






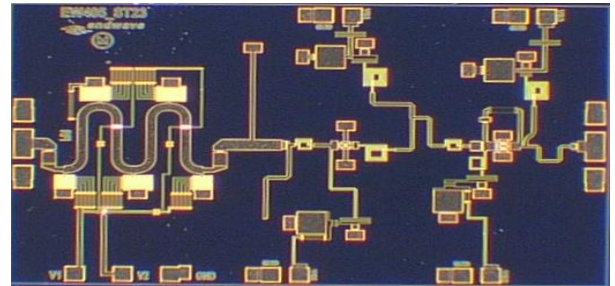


Features

-  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 (any attenuation)
-  100% DC and RF tested
-  Die Size: 3.3 x 2.0 x 0.1 mm

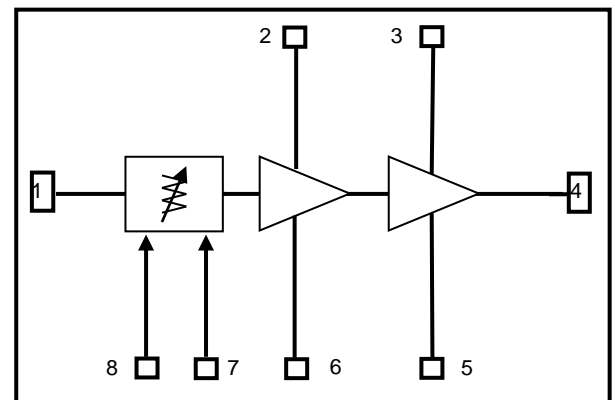
Device Photo



Description

The Endwave *EWG2801ZZ* is a highly integrated 0.15um 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. The chip has integrated ESD protection gate bias circuitry and may be used for a wide range of applications from defense electronics to commercial communication systems. All parts are 100% DC and RF tested and visually inspected using Mil-Std-883 Method 2010.

Block Diagram

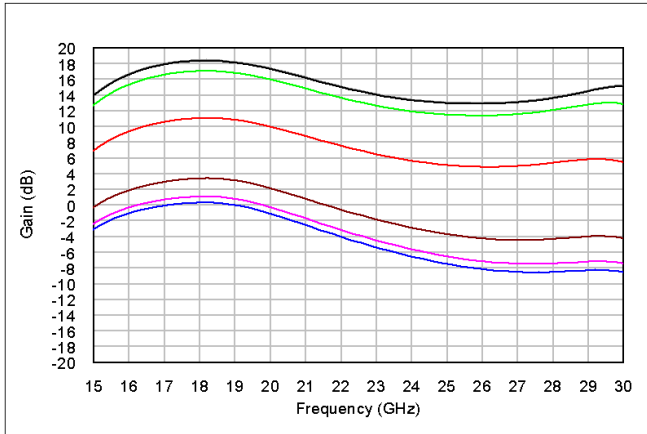


Electrical Characteristics (Temperature = +25 °C)

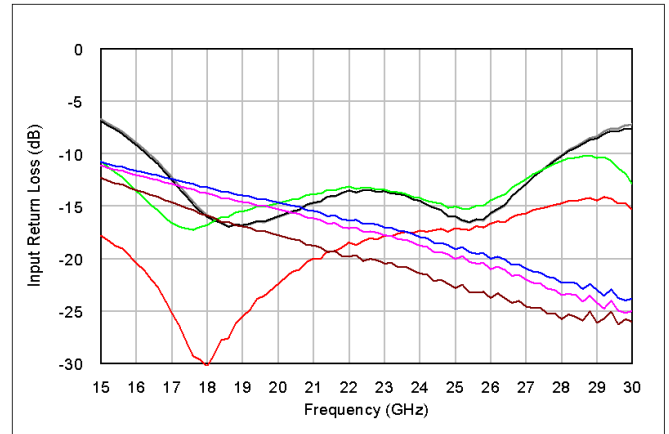
Parameter	Min.	Typ.	Max.	Units
Frequency Range	15		30	GHz
Gain (Max for Vctrl 1, 2 = -1.5 V)		14		dB
Dynamic Range (Gmax – Gmin)		18		dB
Input Return Loss (over dynamic range)		10		dB
Output Return Loss (over dynamic range)		10		dB
Output IP3 (any attenuation 24.5 to 26.5 GHz)		7		dBm
Gain Control Voltage (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

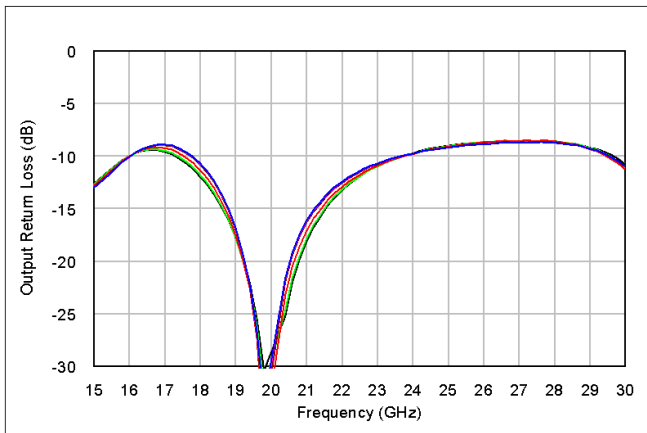
Variable Gain vs. Frequency



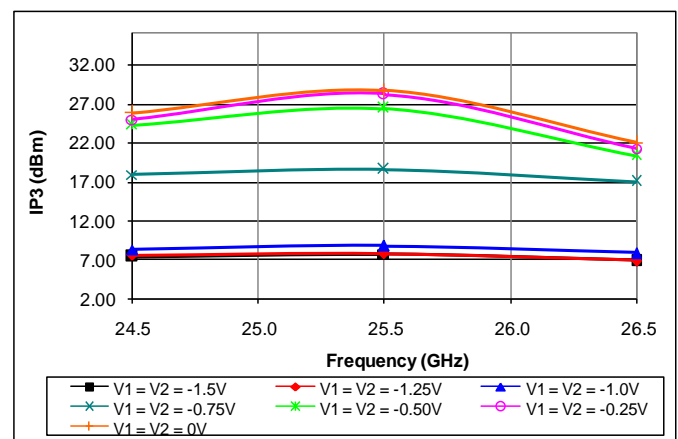
Input Return Loss vs. Frequency



Output Return Loss vs. Frequency



Input IP3 vs. Frequency

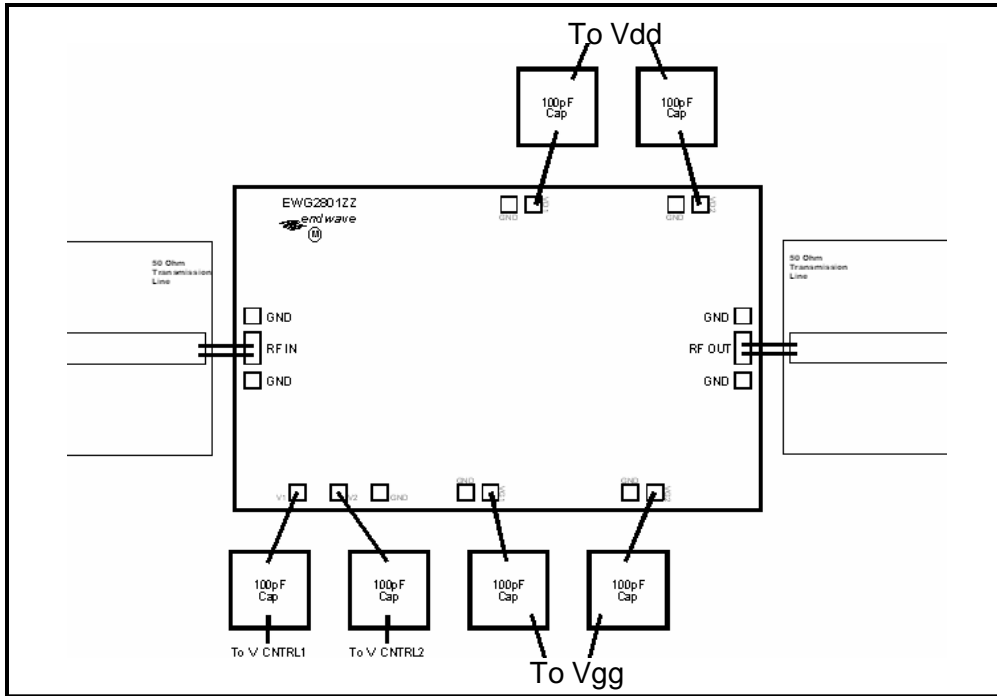


Variable Gain Amplifier - Chip

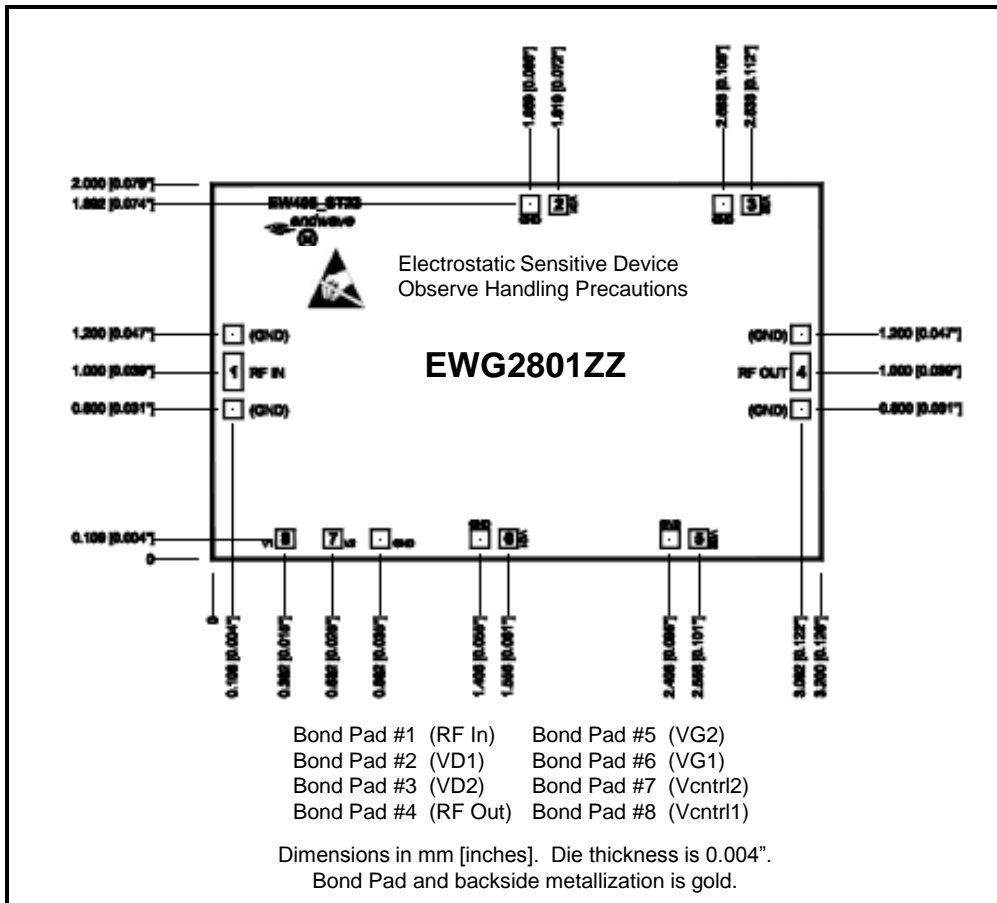
EWG2801ZZ

Assembly Drawing

September 2009 – Rev 3
Development



Outline Drawing



Variable Gain Amplifier - Chip

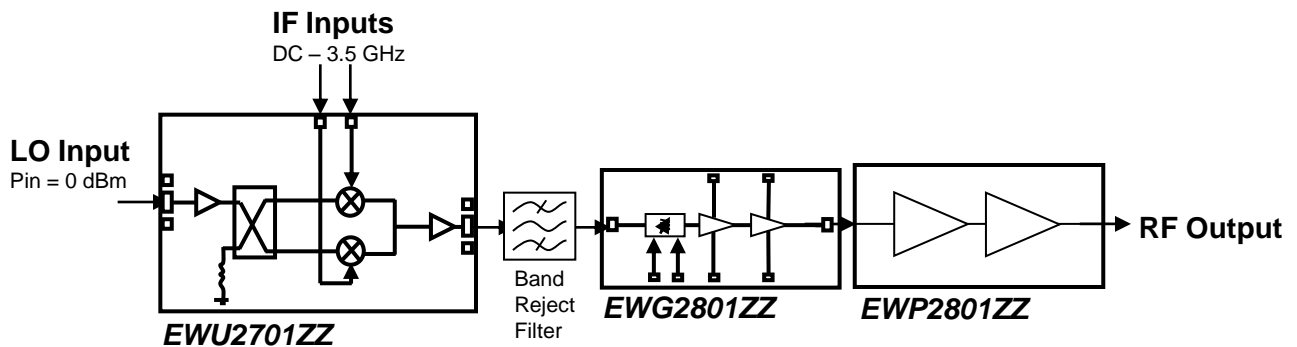
EWG2801ZZ

September 2009 – Rev 3
Development

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.

Ordering Information

Part Number
EWG2801ZZ

Description
RoHs Compliant bare die in wafer or gel packs