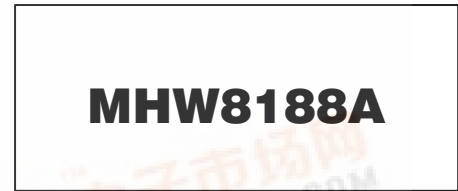


The RF Line

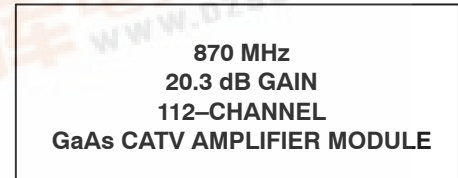
Gallium Arsenide

CATV Amplifier Module



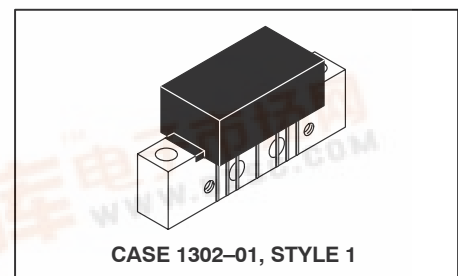
Features

- Specified for 79- and 112-Channel Loading
- Excellent Distortion Performance
- Higher Output Capability
- Built-in Input Diode Protection
- GaAs FET Transistor Technology
- Unconditionally Stable Under All Load Conditions
- Output Port Ring Wave Protection



Applications

- CATV Systems Operating in the 47 to 870 MHz Frequency Range
- Output Stage Amplifier in Optical Nodes, Line Extenders and Trunk Distribution Amplifiers for CATV Systems
- Driver Amplifier in Linear General Purpose Applications



Description

- 24 Vdc Supply, 47 to 870 MHz, CATV GaAs Forward Power Doubler Amplifier Module

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
RF Voltage Input (Single Tone)	V_{in}	+75	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, $T_C = +45^\circ\text{C}$, 75 Ω system unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	47	—	870	MHz
Power Gain 870 MHz	G_p	19.7	20.3	20.9	dB
Slope 47-870 MHz	S	0	0.5	1.0	dB
Gain Flatness (47-870 MHz, Peak-to-Valley)	G_F	—	—	0.5	dB
Return Loss — Input ($Z_o = 75$ Ohms)	IRL				dB
47-300 MHz		20	—	—	
301-700 MHz		18	—	—	
701-870 MHz		16	—	—	
Return Loss — Output ($Z_o = 75$ Ohms)	ORL				dB
47-160 MHz		20	—	—	
$f > 160$ MHz		18	—	—	

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

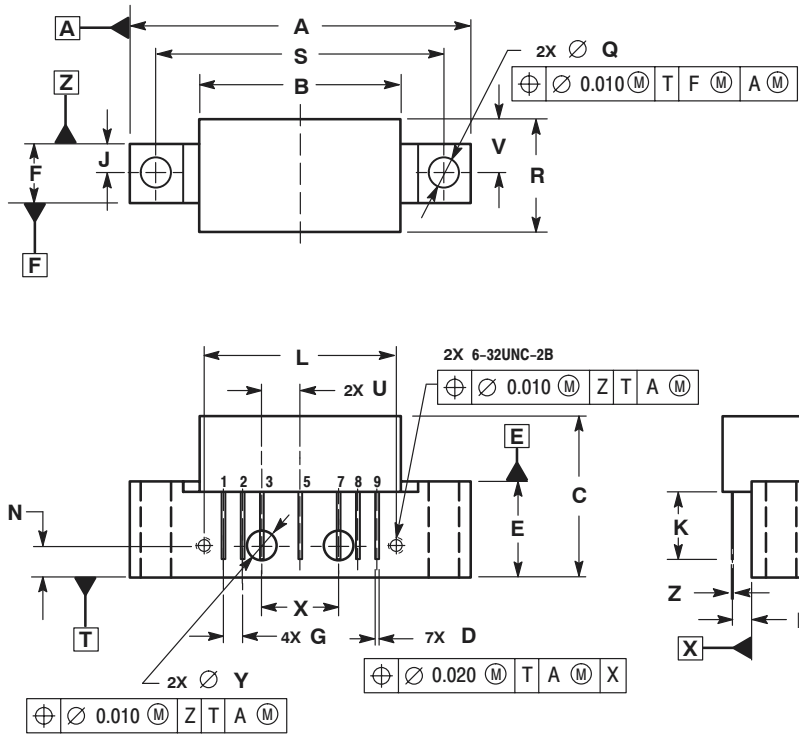
Characteristic		Symbol	Min	Typ	Max	Unit
Composite Second Order						dBc
($V_{out} = +48$ dBmV/ch., Worst Case)	112-Channel FLAT	CSO ₁₁₂	—	-66	-64	
($V_{out} = +48$ dBmV/ch., Worst Case)	79-Channel FLAT	CSO ₇₉	—	-70	-68	
($V_{out} = +56$ dBmV @ 870 MHz Equiv)	112-Channel, 12 dB Tilt	CSO ₁₁₂	—	-65	-63	
($V_{out} = +58$ dBmV @ 870 MHz Equiv)	79-Channel, 12 dB Tilt	CSO ₇₉	—	-69	-67	
Cross Modulation Distortion @ Ch 2						dBc
($V_{out} = +48$ dBmV/ch., FM = 55.25 MHz)	112-Channel FLAT	XMD ₁₁₂	—	-58	-56	
($V_{out} = +48$ dBmV/ch., FM = 55.25 MHz)	79-Channel FLAT	XMD ₇₉	—	-61	-59	
($V_{out} = +56$ dBmV @ 870 MHz Equiv)	112-Channel, 12 dB Tilt	XMD ₁₁₂	—	-53	-51	
($V_{out} = +58$ dBmV @ 870 MHz Equiv)	79-Channel, 12 dB Tilt	XMD ₇₉	—	-60	-47	
Composite Triple Beat						dBc
($V_{out} = +48$ dBmV/ch., Worst Case)	112-Channel FLAT	CTB ₁₁₂	—	-60	-58	
($V_{out} = +48$ dBmV/ch., Worst Case)	79-Channel FLAT	CTB ₇₉	—	-66	-64	
($V_{out} = +56$ dBmV @ 870 MHz Equiv)	112-Channel, 12 dB Tilt	CTB ₁₁₂	—	-57	-55	
($V_{out} = +58$ dBmV @ 870 MHz Equiv)	79-Channel, 12 dB Tilt	CTB ₇₉	—	-63	-61	
Noise Figure	50 MHz	NF	—	4.5	—	dB
	550 MHz		—	4.5	—	
	750 MHz		—	4.5	—	
	870 MHz		—	4.5	—	
DC Current ($V_{DC} = 24$ V, $T_C = 45^\circ\text{C}$)		I_{DC}	410	425	440	mA

Freescale Semiconductor, Inc.
NOTES

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PACKAGE DIMENSIONS



NOTES:
 1. DIMENSIONS ARE IN INCHES.
 2. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M, 1994.

DIM	INCHES		MILLIMETERS	
	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

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HOW TO REACH US:

USA/EUROPE/LOCATIONS NOT LISTED:
 Motorola Literature Distribution
 P.O. Box 5405, Denver, Colorado 80217
 1-800-521-6274 or 480-768-2130

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
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