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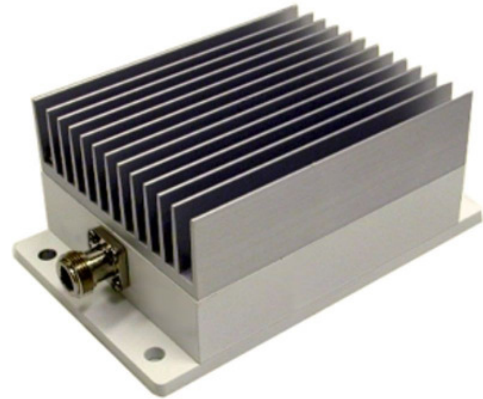
## 24G Series

## 2.4GHz 10Watt Bi-Directional Amplifier

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### Features

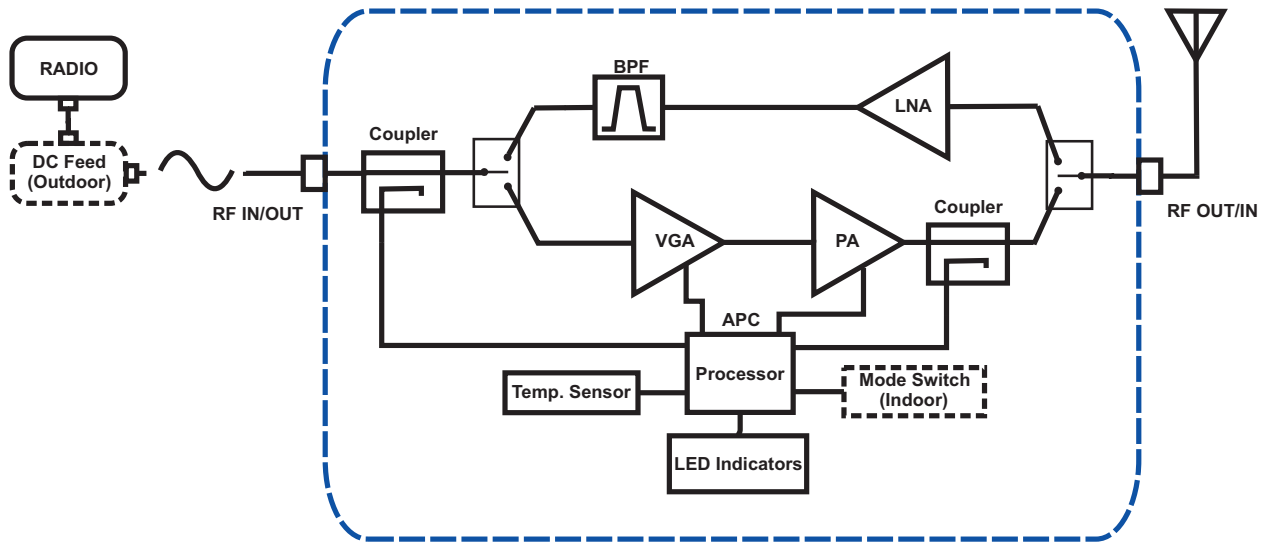
- TX Power Output 10W Avg, 25W Peak
- 802.11b,g,n compatible
- Low Receive Noise Figure
- LED indicators
- Rugged aluminium housing
- Internal Lightning Protection
- N-female Connectors
- Intelligent Power Control



### 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. The 24G10W bi-directional amplifier feature a rugged, cast aluminum construction with large heat sink to ensure years of reliable operation and are available in either indoor or outdoor models. Designed for use with existing wireless radio equipment, 802.11b/g/n base stations, AM/FM or video products where high transmit power is required. The 1dB compression point is 20Watts. The Intelligent Active Power Control circuit automatically adjusts the amplifier's gain to provide a constant output power regardless of cable length, radio transmit power, temperature shifts or equipment aging. The built-in microprocessor also monitors the input power and the temperature of the amplifier to protect the amplifier's FET reducing the output power when operating in high temperature condition. In addition, the *indoor* version's mode switch enables to select the desired output power of the amplifier. When the mode switch is in the third position, the Active Power Control circuit is completely switched off, and the amplifier operates in linear gain mode. This exclusive GEM Microwave feature allows the amplifier to be used in both burst half-duplex and CW applications.

**24G10W BLOCK DIAGRAM**



**Mode Switch Function**

Position	Average Output Power	Transmit Gain	Active Power Control	Temperature and Overload Protection
1	+40dBm (10W)		On	Protect the amplifier
2	+37dBm (5W)		On	
3		23dB	Off	

**Indicator LEDs Diagnostics**

Power LED (Green)	Transmit LED (Red)		
	On	Off	Blink
On	Transmit	Receive	Receive/Transmit
Off	Power Off		
Blink	Temperature Warning		



# 24G10W

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

**24G Series**

**2.4GHz 10Watt Bi-Directional Amplifier**

## Electrical Specifications

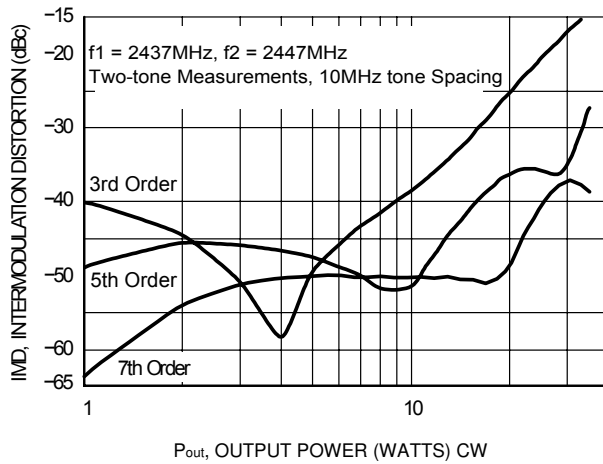
Parameter	Unit	Minimum	Typical	Maximum
Frequency Range	GHz	2.4		2.5
Operating Mode		TDD, Time Division duplex or CW		
Receive Gain	dB		22	
Receive Noise figure	dB			2
Transmit Input RF Power	mW	1		100
Transmit Gain	dB	Automatically adjusted, or 23dB (Mode 3)		
Gain flatness over band	dB		±0.5	
Average Transmit RF Power	W		10 (+40dBm)	
Peak Transmit RF Power	W		25 (+44dBm)	
Input Return Loss	dB		20	
Output Return Loss	dB		17	
RX to TX switching time	µs			0.2
DC Power Supply	V	18		24
Receive supply current	mA		250	
Transmit supply current	mA		1.55	
Average supply current (Note 1)	mA		0.5	
Tolerance to constant input power into a mismatch load (Note 2)		No damage		
Lightning Supression		1/4 wavelength short		
DC supply overvoltage-protection and line filtering		TVS diode and L-C filter		
Operating Temperature	°C	-40		+60

**Note 1:** Bi-directional operation, using 802.11g Orthogonal Frequency Division Multiplexing Input Signal, Data Rate = 54 Mbps.

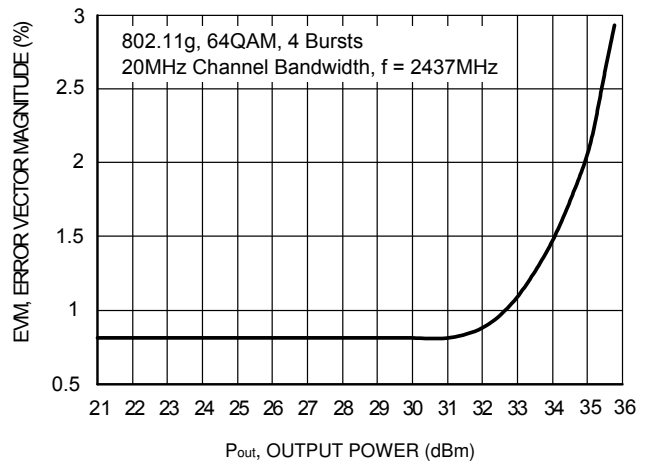
**Note 2:** Pin= +20dBm, CW, VSWR = 5:1, all phases.

## 24G Series

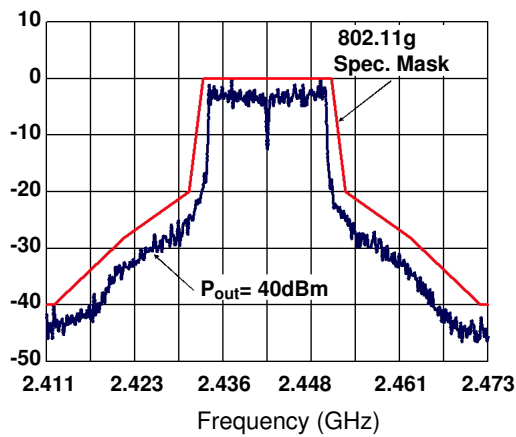
## 2.4GHz 10Watt Bi-Directional Amplifier



**Intermodulation Distortion Products vs. Output Power**



**Error Vector Magnitude vs. Output Power**



**Output Spectrum Response for 802.11g, Power Out = 40 dBm**



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## 24G Series

## 2.4GHz 10Watt Bi-Directional Amplifier

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### Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+23dBm (200mW)
Supply Voltage	+31V
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +100 °C

### Mechanical Specifications

Parameter	Unit	
LED Indicators		Green for Power On, Red for Transmit
RF Connectors		SMA female for Radio port and RP-SMA female for antenna port
DC Power Connector		DC Via 2.5mm I.D. (+), 5.5mm O.D. (-)
Chassis		Diecast Aluminium with rugged white coat finish
Dimensions	mm	140 x 100 x 60
Weight	kg	1.4



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## Installation

- Step 1. Turn off the PC, router, radio and unplug the power cords from the wall outlets.
- Step 2. Connect the amplifier to the antenna, and the radio, PC, router via RF cable.
- Step 3. Connect the DC adaptor to the amplifier.
- Step 4. Plug PC, router, radio's power cord into the wall outlet.
- Step 5. Plug the DC adaptor's power cord into the wall outlet.
- Step 6. Turn on the PC, router, radio.

Due to the high RF power output this unit is only offered for sale to Military, OEM or Licensed customers.

## Guaranteed Quality

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