MOTOROLA Semiconductors

MHW1171 MHW1172
MHW1221 MHW1222

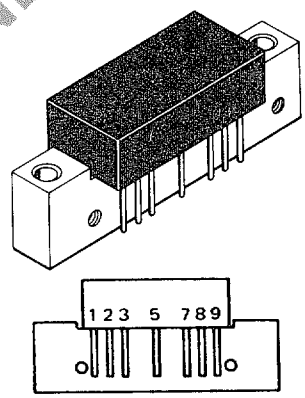
The RF Line

CATV INPUT/OUTPUT
TRUNK AMPLIFIERS

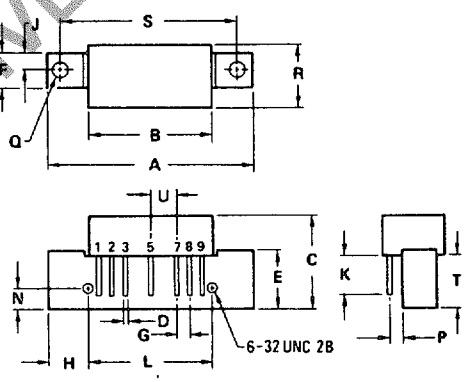
LOW DISTORTION WIDEBAND AMPLIFIER MODULE

. . . designed specifically for broadband applications requiring low distortion characteristics. Specified for use as CATV trunk-line amplifier. Features all gold metallization system.

- Broadband Power Gain — @ f = 40-300 MHz
  G_p = 17.0 dB (Typ) MHW 1171 MHW1172
  22.0 dB (Typ) MHW 1221 MHW1222
- Broadband Noise Figure — @ f = 300 MHz
  NF = 6.0 db (Typ) MHW1171
  6.5 dB (Typ) MHW1172
  5.0 dB (Typ) MHW1221
  6.0 dB (Typ) MHW1222
- Superior Gain, Return Loss and DC Current Stability with Temperature
- All Gold Metallization



PIN 1. RF INPUT
2,3,7,8. DC AND RF GROUND
5. V_{DC}
9. RF OUTPUT



NOTE:
1. MOUNTING HOLES WITHIN 0.25 mm (0.010) DIA OF TRUE POSITION AT MAXIMUM MATERIAL CONDITION.

	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	–	45.08	–	1.775
B	26.42	26.92	1.040	1.060
C	20.57	21.34	0.810	0.840
D	0.46	0.56	0.018	0.022
E	11.81	12.95	0.465	0.510
F	7.87	8.13	0.310	0.320
G	2.41	2.67	0.095	0.105
H	9.65	9.78	0.380	0.385
J	3.96 BSC		0.156 BSC	
K	9.65	10.41	0.380	0.410
L	25.40 BSC		1.000 BSC	
N	4.06	4.32	0.160	0.170
P	2.16	2.92	0.085	0.115
Q	3.81	4.06	0.150	0.160
R	–	15.11	–	0.595
S	38.10 BSC		1.500 BSC	
T	11.05	11.43	0.435	0.450
U	4.95	5.21	0.195	0.205

CASE 714-01

DS 5704
(Replaces NP-80)

ABSOLUTE MAXIMUM RATINGS

Ratings		Symbol	Value	Unit
RF Voltage Input	MHW1171/72 MHW1221/22	V_{in}	+70 +60	dBmV
DC Supply Voltage		V_{CC}	+28	Vdc
Operating Case Temperature Range		T_C	-20 to +100	°C
Storage Temperature Range		T_{stg}	-60 to +100	°C

ELECTRICAL CHARACTERISTICS (V_{CC} = 24 Vdc, T_A = +25°C, 75 Ω system unless otherwise noted)

Characteristic			Symbol	MHW1171-MHW1172 Min	MHW1171-MHW1172 Typ	MHW1171-MHW1172 Max	MHW1221-MHW1222 Min	MHW1221-MHW1222 Typ	MHW1221-MHW1222 Max	Unit
Frequency Range			BW	40	–	300	40	–	300	MHz
Power Gain – 50 MHz			G_p	16.6	17.0	17.4	21.4	22.0	22.6	dB
Slope			S	–	+0.4	+1.0	–	+0.4	+1.0	dB
Gain Flatness			–	–	±0.1	±0.2	–	±0.1	±0.2	dB
Return Loss – Input/Output (Z_o = 75 Ohms)			IRL/ORL	18	–	–	18	–	–	dB
Second Order Intermodulation Distortion (V_{out} = +50 dBmV, Ch 2, 13, R)			IMD							dB
MHW1171	MHW1221			–	-74	-68	–	-72	-64	
MHW1172	MHW1222			–	-76	-70	–	-74	-66	
Cross Modulation Distortion (V_{out} = +50 dBmV)										dB
MHW1171	MHW1221	12 Channel FLAT	XMD_{12}	–	-65	–	–	-64	–	
		21 Channel FLAT	XMD_{21}	–	-61	–	–	-60	–	
		30 Channel FLAT	XMD_{30}	–	-58	–	–	-57	–	
		35 Channel FLAT	XMD_{35}	–	-56	-51	–	-55	-51	
MHW1172	MHW1222	12 Channel FLAT	XMD_{12}	–	-69	–	–	-68	–	
		21 Channel FLAT	XMD_{21}	–	-65	–	–	-64	–	
		30 Channel FLAT	XMD_{30}	–	-62	–	–	-61	–	
		35 Channel FLAT	XMD_{35}	–	-60	-56	–	-59	-56	
Signal-to-Triple Beat Noise (V_{out} = +50 dBmV)										dB
MHW1171	MHW1221	12 Channel FLAT	TB_{12}	–	-71	–	–	-72	–	
		21 Channel FLAT	TB_{21}	–	-63	–	–	-64	–	
		30 Channel FLAT	TB_{30}	–	-57	–	–	-58	–	
		35 Channel FLAT	TB_{35}	–	-54	-51	–	-55	-51	
MHW1172	MHW1222	12 Channel FLAT	TB_{12}	–	-75	–	–	-74	–	
		21 Channel FLAT	TB_{21}	–	-67	–	–	-66	–	
		30 Channel FLAT	TB_{30}	–	-61	–	–	-60	–	
		35 Channel FLAT	TB_{35}	–	-58	-56	–	-57	-55	
Noise Figure (f = 300 MHz)			NF							dB
MHW1171	MHW1221			–	6.0	7.0	–	5.0	6.0	
MHW1172	MHW1222			–	6.5	8.0	–	6.0	7.0	
DC Current (V_{DC} = 24 ±0.5 Vdc, T_C = 30°C			I_{DC}							mA
MHW1171	MHW1221			–	160	190	–	180	220	
MHW1172	MHW1222			–	200	230	–	220	260	

MOTOROLA Semiconductor Products Inc.

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