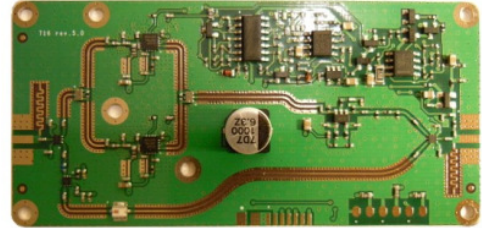

2.4GHZ 1Watt Automatic Gain Controlled Bi-Directional Amplifier Module

Features

- TX Power Output 1W Avg, 3.5W Peak
- 802.11b,g,n compatible
- Low Receive Noise Figure
- TX/RX LED indicator
- Automatic gain control
- Internal Lightning Protection
- Thermal and RF input power protection
- OEM maximum performance-lowest cost

Picture



Description

The 24G series Bi-Directional Amplifiers will significantly improve link reliability and operating range by providing Low Noise Amplification during Receive, and Spectrally Clean Power Amplification during Transmit. Designed for use as an add-on module with existing wireless radio equipment, 802.11b,g,n, AM/FM or video products where higher power is required. The 1dB compression point is 3.5 Watts. GEM Microwave's proprietary copper heat sinking technology allows maximum heat transfer between RF power device and the heat sink (required). This exclusive GEM Microwave feature allows the amplifier to be used in high duty cycle applications like Hotspots or IP cameras. The average transmit output power of the module can also be set by applying reference voltage to the corresponding pin of the module connector. RF connectors or RG-178 coax cable can be soldered to the PCB.



24G1W-V5PCB

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2.4GHZ 1Watt Automatic Gain Controlled Bi-Directional Amplifier Module

Electrical Specifications

Receive Amplifier

RF Frequency Range	2300 MHz to 2600 MHz
Gain	15.5 dB @ 2.45 GHz
Noise Figure	1.3 dB
Gain Flatness	0.5 dB (2.4 – 2.5 GHz)
Out of the Band Suppression	30 dB min.
Input Return Loss	15 dB
Output Return Loss	
20 dB	2.4 – 2.5 GHz
10 dB	2.3 – 2.62 GHz
Output 1dB Compression Power	13 dBm

Transmit Amplifier

Frequency Range	2300 MHz to 2600 MHz
Operating Modes	
TDD	max. 31 dBm avg.
Pulsed CW	50 % duty cycle
Gain (Automatic)	
20 dB	maximum
2.5 dB	minimum
Average Output Power	Adjustable,
30 dBm preset	EVM =4 %, MCS7
Optimal Input Power	
10 – 20 dBm	30 dBm MCS7 output
Output 1dB Compression Point	
34.5 dBm	5 V power supply voltage
35.5 dBm	5.5 V power supply voltage
Harmonics	
-50 dBm/MHz	2f, 3f, Pout= 32 dBm, MCS0
ACPR	
-36 dBc	CH1, 31 dBm, 802.11b
-57 dBc	CH2, 31 dBm, 802.11b
Input Return Loss	
25 dB	2.4 – 2.5 GHz
17 dB	2.3 – 2.6 GHz
EVM	
-28 dB	30 dBm avg., @5.5V

AGC

Reference Voltage Preset	
708 mV	5 V power supply
779 mV	5.5 V power supply

Transmit/Receive Switch

Input Power Threshold	-0.7 dBm
Switching Time	<300 ns

Circuit Protection

RF Ports	$\lambda/4$
RF Input Power	26 dBm
Thermal	70 °C



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Absolute Maximum Ratings

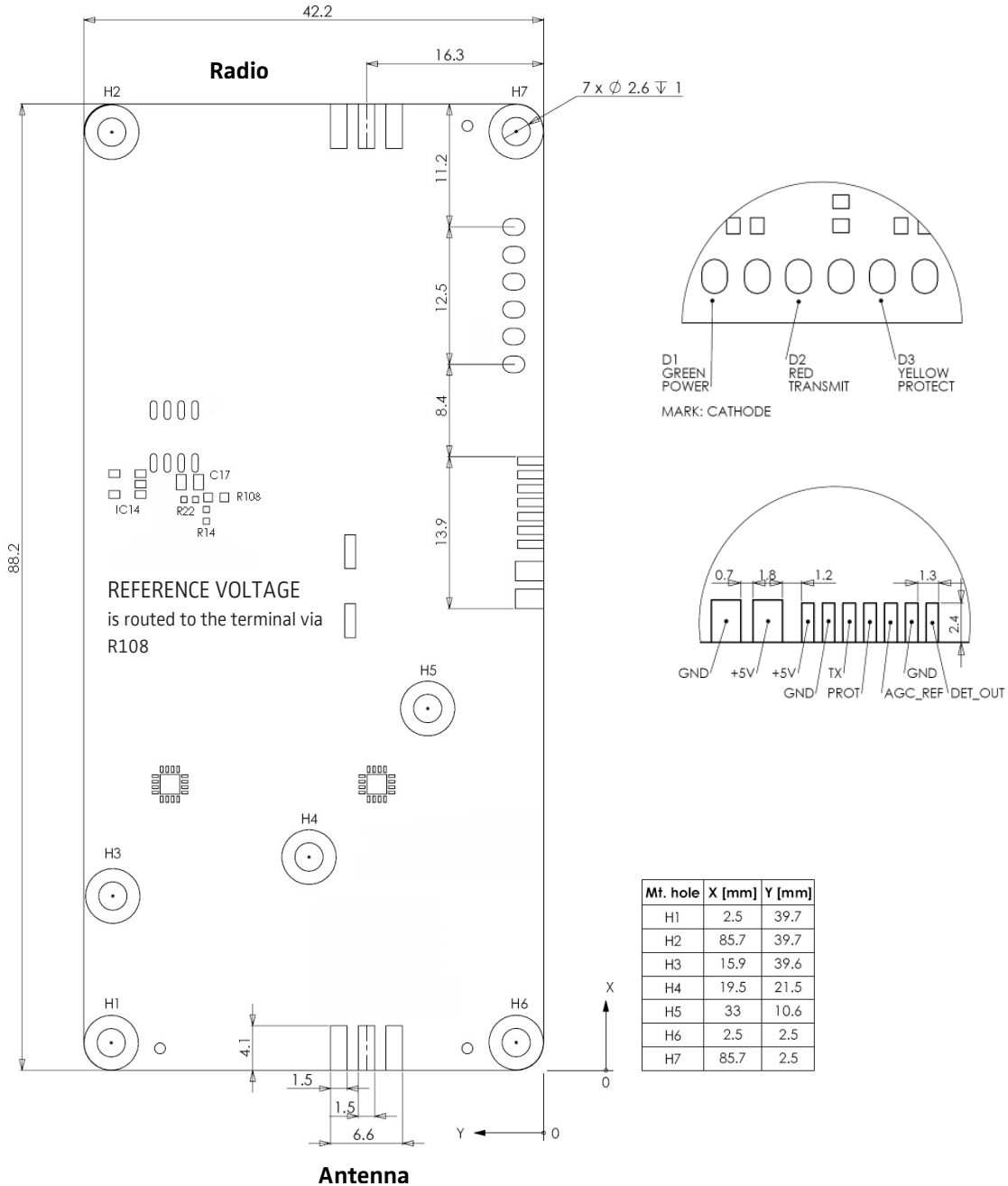
Parameter	Absolute Maximum
RF Input Power	+24dBm
RF Input Power Damage Level	+30dBm
Supply Voltage	+5.7V
Operating Temperature	-40 °C to +70 °C
Storage Temperature	-55 °C to +100 °C

Mechanical Specifications

Parameter	Unit	
LED Indicators		Green for Power On, Red for Transmit, Yellow for Protect
RF Connectors		PCB pads for SMA/RPSMA connectors
DC Power Connector		PCB pads
Mounting Holes		7 x M2.5
Dimensions	mm	88.2 x 42.2 x 12
Weight	kg	0.03

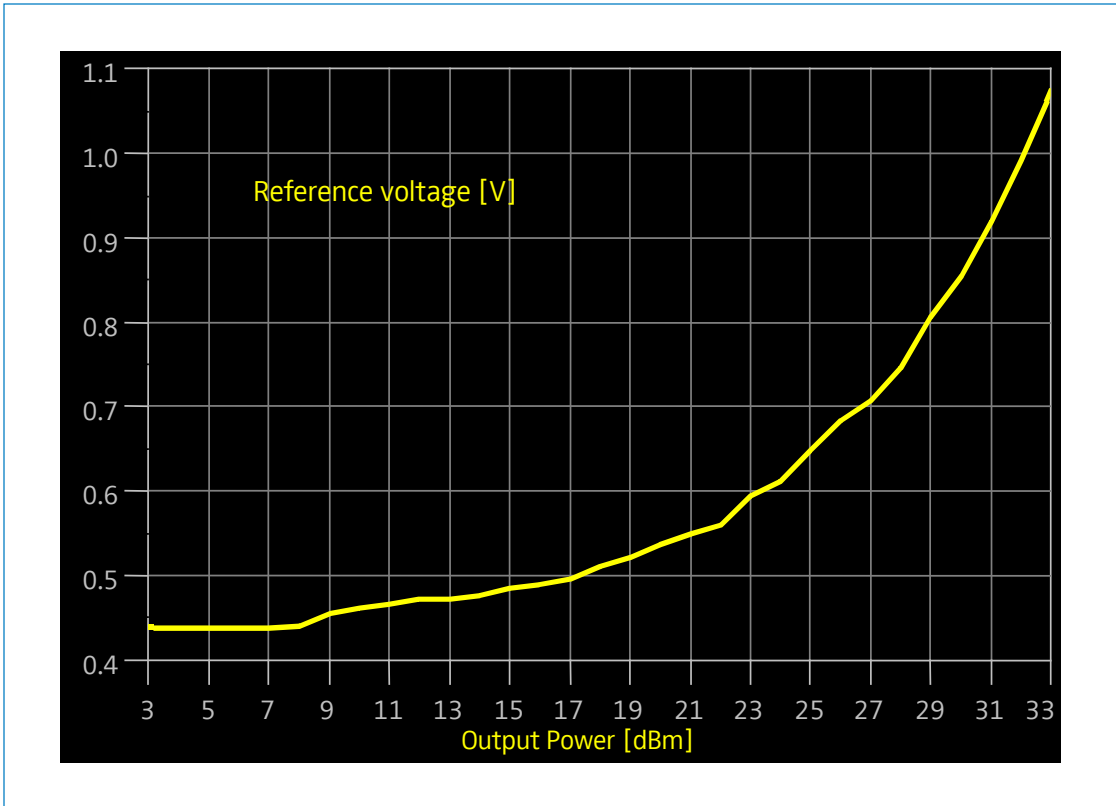
2.4GHZ 1Watt Automatic Gain Controlled Bi-Directional Amplifier Module

Mechanical Footprint



2.4GHZ 1Watt Automatic Gain Controlled Bi-Directional Amplifier Module

External reference voltage vs. average RF output power



The preset value can be overwritten with an external voltage connected to the 7th pin from the left of the module connector.



24G1W-V5PCB

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2.4GHZ 1Watt Automatic Gain Controlled Bi-Directional Amplifier Module

Guaranteed Quality

24G Series is designed and manufactured by GEM Microwave and is backed by GEM Microwave's Limited Warranty.