









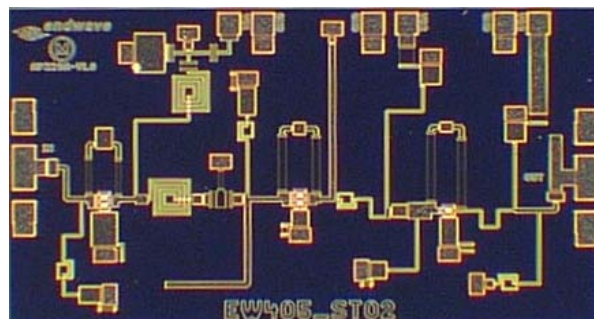


Features

-  Broadband Performance: 24 to 30 GHz
-  Wide Input Power Range: -10 to +10 dBm
-  Output Power: +8 dBm, typical
-  Fundamental Rejection: 35 dBc, typical
-  Low Power Consumption: <0.3 Watts
-  Self-biased
-  ESD Protection Bias Circuitry
-  100% DC and RF tested
-  Die size: 2.7 x 1.5 x 0.1 mm
-  RoHS Compliant

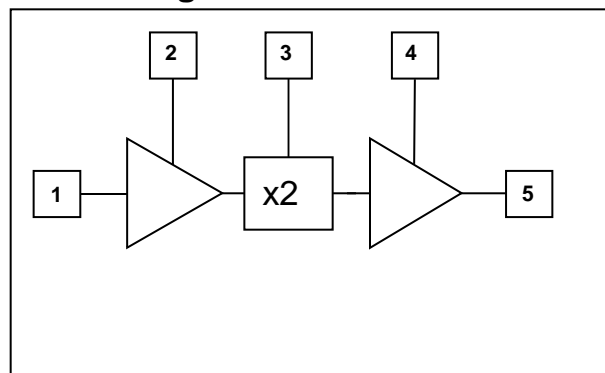
Device Photo



Description

The Endwave *EWX3001ZZ* is a GaAs pHEMT broadband active x2 frequency multiplier MMIC. The multiplier provides +8 dBm typical output power from 24 to 30 GHz with +5 dBm RF input level. The self-biased topology provides a rugged interface for ESD susceptibility. 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



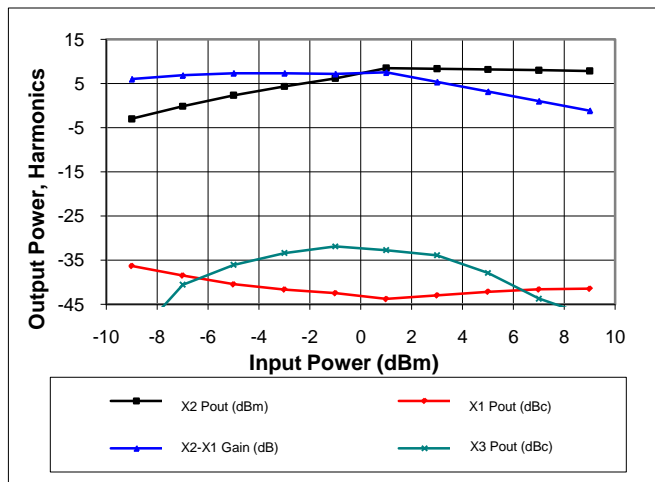
Electrical Characteristics (Temperature = +25°C)

Parameter	Min.	Typ.	Max.	Units
Input Frequency Range (F_0)	12		15	GHz
Output Frequency Range ($2F_0$)	24		30	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)	30	35		dBc
$3F_0$ Rejection (with respect to $2F_0$ output level)	30	35		dBc
Input Return Loss		7		dB
Output Return Loss		11		dB
Drain Bias Voltages ($V_{d1,2,3}$)		4.4		V
Drain Bias Current ($P_{in} = +3$ dBm)		62		mA

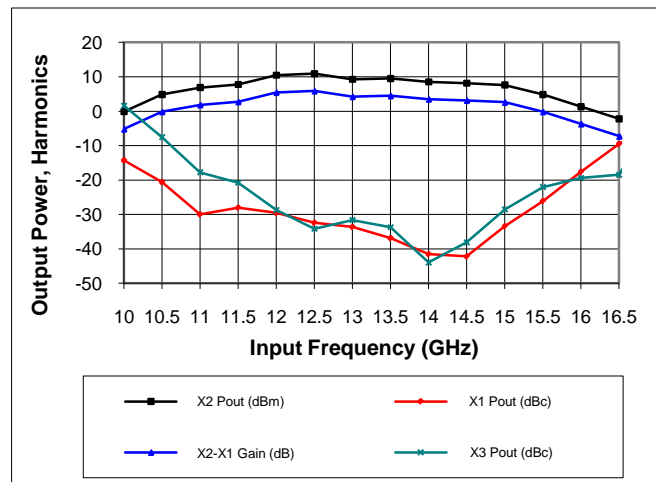
Note 1: $P_{in} = +5$ dBm to +10 dBm. For $P_{in} < +1$ dBm, P_{out} decreases monotonically.

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

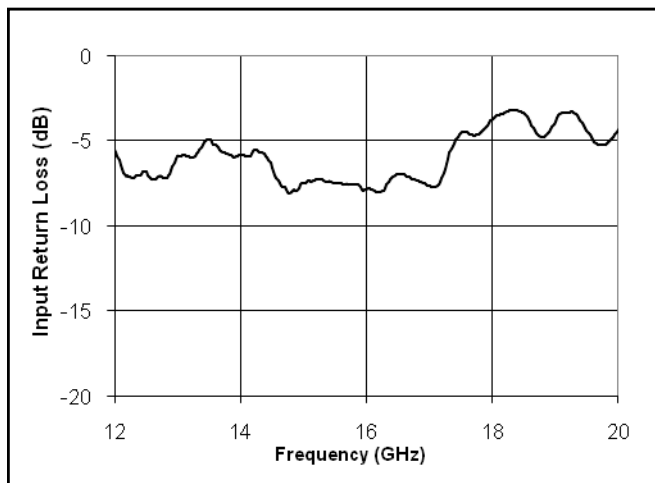
Conversion Gain and Harmonic Levels vs. Input Power
RF Input at 14.5 GHz, Bias Condition: $V_d = +4.4V$, $I_d = 62mA$



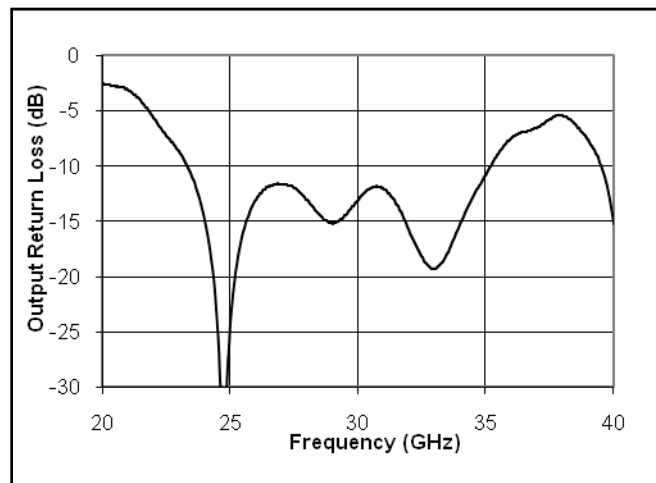
Conversion Gain and Harmonic Levels vs. Input Frequency
RF Input at +5 dBm, Bias Condition: $V_d = +4.4V$, $I_d = 62mA$



Input Return Loss vs. Frequency (RF Power @ + 5dBm)
Bias Condition: $V_{dd} = +4.4V$, $I_d = 62mA$



Output Return Loss vs. Frequency (RF Power @ + 5dBm)
Bias Condition: $V_{dd} = +4.4V$, $I_d = 62mA$

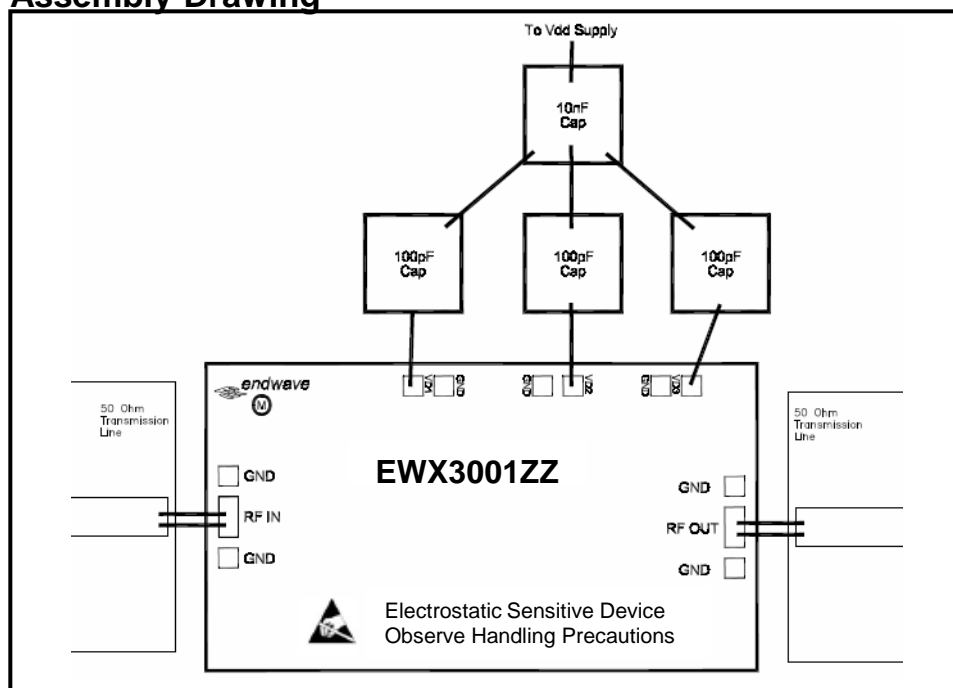


EWX3001ZZ

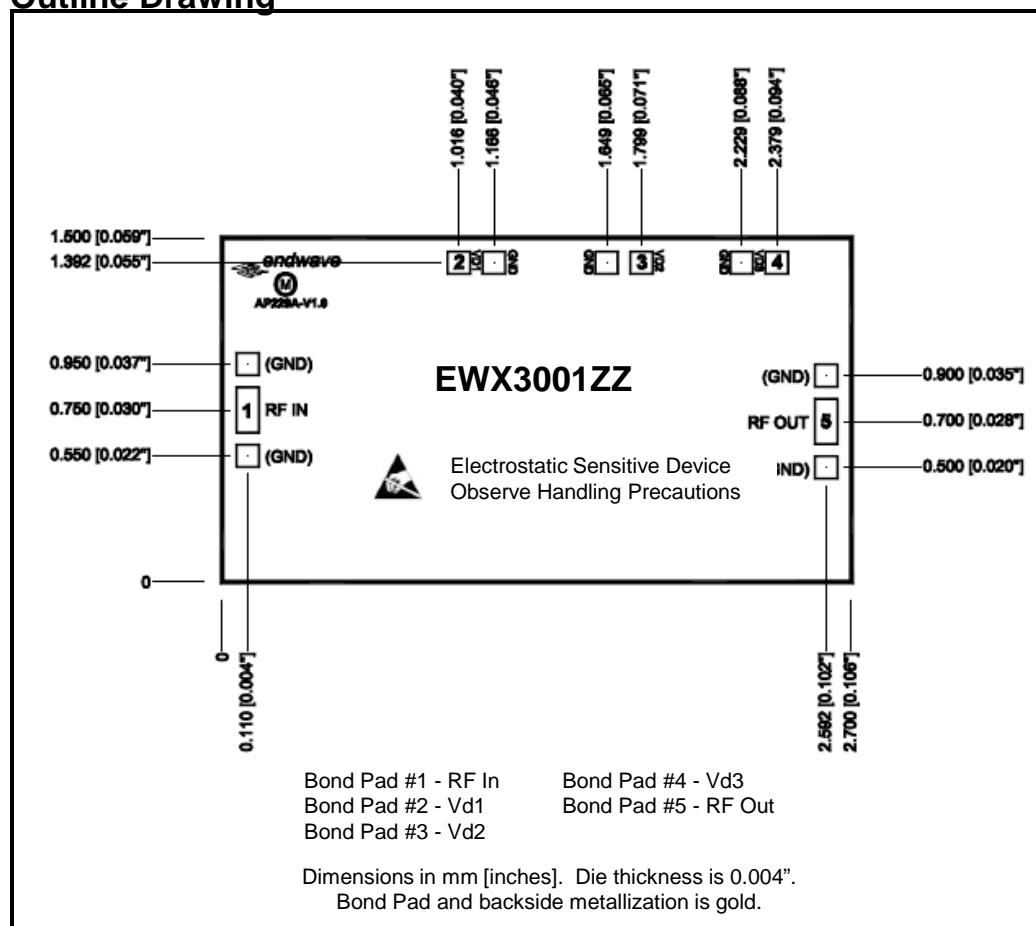
September 2009 – Rev 3

Preliminary

Assembly Drawing



Outline Drawing

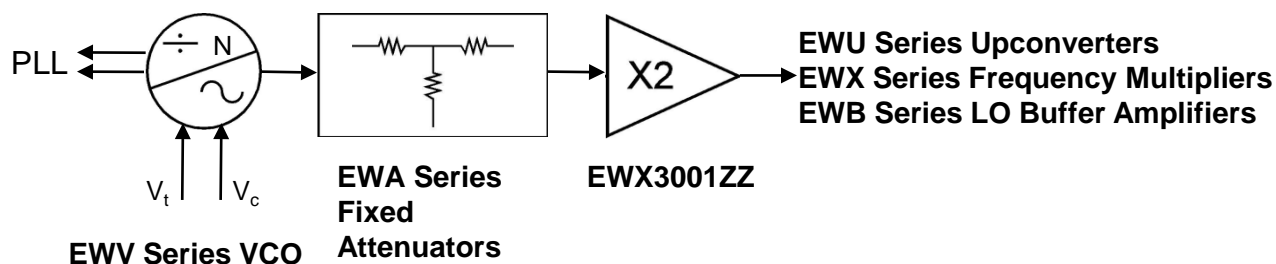


Multiplier - Bare Die

Absolute Maximum Ratings

Input Power	+15 dBm
Supply Voltage (Vd1)	+ 5.5 V
Supply Current (Id1+ Id2+ Id3)	125 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
<i>EWX3001ZZ</i>	RoHS compliant bare die in wafer or gel packs
<i>EWX3001ZZ-EV</i>	<i>EWX3001ZZ</i> in a connectorized test fixture