

HP 8348A Microwave Preamplifier Specifications

Frequency Range: 2.0 to 26.5 GHz

Maximum Output Power (at 0 dBm input)

1.0 to 2.0 GHz: $\geq +20$ dBm (typical)

2.0 to 20.0 GHz: $\geq +25$ dBm

20.0 to 26.5 GHz: $\geq +23$ dBm

Power Flatness (at 0 dBm input): ± 4 dB (typical)

Minimum Small Signal Gain (at -15 dBm input)

1.0 to 2.0 GHz: ≥ 20 dB (typical)

2.0 to 20.0 GHz: ≥ 25 dB

20.0 to 26.5 GHz: ≥ 23 dB

Spectral Purity

Harmonics Typical (at maximum specified output power)

1.0 to 2.0 GHz: < -20 dBc

2.0 to 26.5 GHz: > -15 dBc

Third-Order Intercept

2.0 to 20.0 GHz: +36 dBm, nominal

20.0 to 26.5 GHz: +31 dBm, nominal

Maximum Continuous Input

Microwave power: +22 dBm

DC voltage: ± 10 V

Input and Output Impedance: 50 Ω , nominal

Input SWR: 3:1 (typical)

Output SWR (typical)

1.0 to 2.0 GHz: 6:1

2.0 to 20.0 GHz: 4.5:1

20.0 to 26.5 GHz: 2:1

Reverse Isolation: > 50 dB (typical)

Noise Figure (typical)

1.0 to 20 GHz: < 10 dB

20 to 26.5 GHz: < 13 dB

Pulse Transmission Capability

Rise/Fall Time: < 5 ns (typical)

Delay Time: < 5 ns (typical)

General

Input and Output Connectors: 3.5 mm male

Power Requirement: 50 to 400 Hz, 100, 120, 200, or 240 volts ac ($\pm 10\%$); 85 VA maximum

Size: 133 mm H \times 214 mm W \times 366 mm D (5.2 in \times 8.4 in \times 14.4 in)

Weight: Net, 7 kg (15 lb); shipping, 14 kg (31 lb)

Ordering Information

HP 8348A 2 to 26.5 GHz Microwave Preamplifier **Price**
\$13,400

HP 8349B Microwave Amplifier Frequency Specifications

Range: 2 to 20 GHz

Output and Input Specifications (25° C \pm 5° C)

Minimum Output Power (at +5 dBm input):

Frequency range (GHz)	Output	
	Leveled	Unleveled
2.0 to 18.6	19 dBm (80 mW)	20 dBm (100 mW)
18.6 to 20.0	17 dBm (50 mW)	18 dBm (63 mW)

1 dB Compression Point: +21 dBm, nominal

Power Flatness (Leveled): ± 1.25 dB

Minimum Small Signal Gain (at -5 dBm input):

2.0 to 18.6 GHz: 15dB

18.6 to 20.0 GHz: 13dB

Noise figure: < 13 dB, typical

Impedance (Input and Output): 50 Ω , nominal

VSWR:

Frequency range (GHz)	Input	Output	
		Leveled	Unleveled (typical)
2.0 to 5.0	≤ 2.8	≤ 2.5	≤ 4.8
5.0 to 11.0	≤ 2.8	≤ 2.5	≤ 3.8
11.0 to 18.0	≤ 2.8	≤ 2.5	≤ 3.2
18.0 to 20.0*	≤ 2.8	≤ 2.5	≤ 3.2

*VSWR from 18.0 to 20.0 GHz is typical

Maximum Continuous Input, to the Input or Output Ports: +27 dBm (RF), ± 10 V (dc)

Spectral Purity

Harmonics (at +20 dBm output):

2.0 to 11.0 GHz: < -20 dBc

11.0 to 20.0 GHz: < -30 dBc typical

Non-Harmonic Spurious: ≤ -55 dBc

Third-Order Intercept: +33 dBm, nominal

Pulse Transmission Capability

Rise/Fall Time: < 10 ns typical

General

Reverse Isolation: > 50 dB, typical

RF Input/Output Connectors: Type-N female

Size: 133 mm H \times 214 mm W \times 366 mm D (5.2 in \times 8.36 in \times 13.6 in)

Weight: Net, 7 kg (15 lb); shipping, 14 kg (31 lb)

Ordering Information

Ordering Information	Price
HP 8349B 2 to 20 GHz Microwave Amplifier	\$9,270
Opt 001 Rear Panel RF Input/Output	+ \$103
Opt 002 Rear Panel RF Input w/Front Panel RF Output	+ \$103
Opt W30 Extended Repair Service (see page 663)	+ \$165

HP 8449B Preamplifier Specifications

Frequency range:	1.0 to 26.5 GHz		
Gain (mean, per channel):	≥ 26 dB (20° to 30° C)		
Gain flatness across full freq. range:	1 to 26.5 GHz ± 4.5 dB (0° to 55° C); 2 to 22 GHz ± 2.4 dB (20° to 30° C)		
Noise figure:	Band	Typical	
	1.0 to 12.7 GHz	≤ 8.5 dB	7 dB
	12.7 to 22.0 GHz	12.5 dB	9 dB
	22.0 to 26.5 GHz	≤ 14.5 dB	12 dB
Output power for 1 dB gain compression:	$\leq +7$ dBm (characteristic)		
Harmonic distortion:	-30 dB for 0 dBm output (characteristic)		
Output for < -60 dB harmonic distortion:	-30 dBm (characteristic)		
VSWR:	Input	1.0 to 2.0 GHz 2.0:1 2.0 to 12.5 GHz 1.5:1 12.5 to 26.5 GHz 2.0:1	2.0:1
	Output	1.0 to 26.5 GHz	2.0:1
Reverse isolation:	> 75 dB		
Maximum dc voltage:	± 20 V		

Displayed average noise level, 0 dB attn (char)

HP 8563E (1 Hz RBW):	HP 8566B (10 Hz RBW):
1.0 to 6.46 GHz -165 dBm	1.0 to 2.5 GHz -155 dBm
5.86 to 13.0 GHz -163 dBm	2.0 to 5.8 GHz -154 dBm
12.4 to 26.5 GHz -160 dBm	5.8 to 12.5 GHz -150 dBm
	12.5 to 18.6 GHz -144 dBm
	18.6 to 22 GHz -140 dBm

Size: 102 mm H \times 213 mm W \times 297 mm D (4.0 in \times 8.4 in \times 11.7 in)

Weight: Net, 4 kg (8.8 lb) nominal

Power: 100, 120, 220, or 240 V, $\pm 10\%$; 47 to 63 Hz

Ordering Information

Ordering Information	Price
HP 8449B 1 to 26.5 GHz Preamplifier	\$8,160
Opt 907 Front Handle Kit	\$77
Opt 908 Rack Mount Kit (half-rack width)	\$61