18 - 28 GHz GaAs MMIC Medium Power Amplifier

EWP2801ZZ

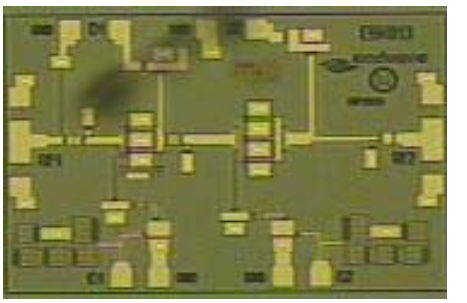
September 2009 – Rev 3

Production

Features

- Broadband Performance: 18 to 28 GHz
- Gain: 19 dB, typical
- Output IP3: +29 dBm, typical
- Output P1dB:+22 dBm ,typical
- ESD Protection Bias Circuitry
- 100% DC and RF tested
- Die size: 1.85 x 1.312 x 0.1 mm
- RoHS Compliant

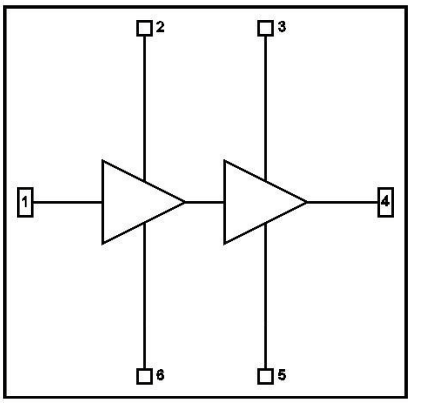
Device Photo



Description

The Endwave *EWP2801ZZ* is a GaAs pHEMT broadband medium power amplifier MMIC. The high linearity medium power amplifier with +29 dBm typical output IP3 at 26.5GHz and +22 dBm output P1dB at 26.5 GHz is optimal as a PA itself or as a driver to higher power applications. This device has integrated ESD protection bias circuitry and 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	18		28	GHz
Gain		19		dB
Input Return Loss		10		dB
Output Return Loss		10		dB
Output IP3		29		dBm
Output P1dB		22		dBm
Saturated Output Power		24		dBm
Drain Bias Voltages (Vd1, Vd2)		5		V
Drain Bias Currents (Id1)		80		mA
Drain Bias Currents (Id2)		120		mA
Gain Bias Voltages (Vg1, 2)		-0.65		V

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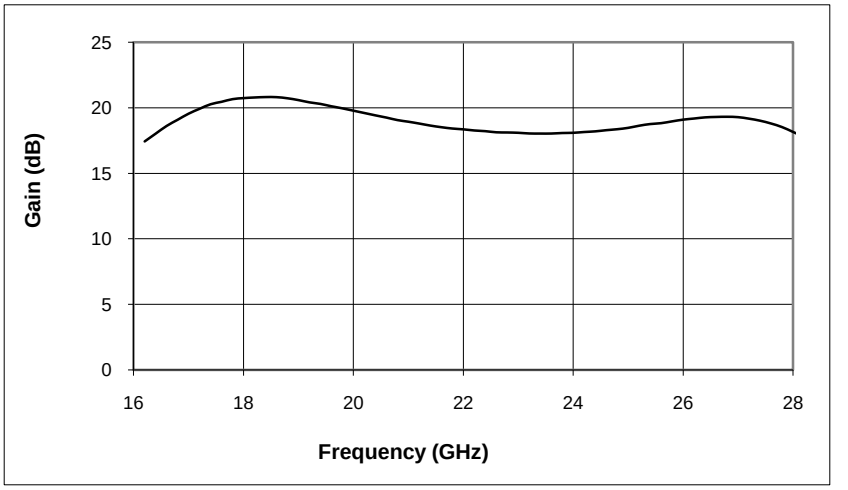
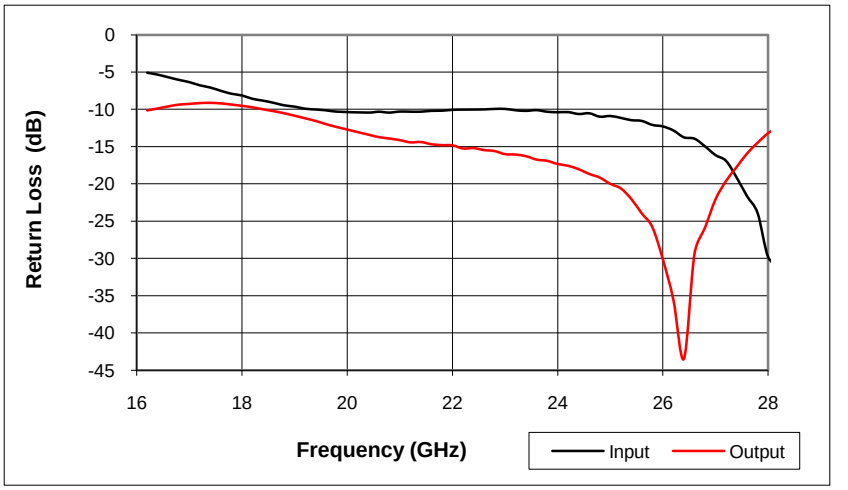
www.endwave.com

Medium Power Amplifier – Bare Die

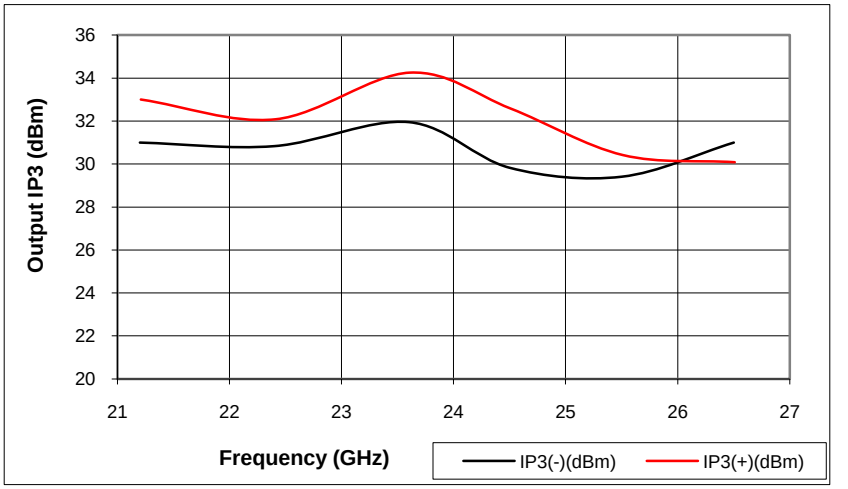
Gain vs. Frequency
Bias Condition: Vd = +5.0V, Id = 200mA



Return Loss vs. Frequency
Bias Condition: Vd = +5.0V, Id = 200mA



Output IP3 vs. Frequency
RF Input at -4.0dBm per tone, Bias Condition: Vd = +5.0V, Id = 200 mA



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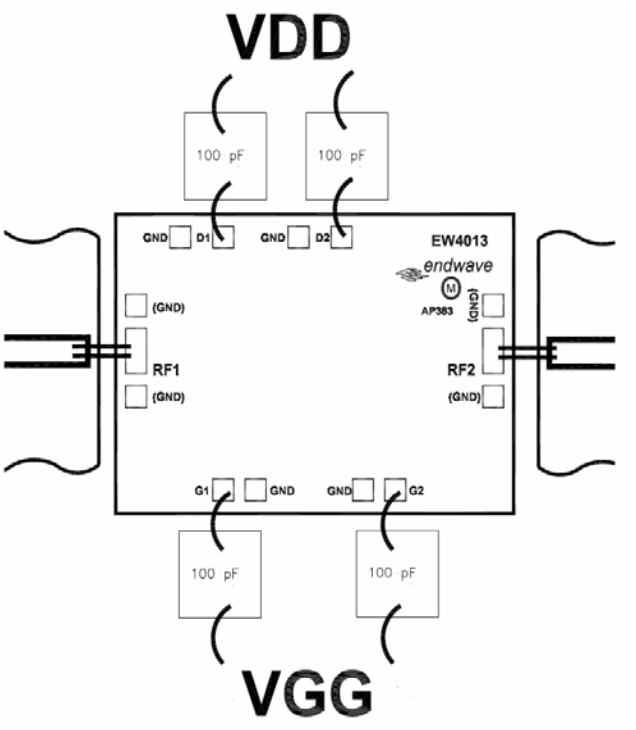
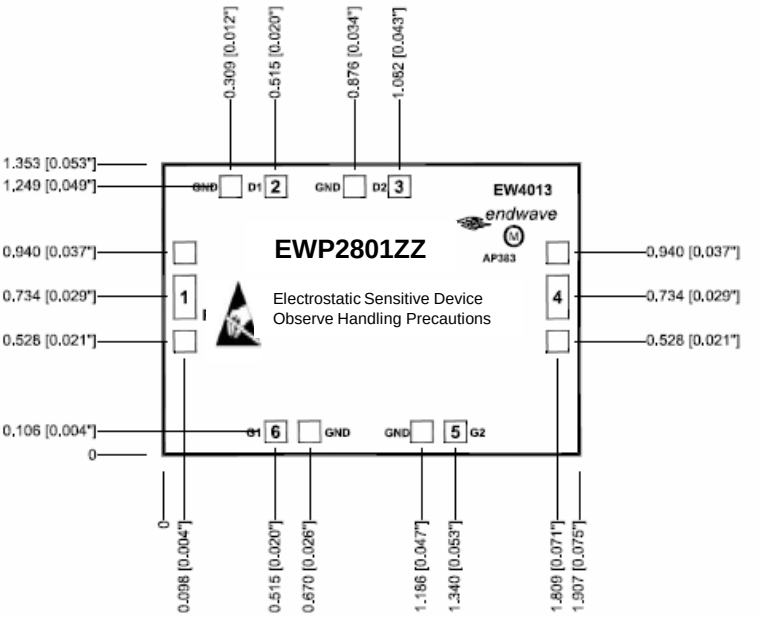
Assembly Drawing



Outline Drawing



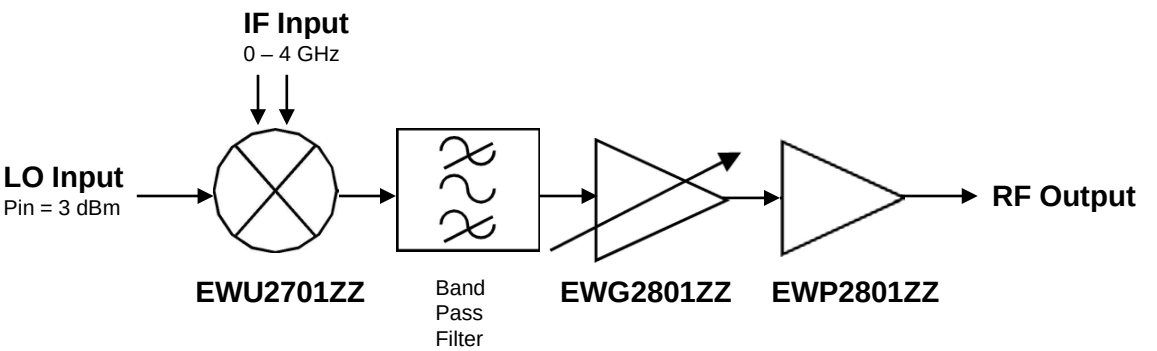
Bond Pad #1 - RF In	Bond Pad #4 - RF Out
Bond Pad #2 - Vd1	Bond Pad #5 - Vg2
Bond Pad #3 - Vd2	Bond Pad #6 - Vg1

Dimensions in mm [inches]. Die thickness is 0.004".
Bond Pad and backside metallization is gold.

Absolute Maximum Ratings

RF Input Power (max gain)	+10 dBm
Supply Voltage (Vd1, 2, 3)	+5.5 V
Supply Current (Id1+ Id2)	300 mA
Supply Voltage (Vg1, 2)	-2.5 to 0V
Storage Temperature	-65 to +150°C
Operating Temperature	-40 to +85°C
Channel Temperature	175°C

Typical Application



Notes:
1. An external 180 hybrid to be used at IF ports.
2. Conversion loss will degrade by 3 dB if only one port is used.

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	Description
EWP2801ZZ	RoHS compliant bare die in waffle or gel packs
EWP2801ZZ-EV	*EWP2801ZZ* in a connectorized test fixture