






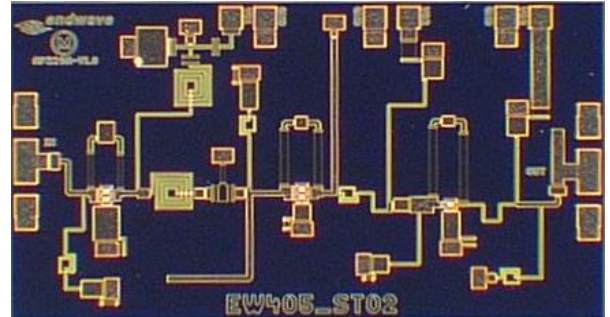


Features

-  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
-  Die size: 2.7 x 1.5 x 0.1 mm

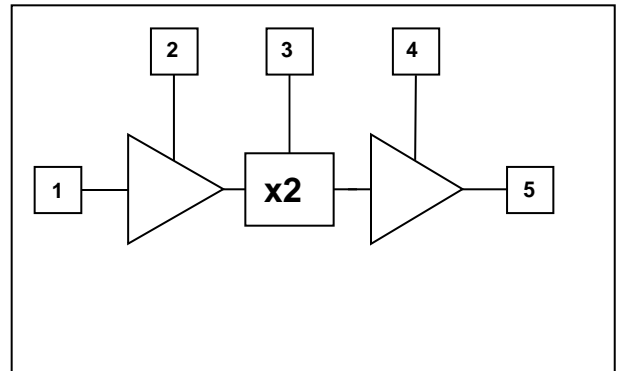
Device Photo



Description

The Endwave *EWX3001ZZ* is a 0.15 μm 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. The chip may be used for a wide range of applications from defense electronics to commercial communication systems. All chips are 100% DC and RF tested and visually inspected using Mil-Std-883 Method 2010.

Block Diagram



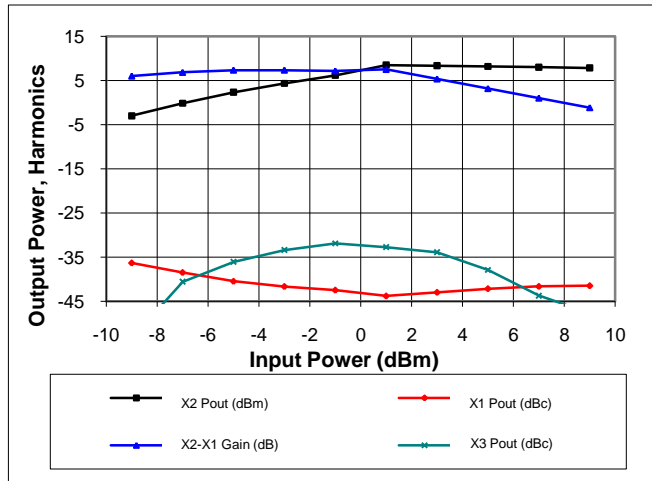
Electrical Characteristics (Temperature = +25 °C)

Parameter	Min.	Typ.	Max.	Units
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

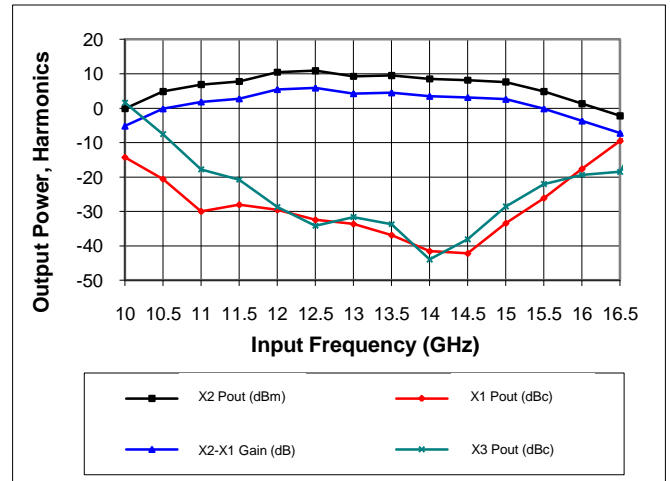
Note 1: $P_{in} = +5$ dBm to +10 dBm. For $P_{in} < +1$ dBm, P_{out} decreases monotonically.

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

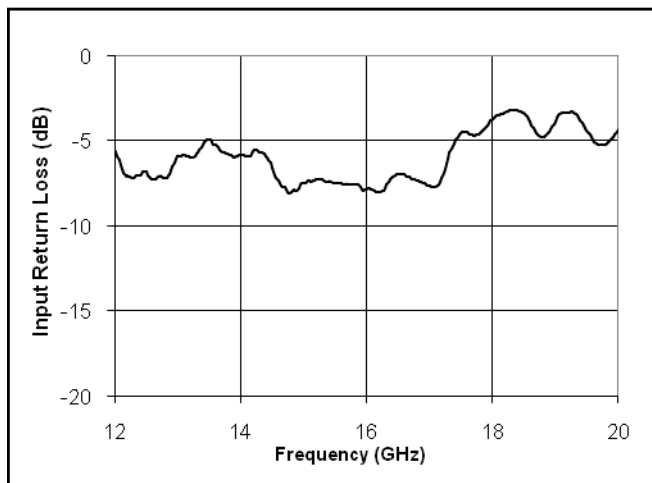
Conversion Gain and Harmonic Levels vs. Input Power
RF Input at 14.5 GHz, Bias Condition: $V_d = +4.4V$, $I_d = 62mA$



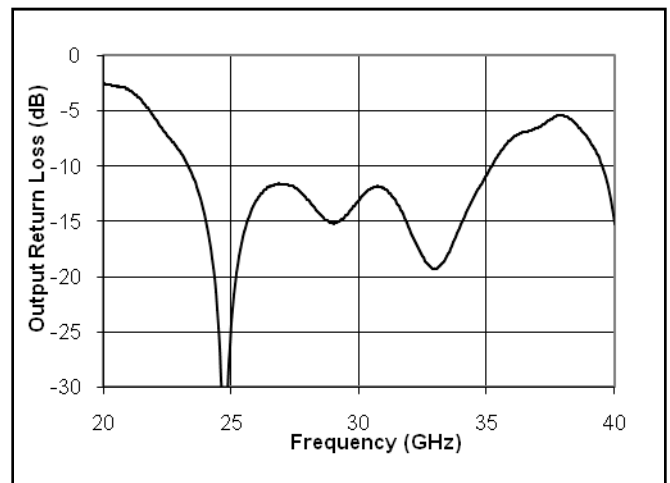
Conversion Gain and Harmonic Levels vs. Input Frequency
RF Input at +5 dBm, Bias Condition: $V_d = +4.4V$, $I_d = 62mA$



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: $V_{dd} = +4.4V$, $I_d = 62mA$

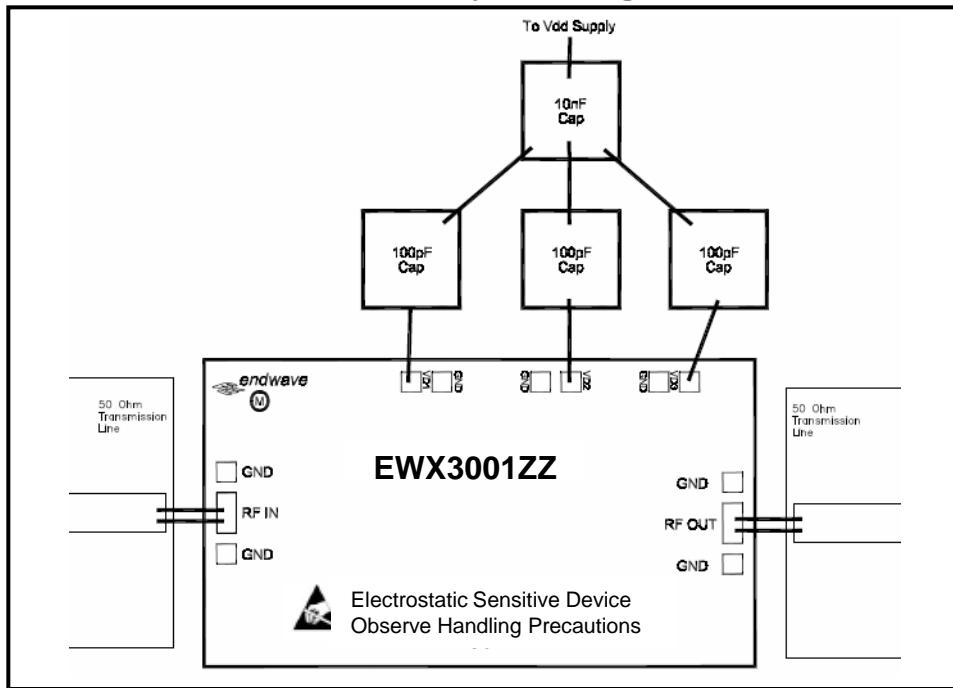


EWX3001ZZ

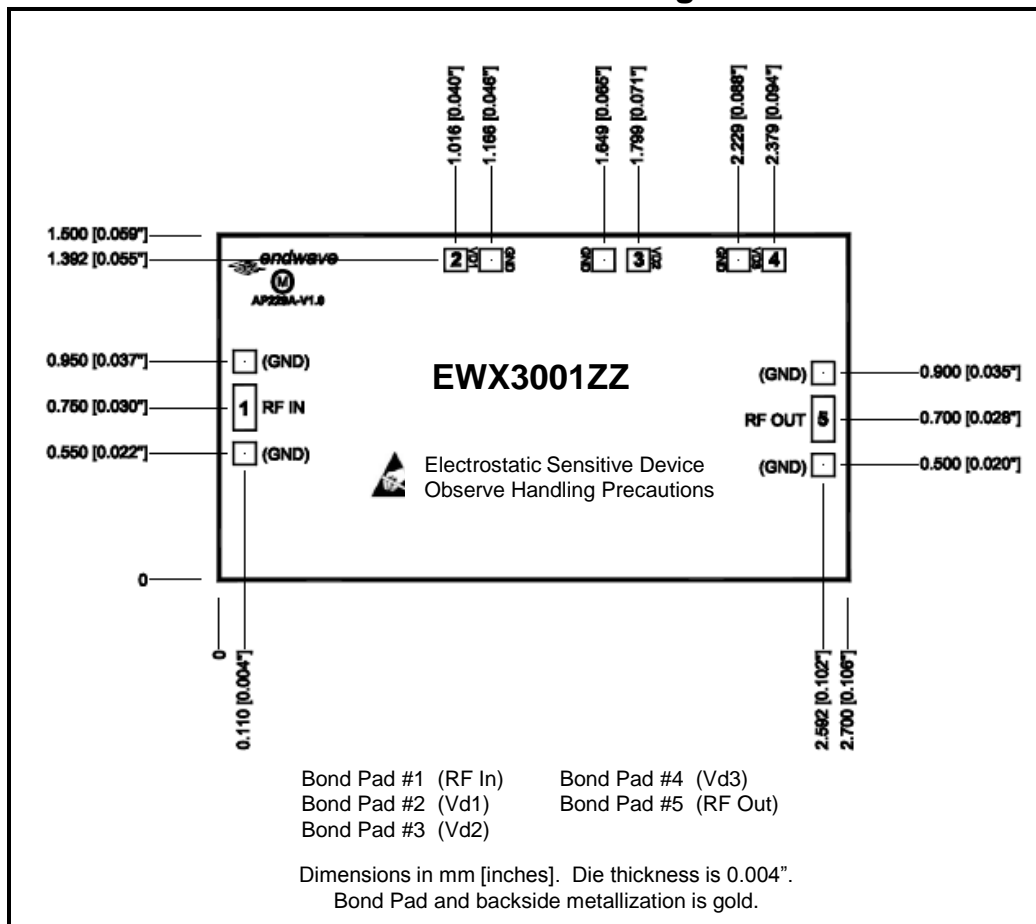
September 2009 – Rev 3

Preliminary

Assembly Drawing



Outline Drawing

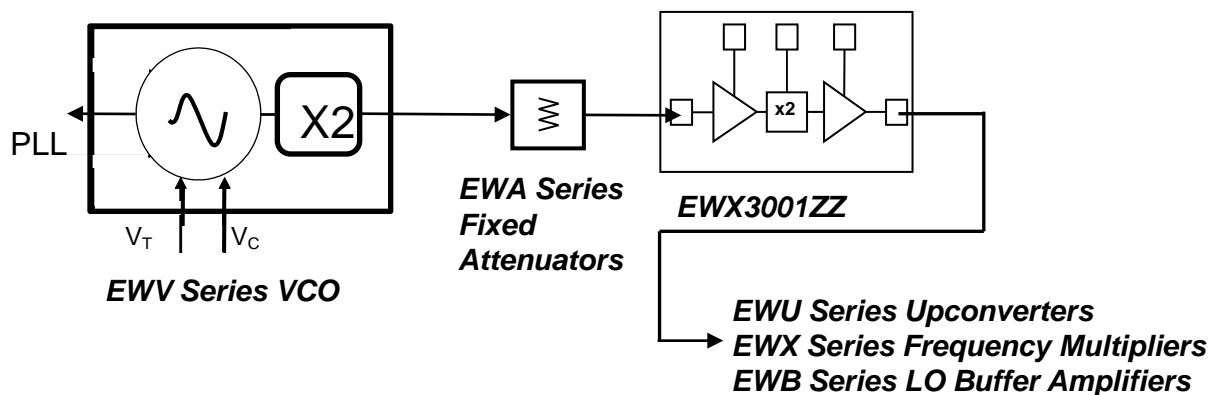


Multiplier - Chip

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
EWX3001ZZ	RoHs Compliant bare die in wafer or gel packs

Multipier - Chip