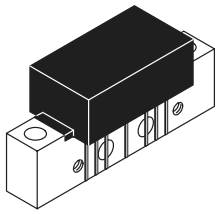
The RF Line

Gallium Arsenide CATV Amplifier Module

MHW9206

870 MHz
20.2 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 47 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, 47 to 870 MHz, CATV GaAs Forward Amplifier

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+70	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 = +45°C, 75 Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Frequency Range		BW	47	—	870	MHz
Power Gain	870 MHz	G_p	19.6	20.2	20.8	dB
Slope	47–870 MHz	S	0.4	0.8	1.4	dB
Gain Flatness (47–870 MHz, Peak–to–Valley)		G_F	—	—	0.5	dB
Return Loss — Input/Output		IRL/ORL				dB
(Z_o = 75 Ohms)	47–500 MHz		20	—	—	
	501–750 MHz		19	—	—	
	751–870 MHz		18	—	—	
Composite Second Order						dBc
(V_{out} = +48 dBmV/ch., Worst Case)	79–Channel FLAT	CSO_{79}	—	–66	–63	
(V_{out} = +46 dBmV/ch., Worst Case)	112–Channel FLAT	CSO_{112}	—	–62	–59	
(V_{out} = +44 dBmV/ch., Worst Case)	132–Channel FLAT	CSO_{132}	—	–63	–59	

Freescale Semiconductor, Inc.

© Motorola, Inc. 2002

MOTOROLA intelligence everywhere™ digital dna™

For More Information On This Product,
Go to: www.freescale.com

ELECTRICAL CHARACTERISTICS – continued (V_{CC} = 24 Vdc, T_C = +45°C, 75 Ω system unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion @ Ch 2						dBc
(V_{out} = +48 dBmV/ch., FM = 55.25 MHz)	79–Channel FLAT	XMD_{79}	—	–55	–51	
(V_{out} = +46 dBmV/ch., FM = 55.25 MHz)	112–Channel FLAT	XMD_{112}	—	–55	–51	
(V_{out} = +44 dBmV/ch., FM = 55.25 MHz)	132–Channel FLAT	XMD_{132}	—	–57	–51	
Composite Triple Beat						dBc
(V_{out} = +48 dBmV/ch., Worst Case)	79–Channel FLAT	CTB_{79}	—	–62	–60	
(V_{out} = +46 dBmV/ch., Worst Case)	112–Channel FLAT	CTB_{112}	—	–60	–57	
(V_{out} = +44 dBmV/ch., Worst Case)	132–Channel FLAT	CTB_{132}	—	–60	–57	
Noise Figure	50 MHz	NF	—	3.8	4.5	dB
	870 MHz		—	4	4.5	
DC Current (V_{DC} = 24 V, T_C = 45°C)		I_{DC}	230	245	260	mA

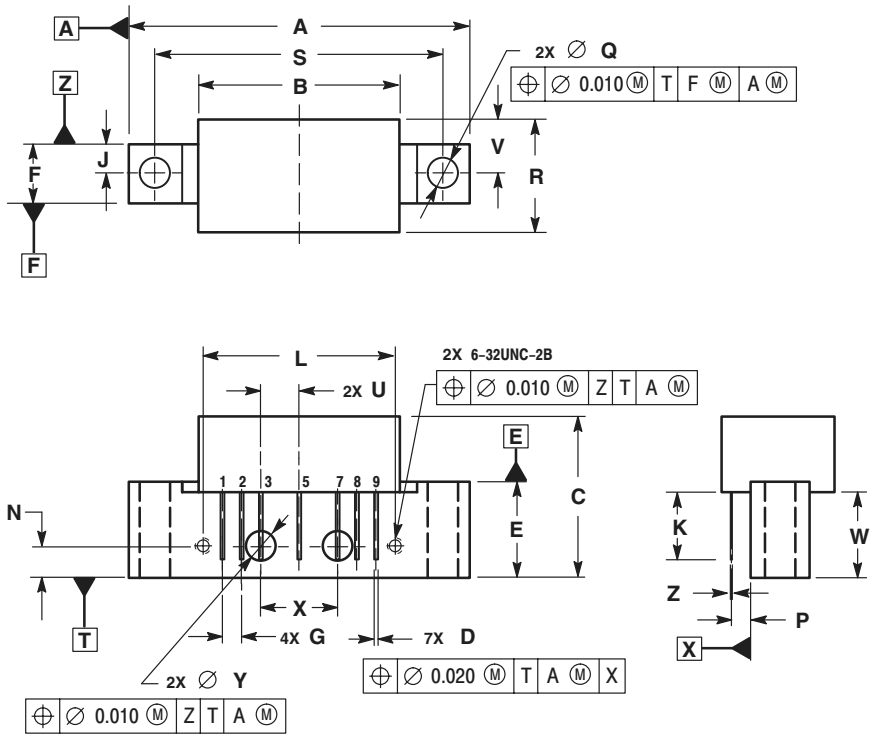
Freescale Semiconductor, Inc.

For More Information On This Product,
Go to: www.freescale.com

NOTES

Freescale Semiconductor, Inc.

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

Motorola reserves the right to make changes without further notice to any products herein. Motorola makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose, nor does Motorola assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. “Typical” parameters can and do vary in different applications and actual performance may vary over time. All operating parameters, including “Typicals”, must be validated for each customer application by customer’s technical experts. Motorola does not convey any license under its patent rights nor the rights of others. Motorola products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Motorola product could create a situation where personal injury or death may occur. Should Buyer purchase or use Motorola products for any such unintended or unauthorized application, Buyer shall indemnify and hold Motorola and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Motorola was negligent regarding the design or manufacture of the part. Motorola and the Stylized M Logo are registered in the US Patent & Trademark Office. All other product or service names are the property of their respective owners. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

© Motorola, Inc. 2002.

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

HOME PAGE: http://www.motorola.com/semiconductors/

Freescale Semiconductor, Inc.