



# ZH-4010

## Laboratory Broadband High Power Amplifier

### 400 - 1000MHz / 30W

The amplifier ZH-4010 is suitable for broadband or high power linear applications including TV. This amplifier utilizes Silicon RF Power MOSFET devices that provide high gain, wide dynamic range, low distortions and good linearity.

- Solid-state Class AB linear design
- Instantaneous ultra broadband
- Small and lightweight
- Built-in control, monitoring & protection circuits
- Suitable for all modulation types
- 50 Ohm Input/Output impedance
- High reliability and ruggedness



#### ELECTRICAL SPECIFICATIONS @ VDD=+28VDC, T=25°C, 50Ω System

| Parameter  | Symbol           | Min | Typ  | Max  | Unit |
|--|------------------|-----|------|------|------|
| Operating Frequency                              | BW               | 400 |      | 1000 | MHz  |
| Power Output CW                                  | P <sub>SAT</sub> | 30  | 40   |      | Watt |
| Output Power @ 1dB G.C.P                         | P <sub>1dB</sub> | 20  | 30   |      | Watt |
| Power Gain @ 1dB G.C.P                           | G <sub>1dB</sub> | 44  |      | 50   | dB   |
| Input Power for Rated Pout                       | P <sub>IN</sub>  |     | 0    |      | dBm  |
| Small Signal Gain Flatness                       | ΔG               |     | ±1.5 | ±2.0 | dB   |
| Gain Adjustment Range (VVA: 0 - 5VDC)            | VVA              | 25  | 30   |      | dB   |
| Input Return Loss                                | S11              |     |      | 10   | dB   |
| Noise Figure @ minimum attenuation               | NF               |     |      | 10   | dB   |
| Third Order Intercept Point<br>2-Tones @ 2W/Tone | IP3              |     | +52  |      | dBm  |
| Harmonics @ P1dB G.C.P.                          | H                |     | -20  |      | dBc  |
| Spurious Signals                                 | Spur             |     |      | -60  | dBc  |
| Operating Voltage                                | VDC              | 26  | 28   | 30   | Volt |
| Supply Current @ 30W                             | IDD              |     |      | 6.5  | Amp  |

#### ENVIRONMENTAL CHARACTERISTICS

| Parameter                          | Symbol           | Min    | Typ      | Max | Unit |
|------------------------------------|------------------|--------|----------|-----|------|
| Operating Case Temperature         | T <sub>c</sub>   | 0      |          | +50 | °C   |
| Storage Temperature                | T <sub>stg</sub> | -40    |          | +85 | °C   |
| Relative humidity w/o condensation | RH               | 95     |          |     | %    |
| Altitude                           | ALT              | 10,000 | 30,000   |     | Feet |
| Shock & Vibration                  | SH / VI          |        | Airborne |     |      |

#### MECHANICAL SPECIFICATIONS

| Parameter                       | Value             | Units | Limits |
|---------------------------------|-------------------|-------|--------|
| Dimensions (excluding heatsink) | 6.4 x 3.4 x 1.1   | Inch  | Max    |
| Weight without HS               | 1.0               | lb.   | Max    |
| RF Connectors Input/Output      | SMA female        |       |        |
| DC Connectors                   | D-Sub, 9-Pins     |       |        |
| Cooling                         | External Heatsink |       |        |



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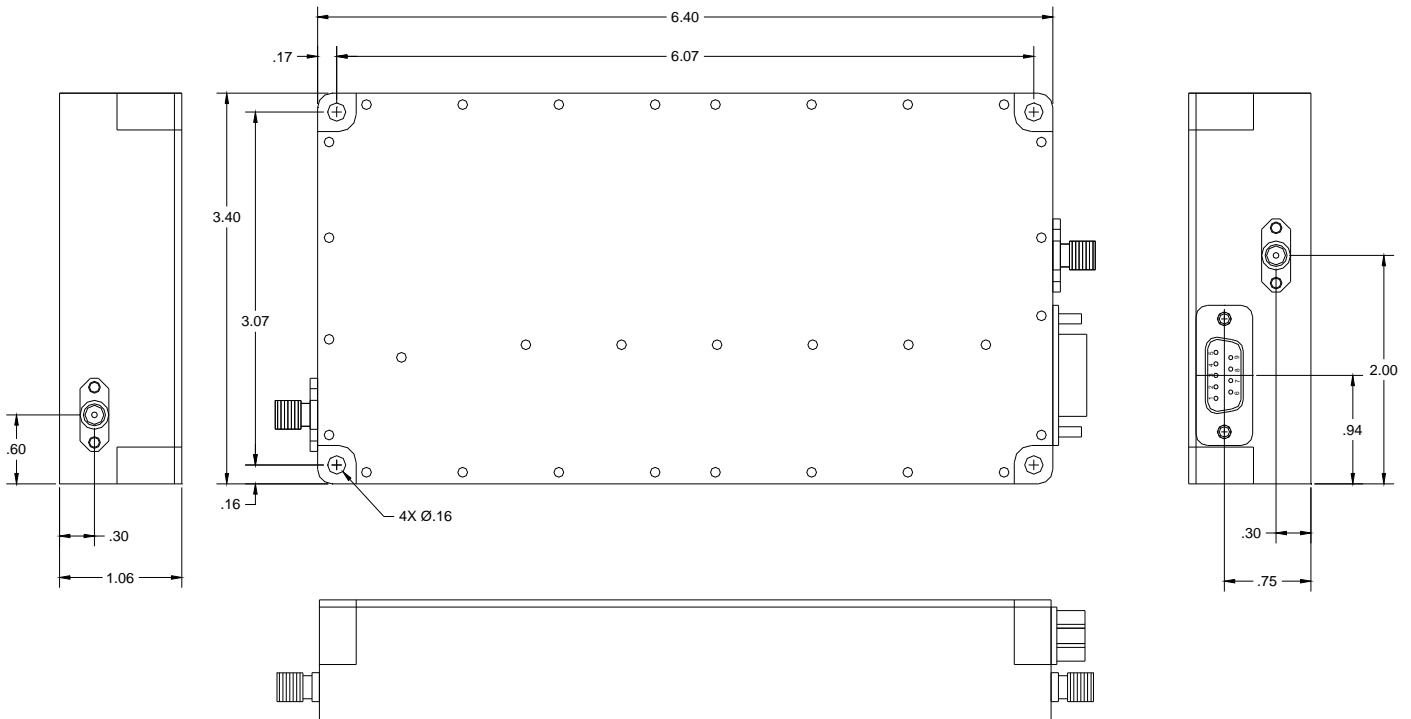
#### PROTECTIONS

|                        |   |     |
|------------------------|---|-----|
| Input Overdrive        | +10dBm                                  | Max |
| Load VSWR @ Pout = 30W | $\infty:1$ @ all load phase & amplitude | Nom |
| Thermal Overload       | 85°C shutdown                           | Max |

#### INTERFACE CONNECTOR - D-Sub, 9-Pin

| Pin # | Description                 | Specifications  |
|-------|-----------------------------|---|
| 1     | N/C                         |   |
| 2     | Current Consumption Monitor | Analog voltage relative to ID @ 50mV/100mA                |
| 3     | Temperature Monitor         | Analog voltage relative to Module's Temperature @ 10mV/°C |
| 4     | VVA                         | Max Gain = 0VDC<br>Min Gain = 5VDC                        |
| 5     | Mute                        | Enable: TTL "Low"<br>Disable: TTL "High"                  |
| 6, 7  | VDD                         | +28 V $\pm$ 2VDC  |
| 8, 9  | GND                         | Ground  |

#### OUTLINE DRAWING



#### Features:

- Built in gain adjust VVA
- Fast switching - Mute function
- Reverse polarity protection
- Temperature protection
- Temperature indication
- Current limit protection
- Current consumption indicato