

# The RF Line

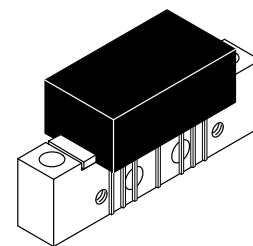
## 110-Channel (750 MHz) CATV Amplifier

**MHW7222A**

The MHW7222A is designed specifically for up to 750 MHz CATV systems as amplifiers in trunk and line extender applications. This amplifier features ion-implanted, arsenic emitter transistors, an all gold metallization system and offers improved ruggedness and distortion performance.

**22 dB GAIN**  
**750 MHz**  
**110 CHANNEL**  
**CATV AMPLIFIER**

- Specified for 110-Channel Performance
- Broadband Power Gain — @  $f = 40-750$  MHz  
     $G_p = 22.3$  dB Typ @ 750 MHz
- Broadband Noise Figure  
    NF = 5.5 dB Typ
- All Gold Metallization



CASE 714Y-03, STYLE 1

### ABSOLUTE MAXIMUM RATINGS

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

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

Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	BW	40	—	750	MHz
Power Gain $f = 50$ MHz $f = 750$ MHz	$G_p$	20.8 22	21.5 22.3	22.2 24	dB
Slope ( $f = 40-750$ MHz)	S	0	1	2	—
Gain Flatness (Peak To Valley) ( $f = 40-750$ MHz)	$G_f$	—	0.4	0.6	—
Input/Output Return Loss @ $f = 40$ MHz	IRL/ORL	20	24	—	dB
Derate Return Loss @ $f > 40$ MHz	RLD	—	—	0.008	dB/MHz
Composite Second Order ( $V_{out} = +40$ dBmV/ch; 110 Channels) ( $V_{out} = +44$ dBmV/ch; 77 Channels)	CSO <sub>110</sub> CSO <sub>77</sub>	— —	-65 -65	-57 —	dB

(continued)

**ELECTRICAL CHARACTERISTICS — continued**

Characteristic	Symbol	Min	Typ	Max	Unit
Cross Modulation Distortion (V <sub>out</sub> = +40 dBmV/ch, 110-Channel @ F <sub>m</sub> = 55.25 MHz) (V <sub>out</sub> = +44 dBmV/ch, 77-Channel @ F <sub>m</sub> = 55.25 MHz)	XMD <sub>110</sub> XMD <sub>77</sub>	—	-64 -60	-60 —	dBc
Composite Triple Beat (V <sub>out</sub> = +40 dBmV/ch, 110-Channels, Worst Case) (V <sub>out</sub> = +44 dBmV/ch, 77-Channels, Worst Case)	CTB <sub>110</sub> CTB <sub>77</sub>	—	-63 -62	-60 —	dBc
Noise Figure f = 50 MHz f = 750 MHz	NF	—	3.6 5.5	5 7	dB
DC Current	I <sub>DC</sub>	180	220	240	mA

**PACKAGE DIMENSIONS**

**Q 2 PL**  
 $\text{Ø } 0.25 (0.010) \text{ (M) T F (M) A (M)}$

**Y 2 PL**  
 $\text{Ø } 0.25 (0.010) \text{ (M) Z T A (M)}$

**6-32UNC-2B 2 PL**  
 $\text{Ø } 0.25 (0.010) \text{ (M) Z T A (M)}$

**D 7 PL**  
 $\text{Ø } 0.51 (0.020) \text{ (M) T A (M) X}$

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	—	1.775	—	45.08
B	—	1.085	—	27.56
C	—	0.840	—	21.34
D	0.018	0.022	0.46	0.56
E	0.465	0.510	11.81	12.95
F	0.300	0.325	7.62	8.25
G	0.100 BSC	—	2.54 BSC	—
J	0.156 BSC	—	3.96 BSC	—
K	0.315	0.355	8.00	8.50
L	1.00 BSC	—	25.40 BSC	—
N	0.165 BSC	—	4.19 BSC	—
P	0.100 BSC	—	2.54 BSC	—
Q	0.148	0.168	3.76	4.27
R	—	0.600	—	15.24
S	1.500 BSC	—	38.10 BSC	—
U	0.200 BSC	—	5.08 BSC	—
V	—	0.250	—	6.35
W	0.435	0.450	11.05	11.43
X	0.400 BSC	—	10.16 BSC	—
Y	0.152	0.163	3.85	4.15

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

**CASE 714Y-03  
 ISSUE D**

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 which may be provided in Motorola data sheets and/or specifications 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 are registered trademarks of Motorola, Inc. Motorola, Inc. is an Equal Opportunity/Affirmative Action Employer.

Mfax is a trademark of Motorola, Inc.

**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:** Nippon Motorola Ltd.: SPD, Strategic Planning Office, 4-32-1,  
 Nishi-Gotanda, Shinagawa-ku, Tokyo 141, Japan. 81-3-5487-8488

**Customer Focus Center: 1-800-521-6274**

**Mfax™:** RMFAX0@email.sps.mot.com – TOUCHTONE 1-602-244-6609  
 Motorola Fax Back System – US & Canada ONLY 1-800-774-1848  
 –http://sps.motorola.com/mfax/

**ASIA/PACIFIC:** Motorola Semiconductors H.K. Ltd.; 8B Tai Ping Industrial Park,  
 51 Ting Kok Road, Tai Po, N.T., Hong Kong. 852-26629298

**HOME PAGE:** http://motorola.com/sps/

