







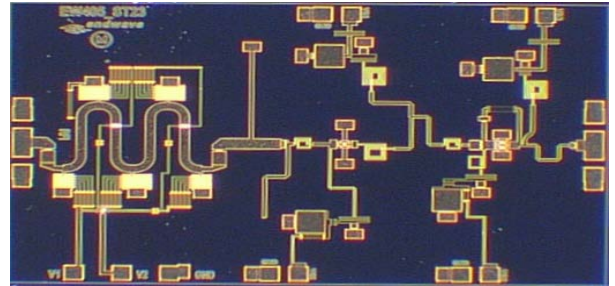


## EWG2801ZZ

### Features

-  Integrated VVA and RF Amp
-  Broad Bandwidth: 15 to 30 GHz
-  Maximum Gain: 14 dB, typical
-  Dynamic Range: 18 dB, typical
-  Output IP3: +7 dBm, typical (any attenuation)
-  100% DC and RF tested
-  Die Size: 3.3 x 2.0 x 0.1 mm
-  RoHS Compliant

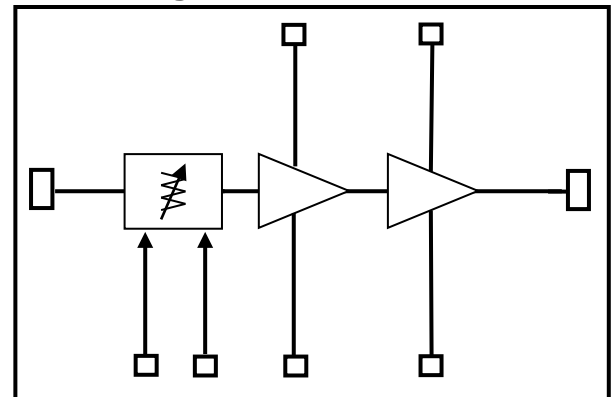
### Device Photo



### Description

The Endwave *EWG2801ZZ* is a highly integrated GaAs pHEMT variable gain amplifier MMIC which provides 14 dB of gain and 18dB dynamic range with +7 dBm output IP3 at any attenuation. The high dynamic range is achieved through the use of a voltage variable attenuator followed by a fixed gain amplifier. Maximum VVA flexibility is achieved through independent monotonic VVA control. This device can be used for a wide range of applications from defense electronics to commercial communication systems. All die are 100% DC and RF tested and visually inspected to Mil-Std-883 Method 2010.

### Block Diagram

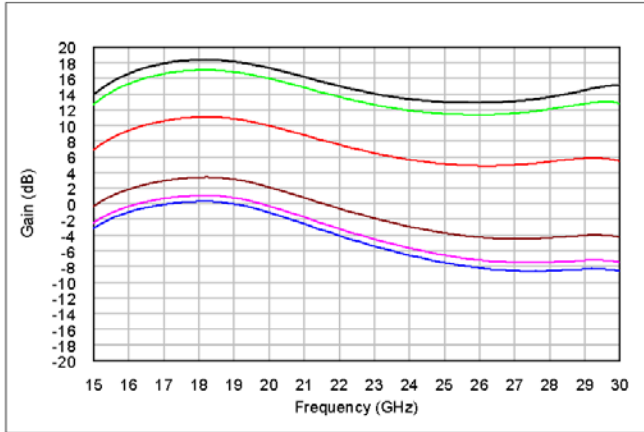


### Electrical Characteristics (Temperature = +25 °C)

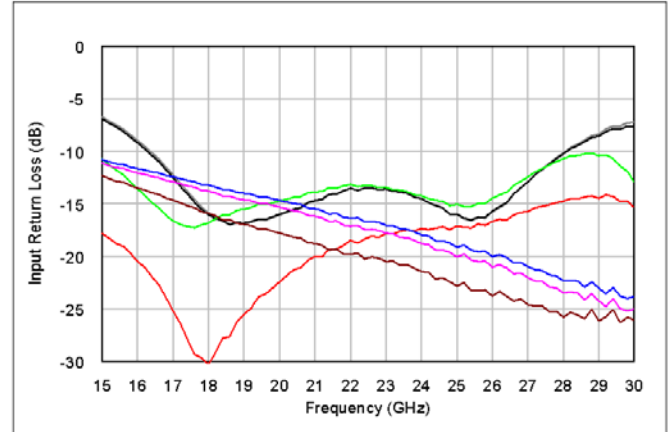
Parameter	Min.	Typ.	Max.	Units
Frequency Range	15		30	GHz
Gain (Max for Vctrl 1, 2 = -1.5 V)		14		dB
Dynamic Range (Gmax – Gmin)		18		dB
Input Return Loss (over dynamic range)		10		dB
Output Return Loss (over dynamic range)		10		dB
Output IP3 (any attenuation 24.5 to 26.5 GHz)		7		dBm
Gain Control Voltage (Vctrl 1, 2)	-1.5		0	V
Drain Bias Voltages (Vd 1, 2)		+5		V
Drain Bias Currents (Id1 + Id2)		67		mA
Gate Bias Voltages (Vg1, Vg2)		-0.6		V

Note 1: Min gain for Vctrl1 = Vctrl2 = 0 volts

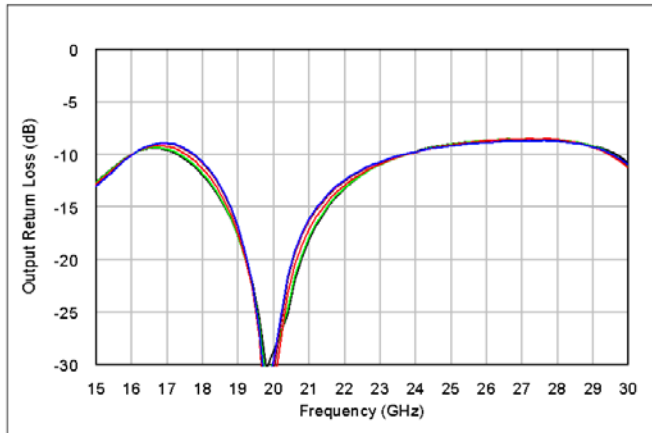
**Variable Gain vs. Frequency**



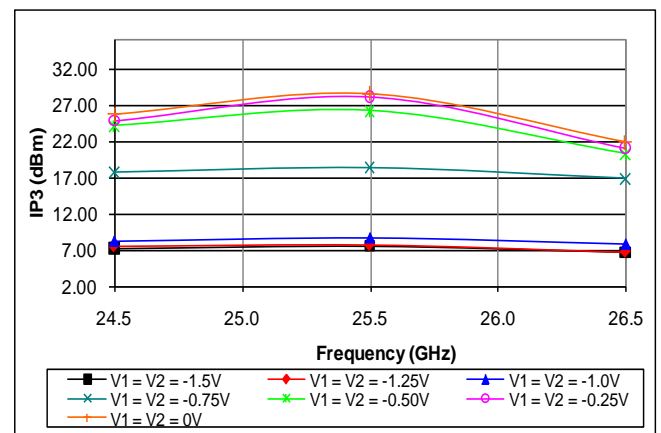
**Input Return Loss vs. Frequency**



**Output Return Loss vs. Frequency**



**Input IP3 vs. Frequency**

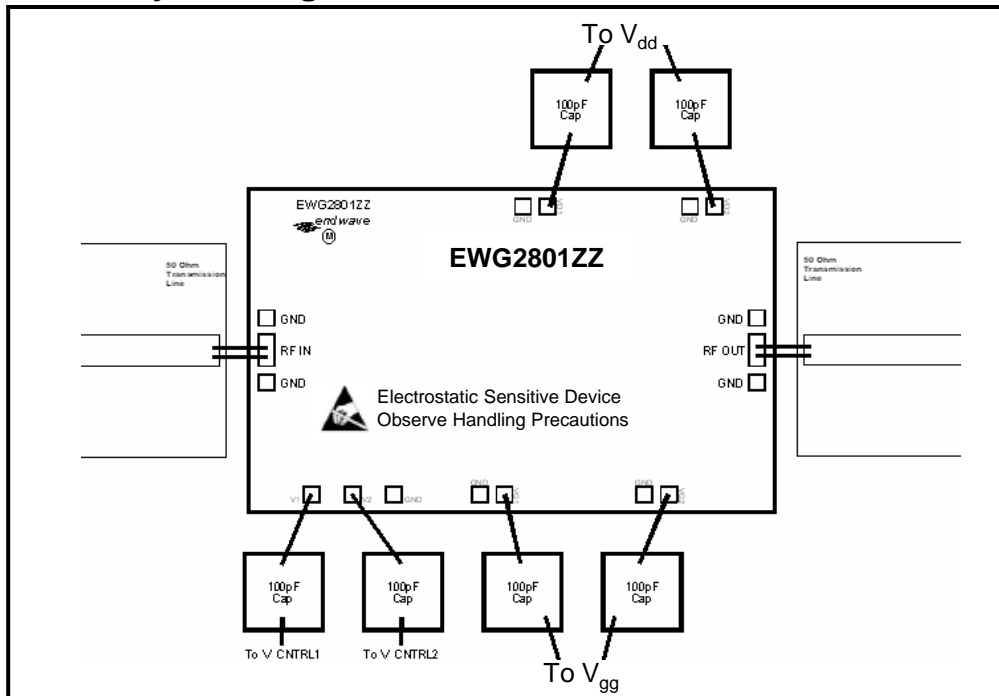


## EWG2801ZZ

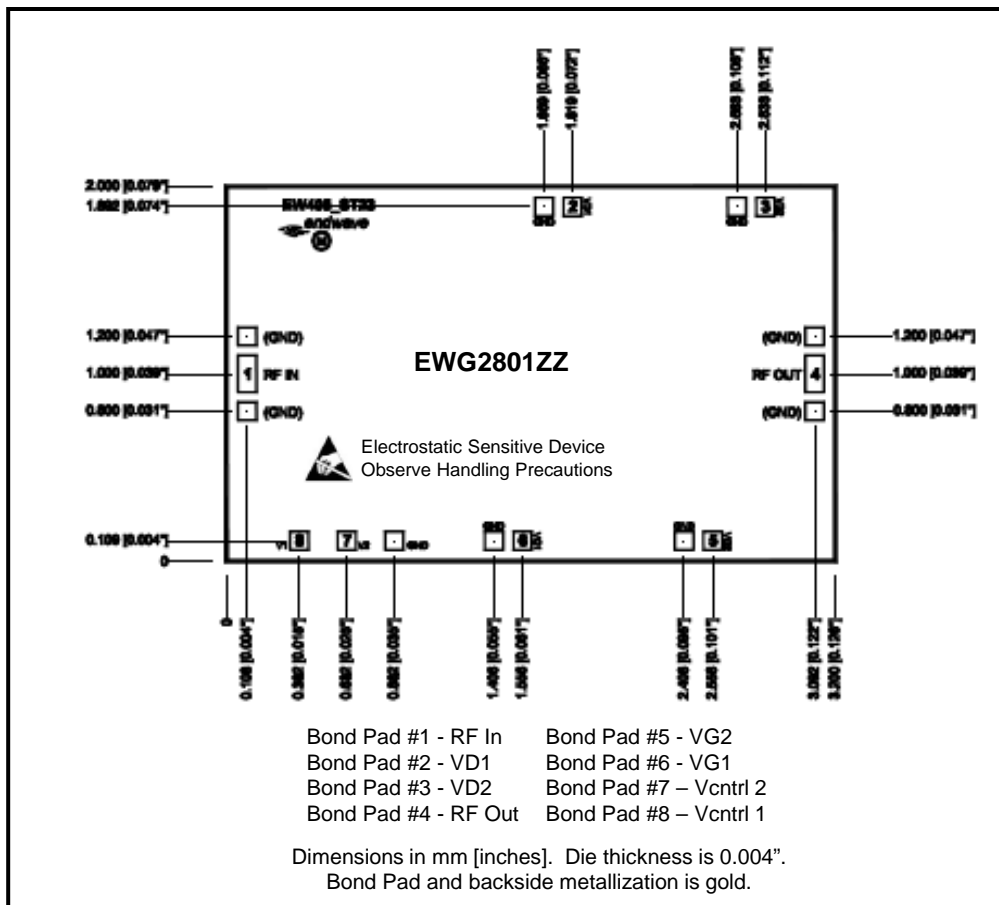
September 2009 – Rev 3

*Development*

### Assembly Drawing



### Outline Drawing

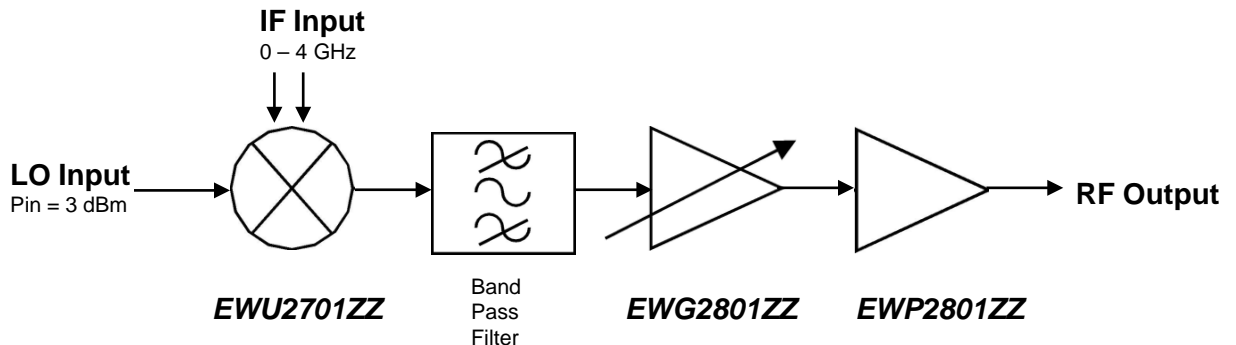


Variable Gain Amplifier – Bare Die

### Absolute Maximum Ratings

RF Input Power (max gain)	+18 dBm
Supply Voltage (Vd1, 2)	+5.5 V
Supply Current (Id1+Id2)	120 mA
Supply Voltage (Vg1, 2)	-2.5 to 0V
Control Voltage (Vctrl1, 2)	-2.5 to 0V
Storage Temperature	-65 to +150°C
Operating Temperature	-40 to +85°C
Channel Temperature	175°C

### Typical Application



### Support Documentation

Support documentation including Assembly Notes, Application Notes and Qualification Procedures can be found on our website at [www.endwave.com](http://www.endwave.com).

### Ordering Information

Part Number	Description
EWG2801ZZ	RoHS compliant bare die in wafer or gel packs
EWG2801ZZ-EV	EWG2801ZZ in a connectorized test fixture