER



CASE 1302–01, STYLE 1

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 870 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 870 MHz, CATV GaAs Forward Amplifier

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

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

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

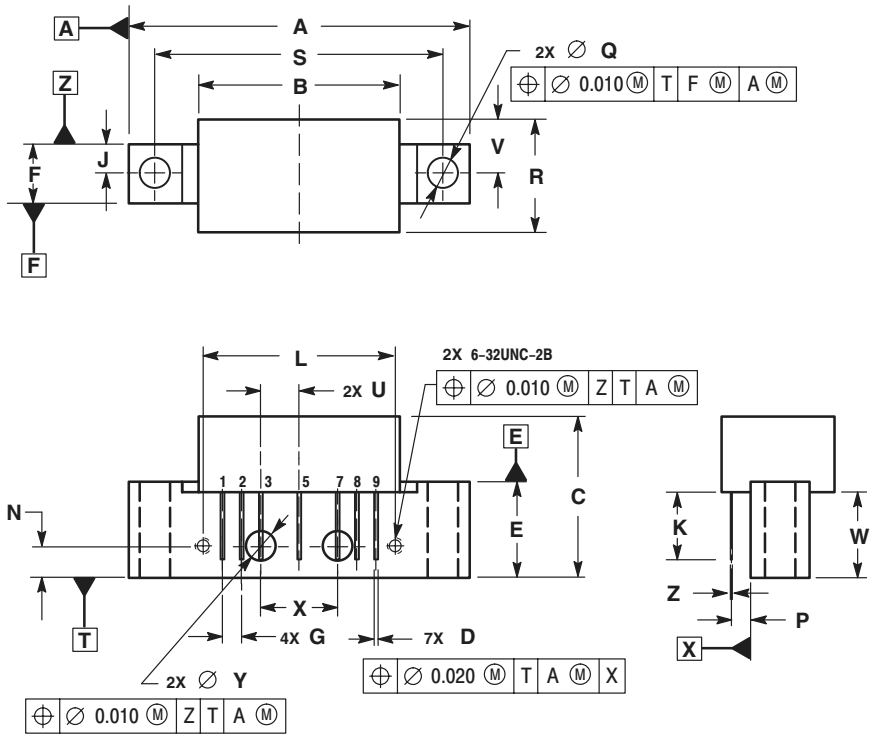
Characteristic		Symbol	Min	Typ	Max	Unit
Frequency Range		BW	40	—	870	MHz
Power Gain	50 MHz 870 MHz	G_p	17.5 18	18 18.5	18.5 19.5	dB
Slope	40–870 MHz	S	0.2	0.6	1.2	dB
Gain Flatness (40–870 MHz, Peak–to–Valley)		G_F	—	0.3	0.8	dB
Return Loss — Input (Z_o = 75 Ohms)	 40–200 MHz 200–600 MHz 600–870 MHz	IRL	 20 19 18	 — — —	 — — —	dB
Return Loss — Output (Z_o = 75 Ohms)	 40–200 MHz 200–600 MHz 600–870 MHz	ORL	 20 19 18	 — — —	 — — —	dB

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

Characteristic		Symbol	Min	Typ	Max	Unit
Composite Second Order						dBc
(V_{out} = +44 dBmV/ch., Worst Case)	132–Channel FLAT	CSO_{132}	—	–67	–60	
(V_{out} = +46 dBmV/ch., Worst Case)	112–Channel FLAT	CSO_{112}	—	–65	–61	
(V_{out} = +48 dBmV/ch., Worst Case)	79–Channel FLAT	CSO_{79}	—	–72	–64	
Cross Modulation Distortion @ Ch 2						dBc
(V_{out} = +44 dBmV/ch., FM = 55 MHz)	132–Channel FLAT	XMD_{132}	—	–58	–52	
(V_{out} = +46 dBmV/ch., FM = 55 MHz)	112–Channel FLAT	XMD_{112}	—	–58	–52	
(V_{out} = +48 dBmV/ch., FM = 55 MHz)	79–Channel FLAT	XMD_{79}	—	–58	–52	
Composite Triple Beat						dBc
(V_{out} = +44 dBmV/ch., Worst Case)	132–Channel FLAT	CTB_{132}	—	–62	–58	
(V_{out} = +46 dBmV/ch., Worst Case)	112–Channel FLAT	CTB_{112}	—	–61	–58	
(V_{out} = +48 dBmV/ch., Worst Case)	79–Channel FLAT	CTB_{79}	—	–64	–60	
Noise Figure	50 MHz	NF	—	4	5.0	dB
	870 MHz		—	3.7	5.0	
DC Current (V_{DC} = 24 V, T_C = –20° to +100°C)		I_{DC}	230	250	265	mA

NOTES

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 B

How to reach us:
USA/EUROPE/Locations Not Listed: Motorola Literature Distribution; P.O. Box 5405, Denver, Colorado 80217. 1–303–675–2140 or 1–800–441–2447

JAPAN: Motorola Japan Ltd.; SPS, Technical Information Center, 3–20–1, Minami–Azabu. Minato–ku, Tokyo 106–8573 Japan. 81–3–3440–3569

ASIA/PACIFIC: Motorola Semiconductors H.K. Ltd.; Silicon Harbour Centre, 2 Dai King Street, Tai Po Industrial Estate, Tai Po, N.T. Hong Kong. 852–26668334

Technical Information Center: 1–800–521–6274

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