

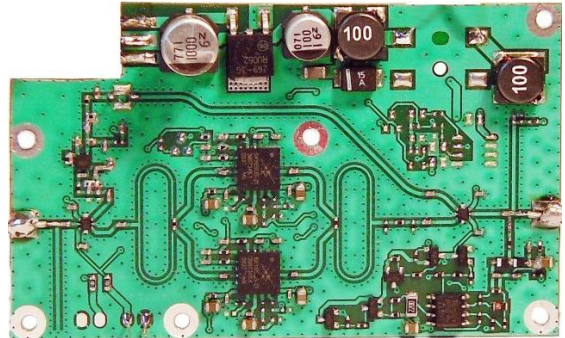
## 24G Series

## 2Watt Bi-Directional Amplifier

### Features

- TX Power Output 2W Avg, 4W Peak
- 802.11b,g,n compatible
- Low Receive Noise Figure
- TX/RX LED indicator
- OEM maximum performance-lowest cost
- Internal Lightning Protection
- Automatically senses incoming RF signal

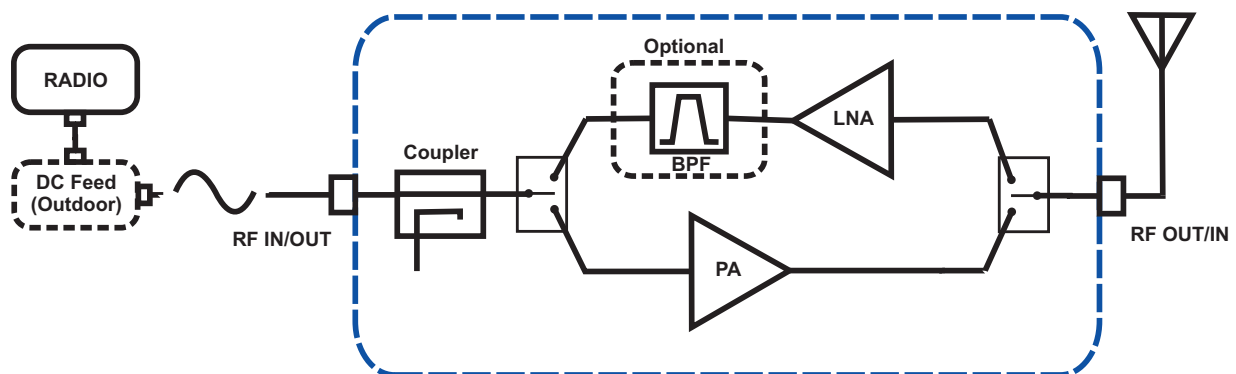
### Picture



### 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 saturated output power is 4 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 unit can be powered via coax (with DC injector) or direct wire soldered to the PCB. The RF connectors can be soldered to the PCB via RG-178 coax cable.

**24G2WPCB BLOCK DIAGRAM**





# 24G2WPCB

[www.GemMicrowave.com](http://www.GemMicrowave.com)

## 24G Series

## 2Watt Bi-Directional Amplifier

### Electrical Specifications

Parameter	Unit	Minimum	Typical	Maximum
Frequency Range (Note 5)	GHz	2.4		2.5
Operating Mode (Note1)		TDD, Time Division duplex		
Receive Gain	dB		12	
Receive Noise figure	dB			2
Receive Path 1dB Input Compression Point	dBm		-0.5	
Receive Path Input Return Loss (Note 3)	dB		-15	
Receive Path Output Return Loss (Note 3)	dB		-10	-7
Transmit Input RF Power	mW	1		50
Transmit Gain	dB		20	
Gain flatness over band	dB		±0.3	
Transmit Path Input Return Loss (Note 4)	dB		-20	
Transmit Path Output Return Loss (Note 4)	dB		-17	-12
Average Transmit RF Power	mW		2000 (+33dBm)	
Peak Transmit RF Power	mW		4000 (+36dBm)	
RX to TX switching time	µs			0.2
DC Power Supply	V	8		12
Receive supply current	mA		120	
Transmit supply current	mA	1000	2000	2500
Average supply current (Note 2)	mA	360	440	660
Lightning Suppression		1/4 wavelength short		
DC supply overvoltage-protection and line filtering		TVS diode and high-Q L-C filter		
Operating Temperature	°C	-40		+50

## 24G Series

## 2Watt Bi-Directional Amplifier

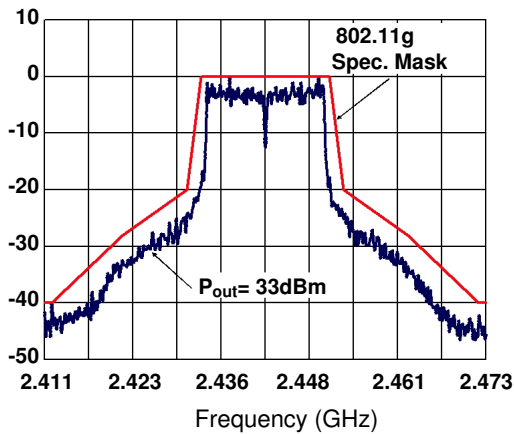
**Note 1:** This GEM Microwave bi-directional amplifier is designed for burst half-duplex operation. It is not intended for constant transmit or CW operation. Operation of the amplifier in CW mode will damage the amplifier and void the warranty.

**Note 2:** Bi-directional operation, using 802.11g Orthogonal Frequency Division Multiplexing Input Signal, Data Rate = 54 Mbps.

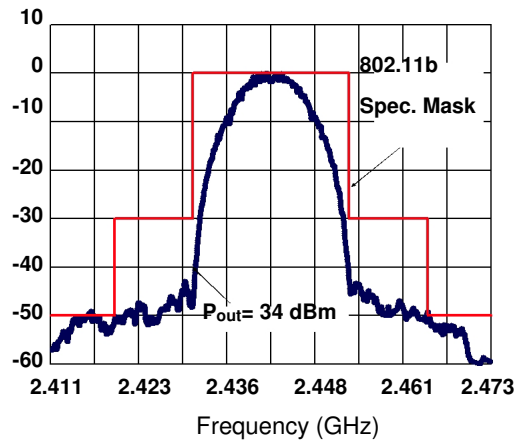
**Note 3:** Input Power= -20dBm, f= 2.3GHz .. 2.7GHz.

**Note 4:** Output Power= 33dBm, f= 2.3GHz .. 2.7GHz.

**Note 5:** With bandpass-filter. Frequency range without bandpass filter: 2.3GHz to 2.7GHz.



Output Spectrum Response for 802.11g,  
Power Out = 33 dBm



Output Spectrum Response for 802.11b  
CCK-Coded, Power Out = 34 dBm

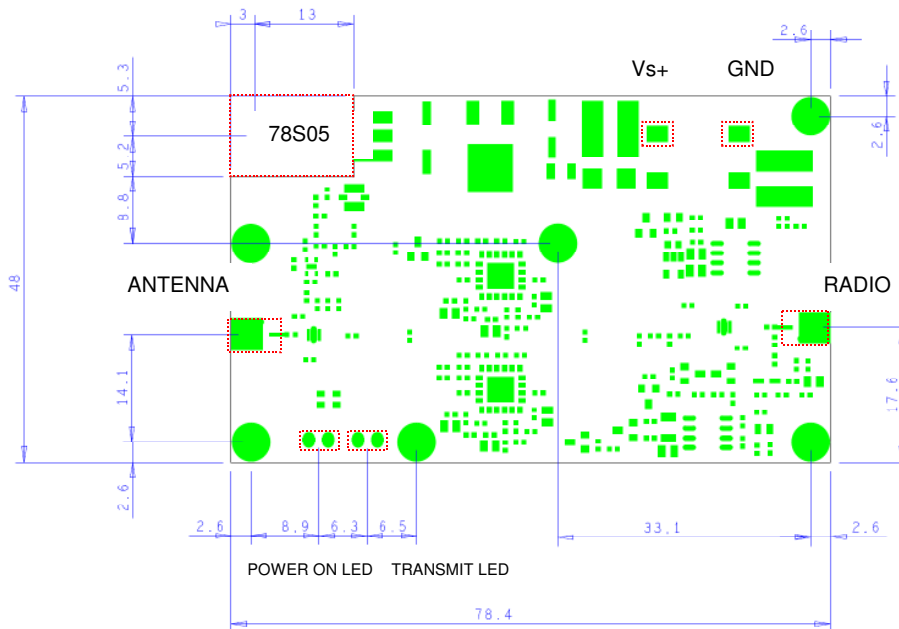
### Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+20dBm (100mW)
Supply Voltage	+14V
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
RF Connectors		PCB pads for RG-178 coax cable
DC Power Connector		PCB pads
Mounting Holes		6 x M2
Dimensions	mm	78.4 x 48 x 13
Weight	kg	0.03

## Mechanical Footprint



## Guaranteed Quality

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