







EWP1801YF

September 2009 – Rev 3

Preliminary

Features

-  Integrated Power Amp and Detector
-  Broadband Performance: 16 to 20 GHz
-  Gain: 25 dB typical
-  Output IP3: +29 dBm typical
-  Output P1dB: +24 dBm typical
-  Package: 5 x 5 mm, 32 Lead QFN

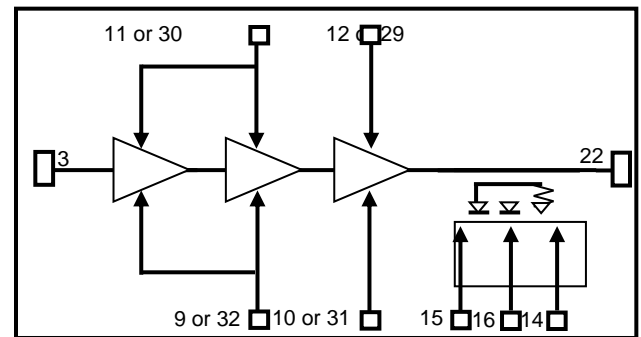
Device Photo



Description

The Endwave *EWP1801YF* is a 0.15 um GaAs pHEMT broadband balanced power amplifier MMIC with integrated power detector which can be run in “chop” mode or as a standard linear detector. The high linearity medium power amplifier with +29 dBm typical output IP3 and +24 dBm output P1dB is optimal as a PA itself or as a driver to higher power applications. 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



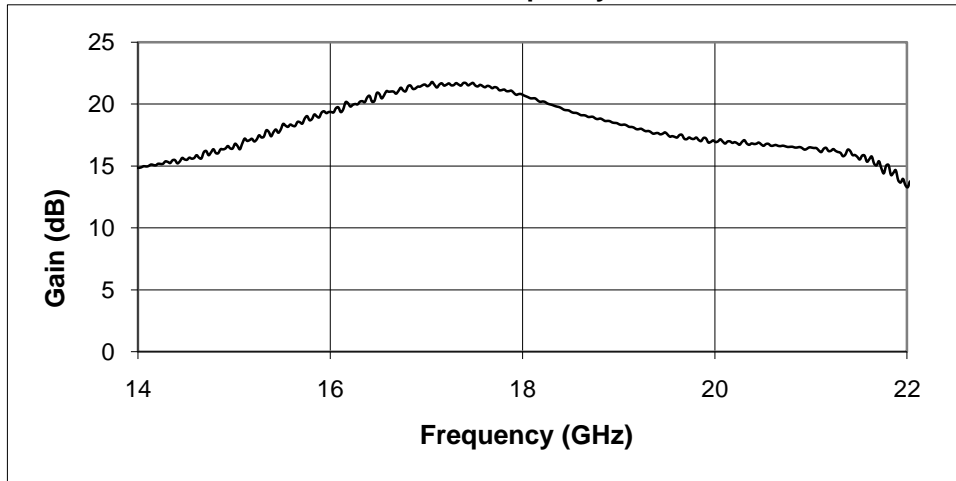
Electrical Characteristics (Temperature = +25 °C)

Parameter	Min.	Typ.	Max.	Units
Frequency Range	16		20	GHz
Gain		22		dB
Noise Figure		9		dB
Input Return Loss		12		dB
Output Return Loss		12		dB
Output IP3		29		dBm
Output P1dB		24		dBm
Saturated Output Power		27		dBm
Drain Bias Voltages (Vd 2, 3)		+4		V
Drain Bias Currents		500		mA
Gain Bias Voltages (Vg2 ,3)		-0.6		V
Vdet ¹ at Pout = 20 dBm		0.3		V

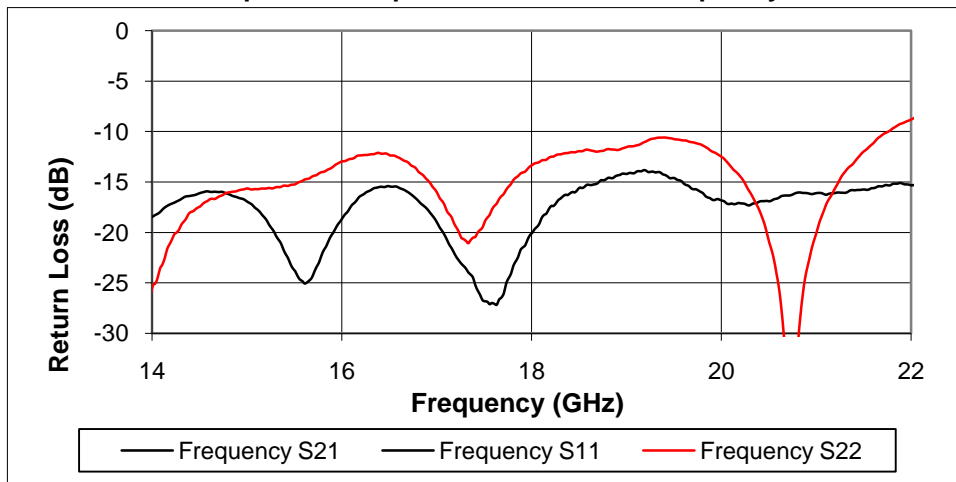
Note 1: OD2 and OD3 connected to +4.25 volts through 47K ohm resistor

Note 2: Detector turned on/off by setting SW1= -1.6 V or 0 V, respectively

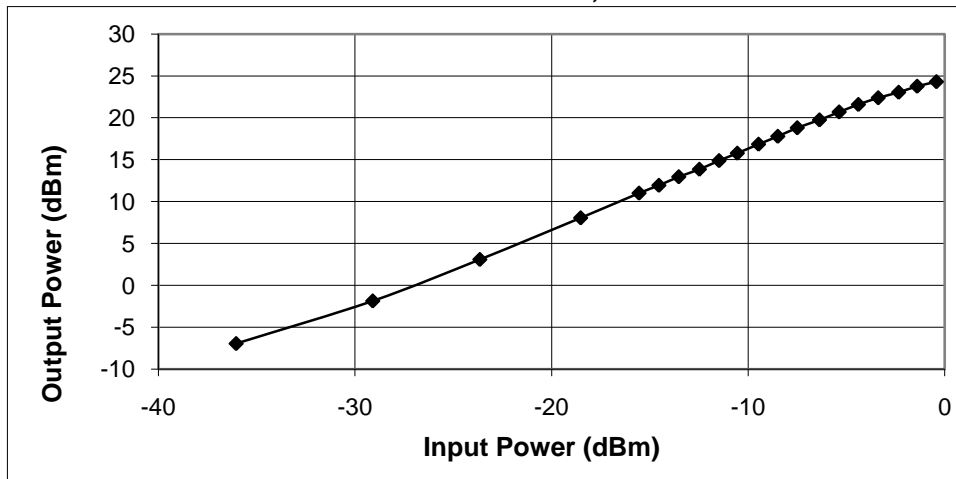
Gain vs Frequency



Input and Output Return Loss vs Frequency



Output P1dB vs Frequency
Bias condition: $V_d = +4V$, $I_d = 500mA$



Medium Power Amplifier - Packaged

EWP1801YF

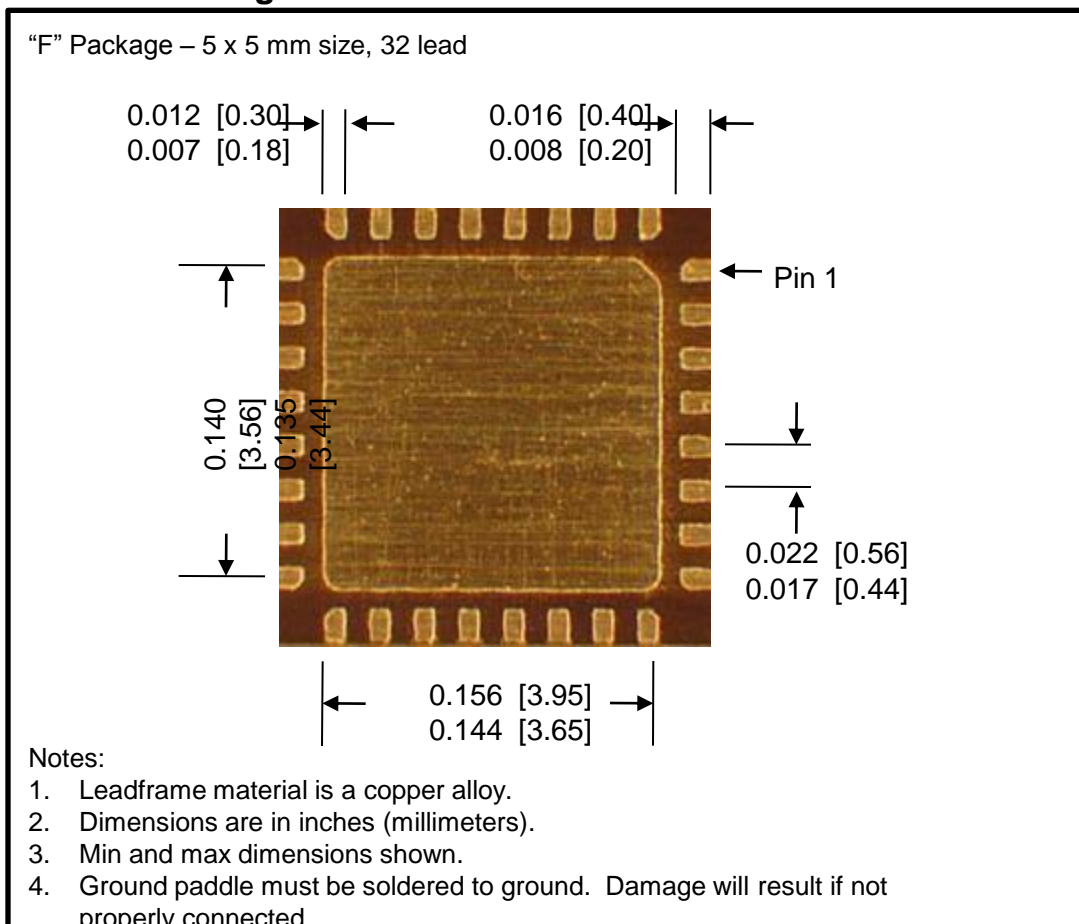
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DC & RF Pinout

Pin Number	Function
1, 5-8, 13, 17-20, 24-28	No Connection
2, 4, 21, 23, paddle	Ground
3	RF Input
22	RF Output
9 or 32	Amplifier Gate Bias Vg2
10 or 31	Amplifier Gate Bias Vg3
11 or 30	Amplifier Gate Bias Vd2
12 or 29	Amplifier Drain Bias Vd3
14	SW1
15	OD2
16	OD3

Outline Drawing



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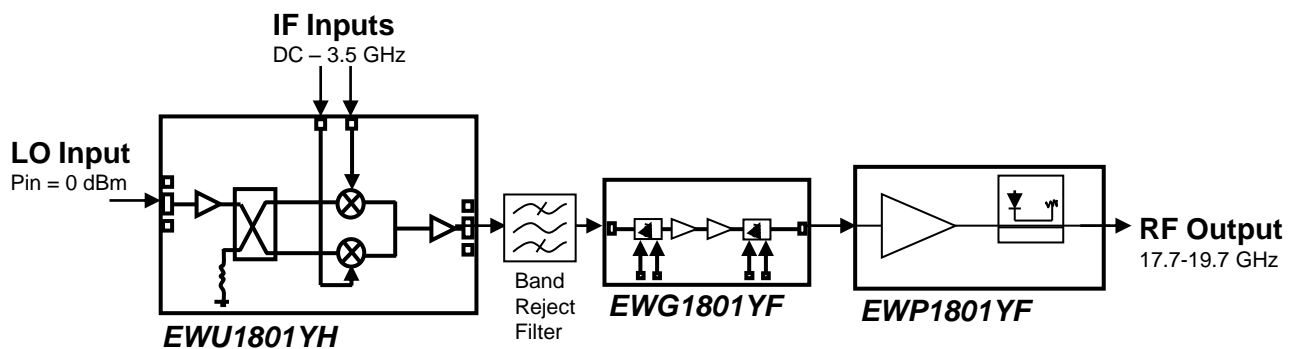
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Absolute Maximum Ratings

RF Input Power (max gain)	+10 dBm
Supply Voltage (Vd2, 3)	+5.5 V
Supply Current (Id2, 3)	750 mA
Supply Voltage (Vg2, 3)	-2.5 to 0 V
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	Description
EWP1801YF	5 x 5 mm QFN RoHS compliant SMT Package