

# MOTOROLA SEMICONDUCTOR TECHNICAL DATA

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by MHW5183/D

## The RF Line

### 60-Channel (450 MHz) & 77-Channel (550 MHz) CATV Low Noise Amplifiers

...designed specifically for up to 550 MHz CATV systems as input amplifiers in trunk and line extender applications. Both amplifiers feature ion-implanted, arsenic emitter transistors with 8.0 GHz  $f_T$  and an all gold metallization system.

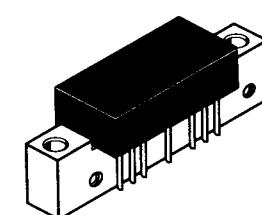
- Specified for 60/77-Channel Performance
- Broadband Power Gain — @  $f = 40 - 550$  MHz
 

$G_P =$	18.5 dB Typ @ 50 MHz
	19.1 dB Typ @ 450 MHz
	19.5 dB Typ @ 550 MHz
- Broadband Noise Figure
 

$NF =$	4.5 dB Typ — MHW5183
	5.0 dB Typ — MHW6183
- Superior Gain, Return Loss and DC Current Stability with Temperature

**MHW5183  
MHW6183**

**18 dB GAIN  
450/550 MHz  
60/77 CHANNEL  
LOW NOISE  
CATV AMPLIFIERS**



CASE 714-04

#### 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	$T_C$	-30 to +100	°C
Storage Temperature Range	$T_{stg}$	-30 to +100	°C

#### ELECTRICAL CHARACTERISTICS (V<sub>CC</sub> = 24 Vdc; T<sub>C</sub> = +30°C, 75 ohm system, unless otherwise noted)

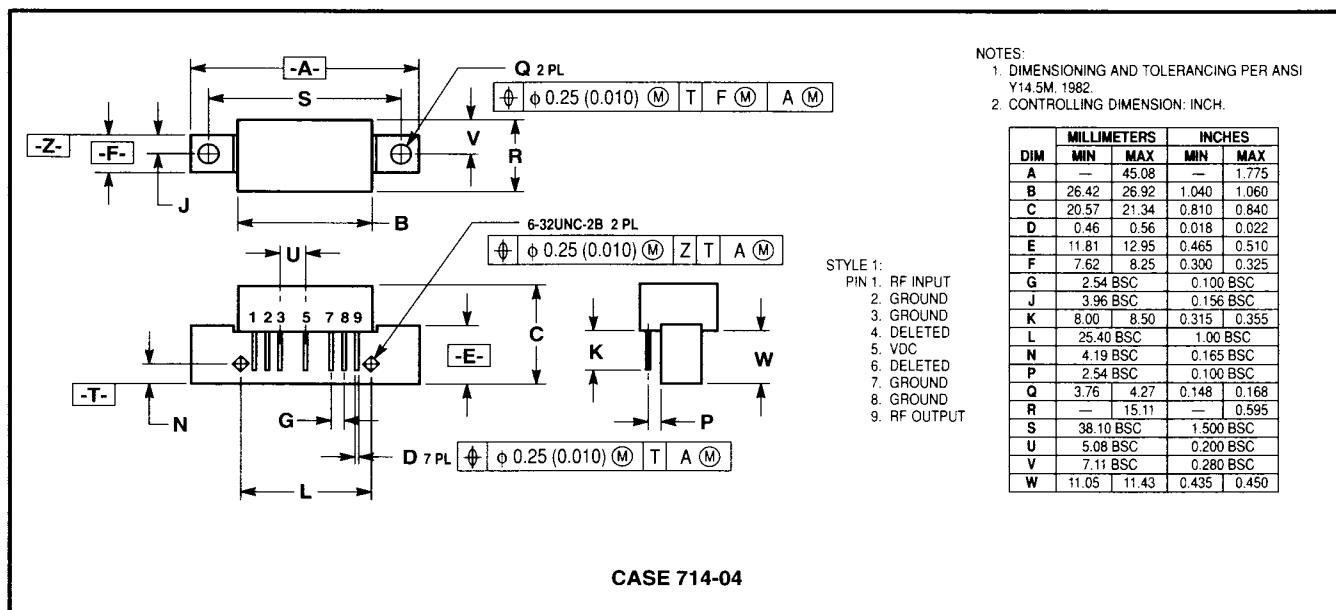
Characteristic	Symbol	Min	Typ	Max	Unit
Frequency Range	MHW5183 MHW6183	BW 40 40	— 18 18.7 19	450 550 19 20.2 20.5	MHz
Power Gain	$G_P$	50 MHz 450 MHz 550 MHz	18 18.7 19	18.5 19.1 19.5	19 20.2 20.5
Slope	S	MHW5183 MHW6183	0.3 0.5	0.7 1.0	1.8 2.0
Gain Flatness (Peak To Valley)	MHW5183 MHW6183	—	—	0.3 0.4	0.4 0.5
Input/Output Return Loss	MHW5183 MHW6183	IRL/ORL	18	—	dB
Composite Second Order	MHW5183; $V_{OUT} = +46$ dBmV/ch MHW6183; $V_{OUT} = +44$ dBmV/ch	$CSO_{60}$ $CSO_{77}$	— —	-65 -60	-62 -58



**ELECTRICAL CHARACTERISTICS — continued** ( $V_{CC} = 24$  Vdc;  $T_C = +30^\circ\text{C}$ , 75 ohm system, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit	
Cross Modulation Distortion ( $V_{out} = +46$ dBmV/ch, 60-Channel FLAT) ( $V_{out} = +44$ dBmV/ch, 77-Channel FLAT)	MHW5183 MHW6183	XMD <sub>60</sub> XMD <sub>77</sub>	— —	-59 -60	-58 -58	dBc
Composite Triple Beat ( $V_{out} = +46$ dBmV/ch, 60-Channel FLAT) ( $V_{out} = +44$ dBmV/ch, 77-Channel FLAT)	MHW5183 MHW6183	CTB <sub>60</sub> CTB <sub>77</sub>	— —	-62 -60	-60 -58	dBc
Noise Figure	f = 50 MHz MHW5183 MHW6183	NF	— — —	3.6 4.5 5.0	4.0 5.0 5.5	dB
DC Current	I <sub>DC</sub>	—	245	265	mA	

**OUTLINE DIMENSIONS**



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