

# RF AMPLIFIER

## MODEL QBH-1423PM

Available as: QBH-1423PM, 4 Pin TO-8 (T4)  
 QBH-5023PM, 4 Pin Surface Mount (SM3)  
 QBH-9-1423PM, Connectorized Housing (H1)

### Features

- Superior Phase Noise Performance
- Replaces Avantek's "1023" Design
- Operating Temp. -55 °C to +85 °C
- Environmental Screening Available

### Specifications

CHARACTERISTIC	TYPICAL Ta= 25 °C	MIN/MAX Ta = -55 °C to +85 °C
Frequency	10 - 1000 MHz	10 - 1000 MHz
Gain (dB)	13.0	12.0 Min.
Gain Flatness (dB)	±0.25	±0.75 Max.
Power @ 1 dB Comp. (dBm) (10-500 MHz)	28.0	25.5 Min.
(500-1000 MHz)	26.5	25.0 Min.
Reverse Isolation (dB)	-17	-15 Max.
VSWR In	1.5:1	2.0:1 Max.
Out	1.5:1	2.0:1 Max.
Noise Figure (dB)	6.0	9.0 Max.
Power Vdc	+15	+15
mA	195	210 Max.

Notes: Care should always be taken to effectively ground the case of each unit. Measured in a 50 Ohm system @ +15 Volts DC nominal unless otherwise noted.

### Typical Intermodulation Performance at 25°C

Second Order Harmonic Intercept Point ..... +46 dBm (Typ.)  
 Second Order Two Tone Intercept Point ..... +40 dBm (Typ.)  
 Third Order Two Tone Intercept Point ..... +34 dBm (Typ.)

### Absolute Maximum Ratings

Ambient Operating Temperature ..... -55°C to +100 °C  
 Storage Temperature ..... -62°C to +125 °C  
 DC Voltage ..... +17 Volts  
 Continuous RF Input Power<sup>1</sup> ..... +17 dBm  
 Short Term RF Input Power<sup>1</sup> ..... 100 Milliwatts (1 Minute Max.)

### MTBF Calculation for Ground Benign Environment

@ 25°C ..... 1,674,483.59 hrs

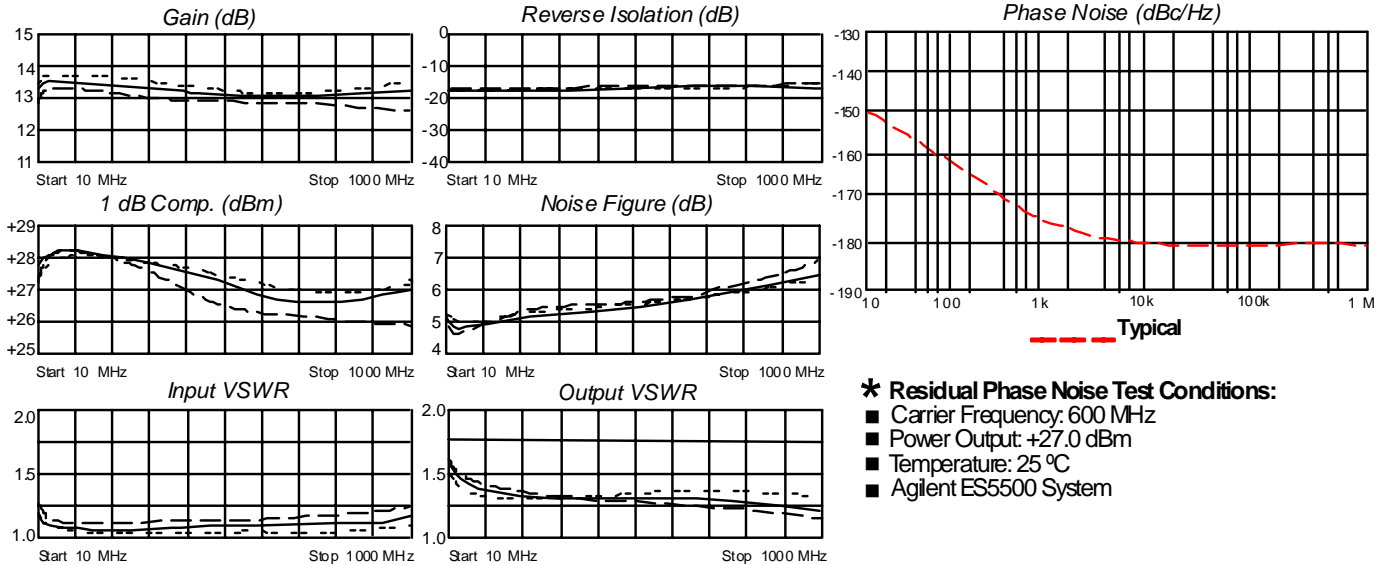
#### 25°C Phase Noise Performance in dBc/Hz @ 600 MHz<sup>2</sup>

Frequency offset	Typical	Guaranteed
10 Hz	-150	-145
100 Hz	-160	-155
1 kHz	-175	-170
10 kHz	-180	-175
100 kHz	-180	-175
1 MHz	-180	-175

<sup>1</sup> RF output terminated into 50 Ohms.

<sup>2</sup> Phase noise performance may vary within the frequency band.

### Typical Performance Data



#### \* Residual Phase Noise Test Conditions:

- Carrier Frequency: 600 MHz
- Power Output: +27.0 dBm
- Temperature: 25 °C
- Agilent ES5500 System

Legend ——— +25 °C    - - - +85 °C    ····· -55 °C

### Linear S-Parameters Data

FREQ. MHz	--S11--		--S21--		--S12--		--S22--	
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang
10	0.11	-61.9	4.70	-172.3	0.11	8.8	0.23	151.8
250	0.02	-83.6	4.66	116.7	0.11	-34.4	0.14	148.5
500	0.01	-171.7	4.55	54.5	0.12	-70.5	0.14	124.8
750	0.02	126.7	4.49	-7.5	0.13	-109.3	0.15	97.0
1000	0.05	15.7	4.51	-70.8	0.14	-151.2	0.13	40.7
1200	0.12	-44.2	4.58	-123.8	0.15	173.5	0.13	-25.7
1300	0.16	-70.8	4.60	-151.8	0.15	155.1	0.14	-68.5



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