








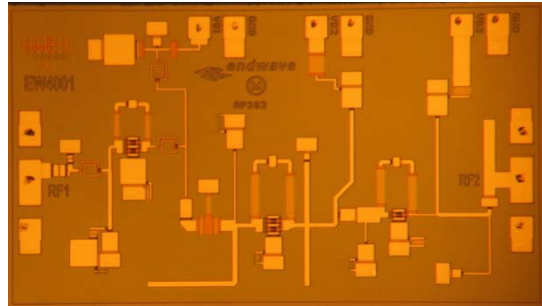


Features

-  Broadband Performance: 32 to 42 GHz
-  Wide Input Power Range: -8 to +8 dBm
-  Output Power: +8 dBm, typical
-  Fundamental Rejection: 20 dBc, typical
-  Low DC Power Consumption: 0.36 Watts
-  Self-biased
-  100% DC and RF tested
-  Die size: 2.3 x 1.35 x 0.1 mm
-  RoHS Compliant

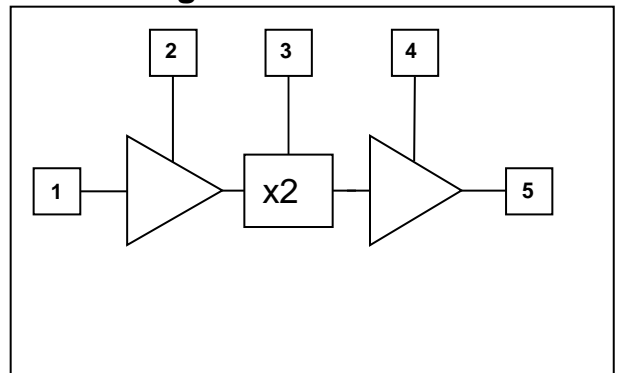
Device Photo



Description

The Endwave *EWX4201ZZ* is a GaAs pHEMT broadband active x2 frequency multiplier MMIC. With +5 dBm RF drive, the multiplier provides +8 dBm typical output power from 32 to 42 GHz. The self-biasing provides a rugged interface for ESD susceptibility. 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



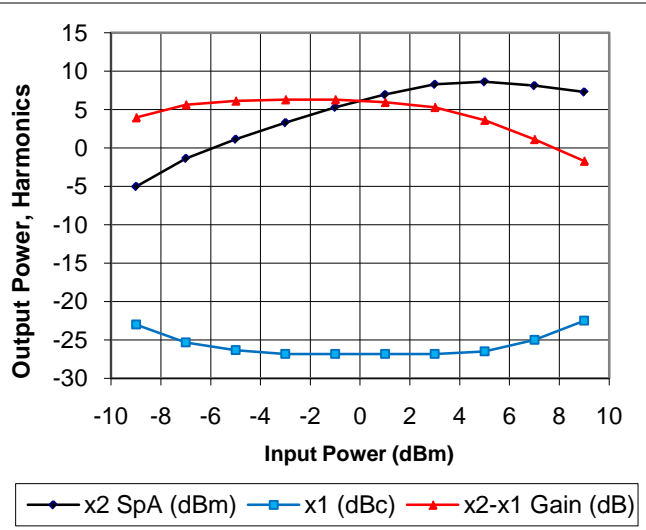
Electrical Characteristics (Temperature = +25°C)

Parameter	Min.	Typ.	Max.	Units
Input Frequency Range (F_0)	16		21	GHz
Output Frequency Range ($2F_0$)	32		42	GHz
Output Power (P_{out}) @ $2F_0^{(1)}$		8		dBm
Input Power (P_{in}) @ $F_0^{(2)}$		5		dBm
F_0 Rejection (with respect to $2F_0$ output level)		20		dBc
$3F_0$ Rejection (with respect to $2F_0$ output level)		35		dBc
Input Return Loss		10		dB
Output Return Loss		10		dB
Drain Bias Voltages ($V_{d1,2,3}$)		4.4		V
Drain Bias Current ($P_{in} = +3$ dBm)		80		mA

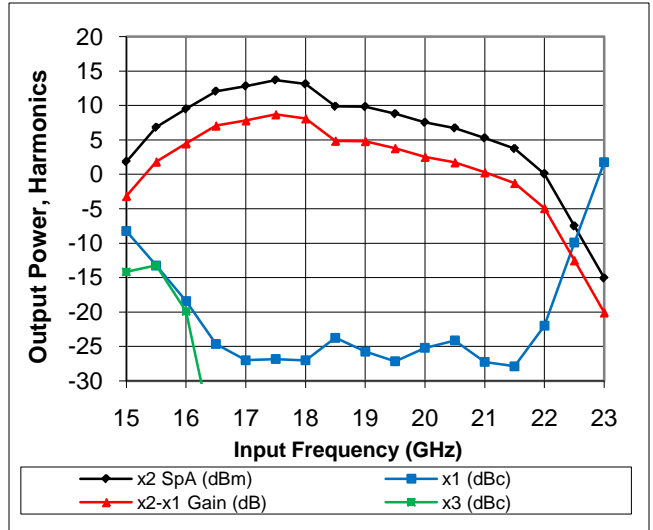
Note 1: $P_{in} = +3$ dBm to +8 dBm. For $P_{in} < +3$ dBm, P_{out} decreases monotonically.

Note 2: Range for best conversion gain. Other metrics based upon $P_{in} = +5$ dBm (typ.).

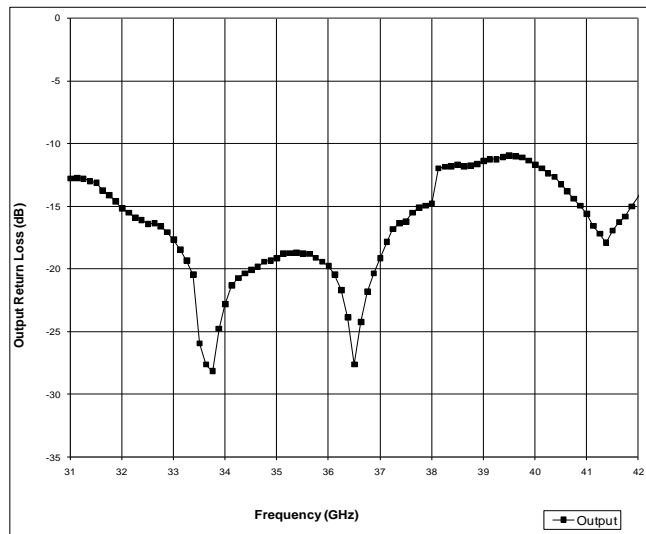
Conversion Gain and Harmonics Levels vs. Input Power
RF Input at 19.5GHz, Bias Conditions: +4.4V Supply, Id = 80 mA



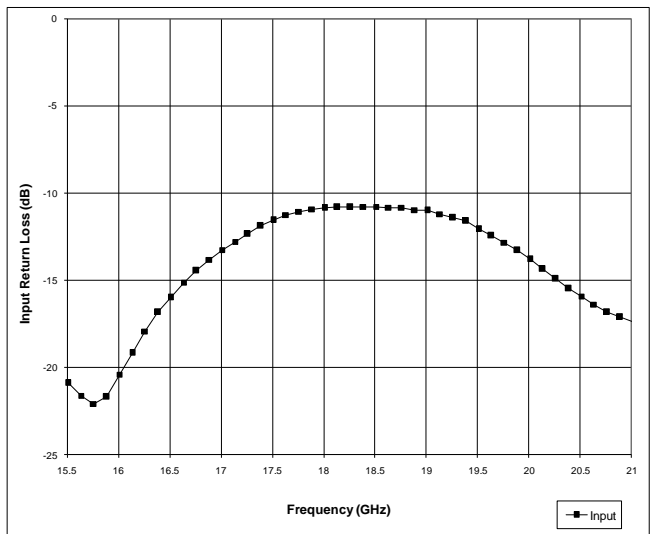
Conversion Gain and Harmonic Level vs. Input Frequency
RF Input at +5 dBm, Bias Conditions: +4.4V Supply, Id = 80 mA



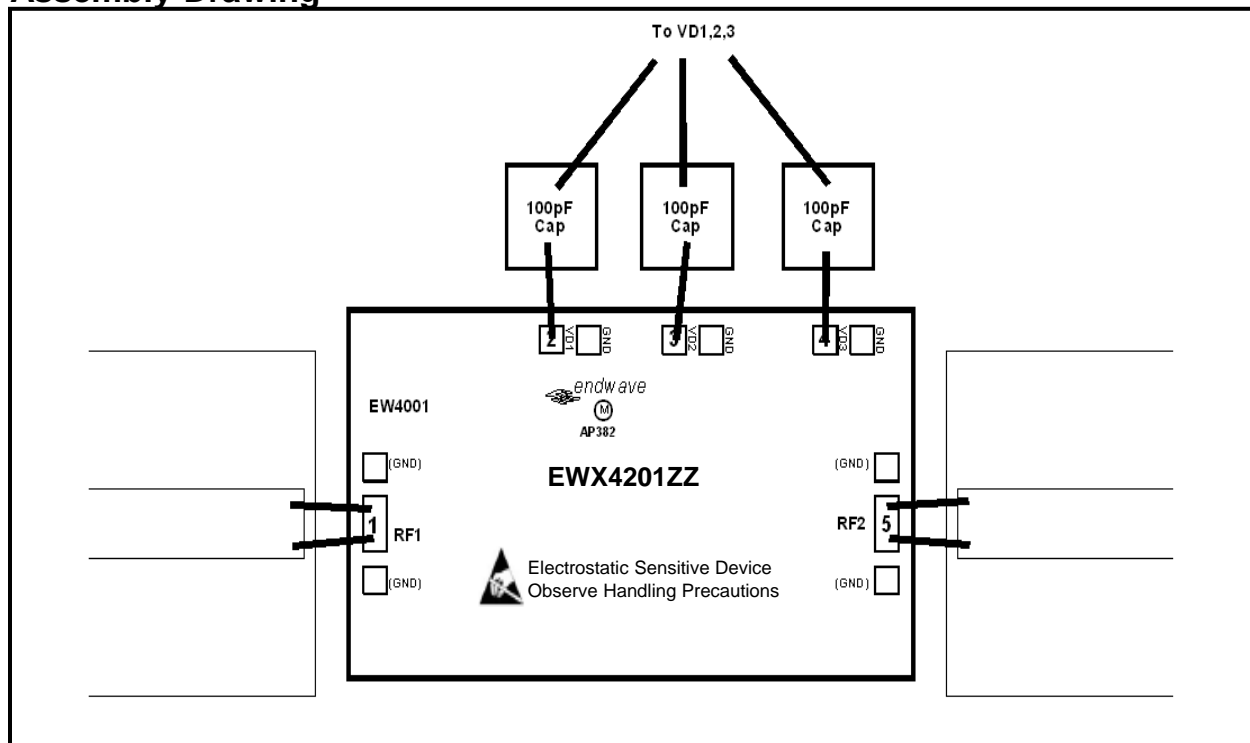
Input Return Loss
Bias Conditions: +4.4V Supply, Id = 80 mA



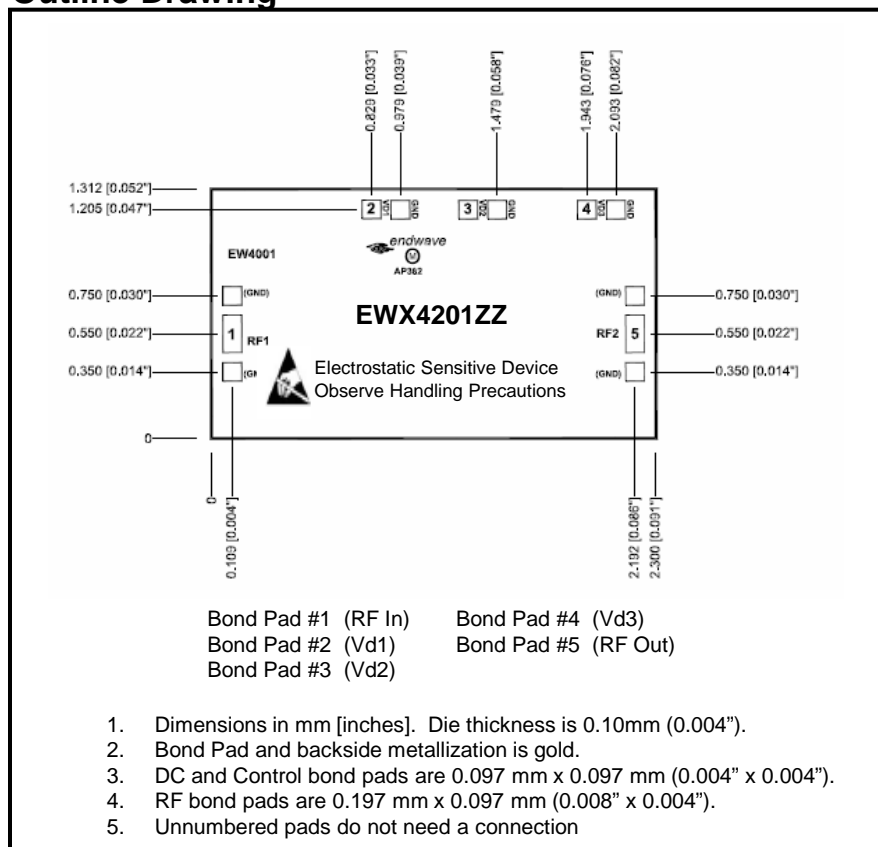
Output Return Loss
Bias Conditions: +4.4V Supply, Id = 80 mA



Assembly Drawing



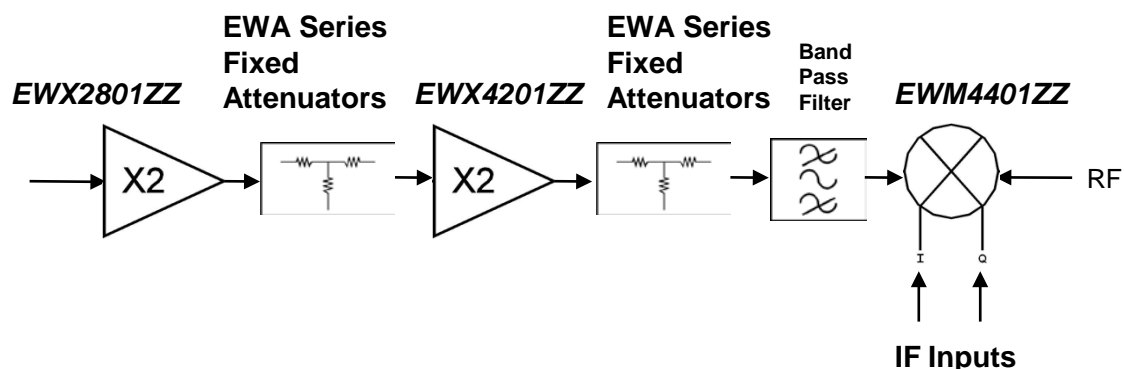
Outline Drawing



Absolute Maximum Ratings

Input Power	+15 dBm
Supply Voltage (Vd1, 2, 3)	+ 5.5 V
Supply Current (Id1+Id2+Id3)	150 mA
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
EWX4201ZZ	RoHS compliant bare die in wafer or gel packs
EWX4201ZZ-EV	EWX4201ZZ in a connectorized test fixture