









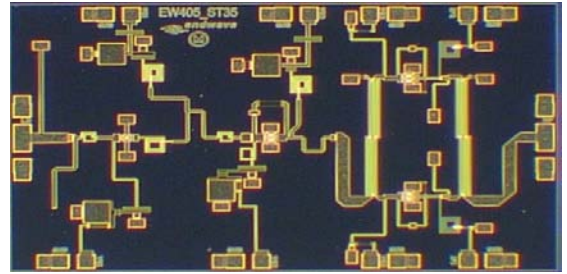


EWU2701ZZ

Features

-  Balanced Mixer with LO Driver Amplifier
-  IF Bandwidth: 0 to 4 GHz
-  Conversion Gain: -11.5 dB, typical
-  LO Drive Level: 3 dBm, typical
-  Input IP3: +28 dBm, typical
-  LO/RF Isolation: 12 dB, typical
-  Sideband Suppression: 15 dB, typical
-  100% DC and RF tested
-  Die Size: 3.2 x 2.0 x 0.1 mm
-  RoHS Compliant

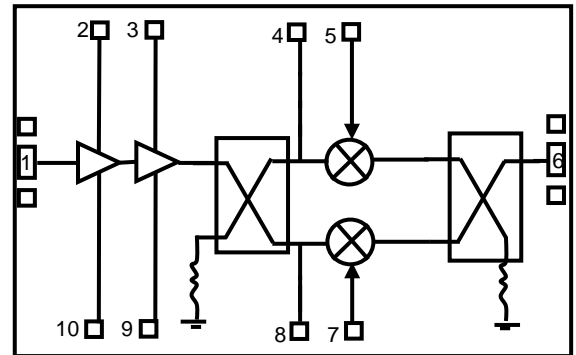
Device Photo



Description

The Endwave *EWU2701ZZ* is a highly integrated GaAs PHEMT MMIC upconverter which provides -11.5 dB of conversion gain, +28 dBm input IP3 and 15 dBc sideband suppression with only 3 dBm of LO power. The balanced mixer topology is driven by a 2 stage LO buffer amplifier. The mixer can be used as a single-sideband modulator or as an IF-to-RF converter with an external 180° hybrid in 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.

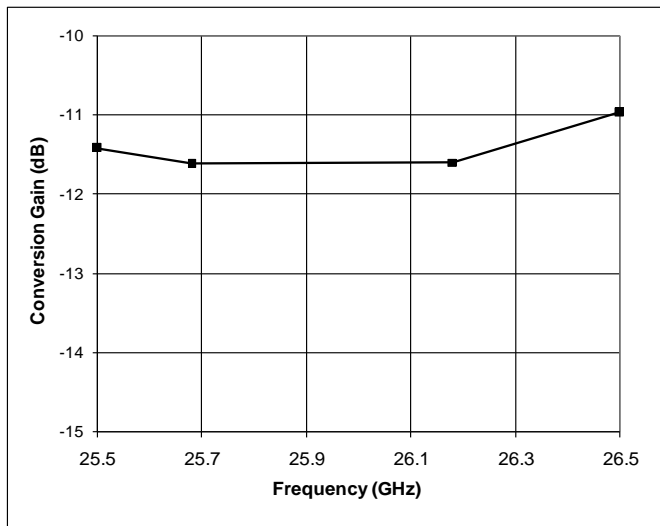
Block Diagram



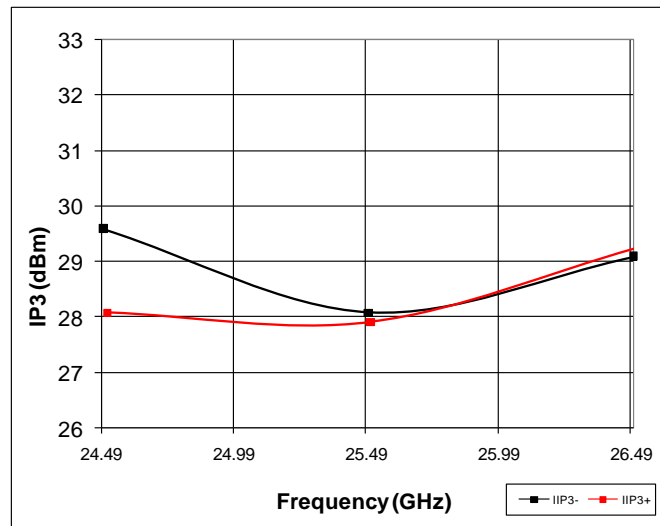
Electrical Characteristics (Temperature = +25 °C, LO drive = 3 dBm)

Parameter	Min.	Typ.	Max.	Units
Frequency Range, IF	0		4	GHz
Frequency Range, RF/LO	24.5		26.5	GHz
Conversion Gain		-11.5		dB
LO to RF Isolation		12		dB
Sideband Suppression		15		dBc
Input IP3 with IF=17&18 MHz		+28		dBm
Amplitude Balance			1	dB
Phase Balance			9	°
IF Return Loss		-6		dB
LO Return Loss		-12		dB
RF Return Loss		-10		dB
Drain Bias Voltages (Vd1,2)		+4.4		V
Gate Bias Voltage (Vg3)		-1.1		V
Drain Bias Currents (Id1+Id2)		67		mA

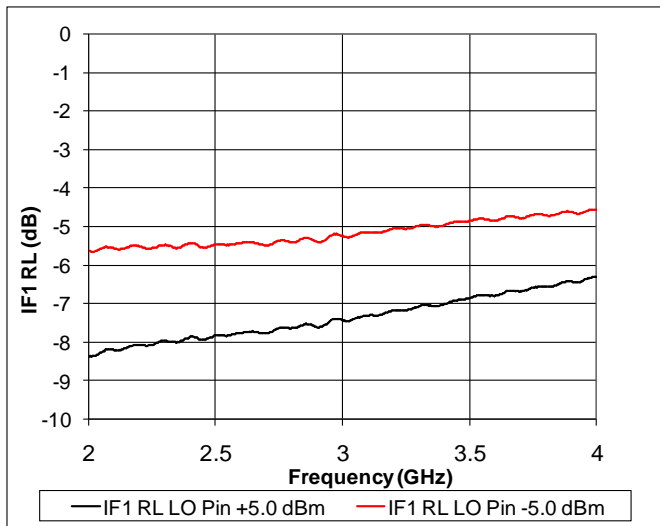
USB Conversion Loss vs. Frequency



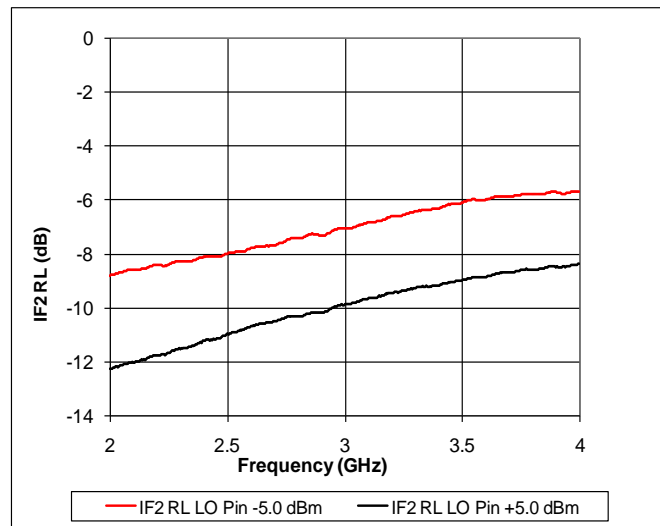
IIP3 vs. Frequency



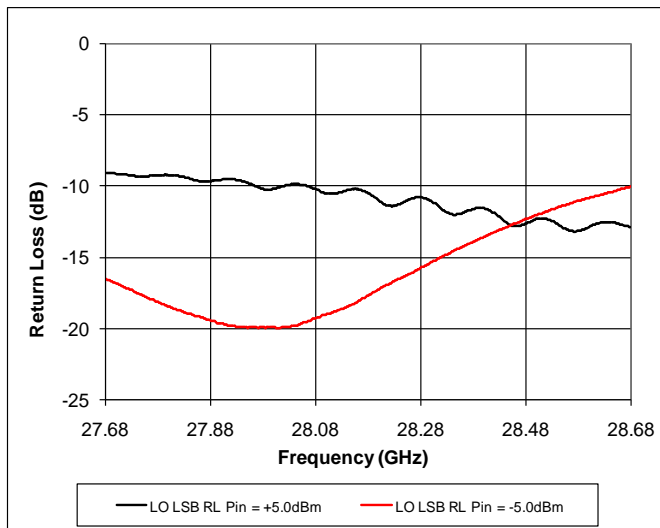
IF1 Return Loss



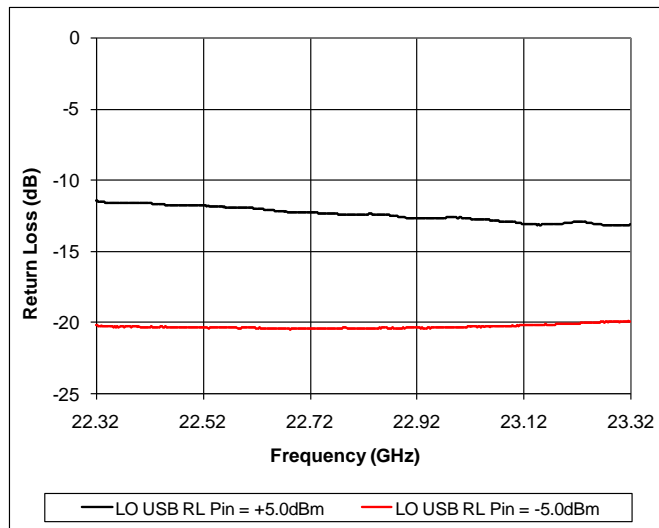
IF2 Return Loss



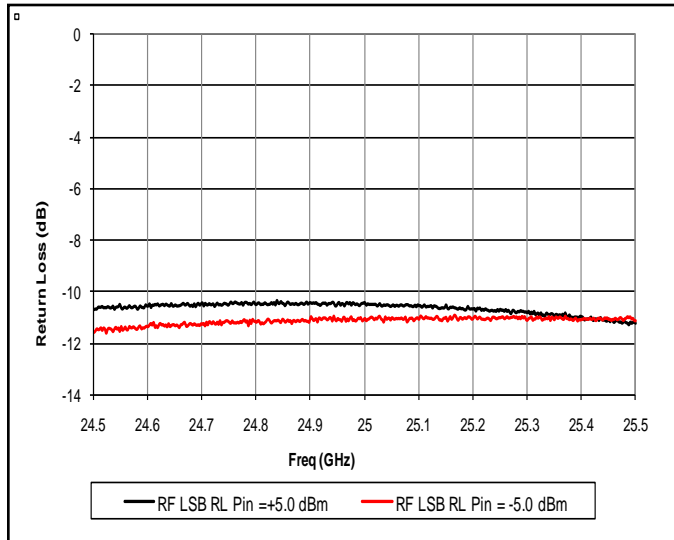
LO LSB Return Loss with LO Pin of -5.0 and +5.0 dBm



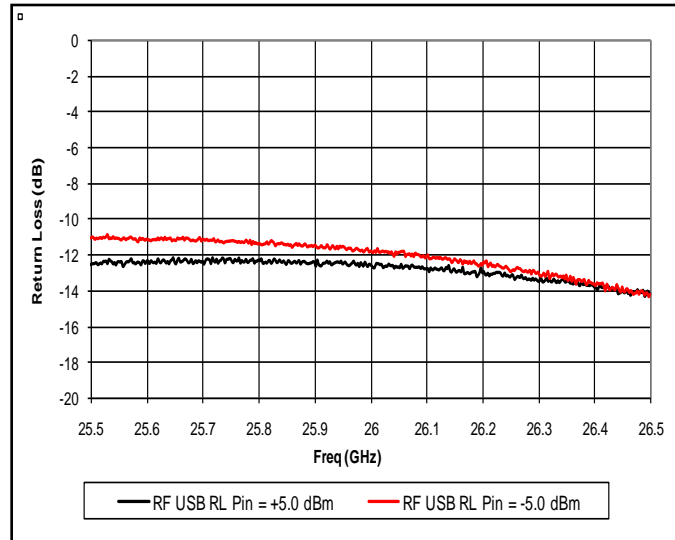
LO USB Return Loss with LO Pin of -5.0 and +5.0 dBm



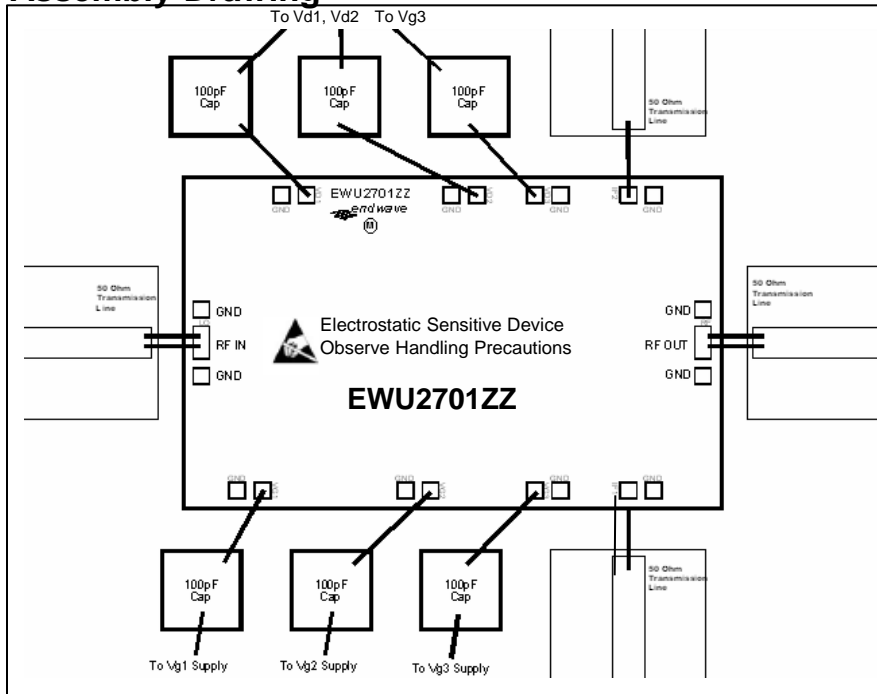
RF LSB Return Loss with LO Pin of -5.0 and +5.0 dBm



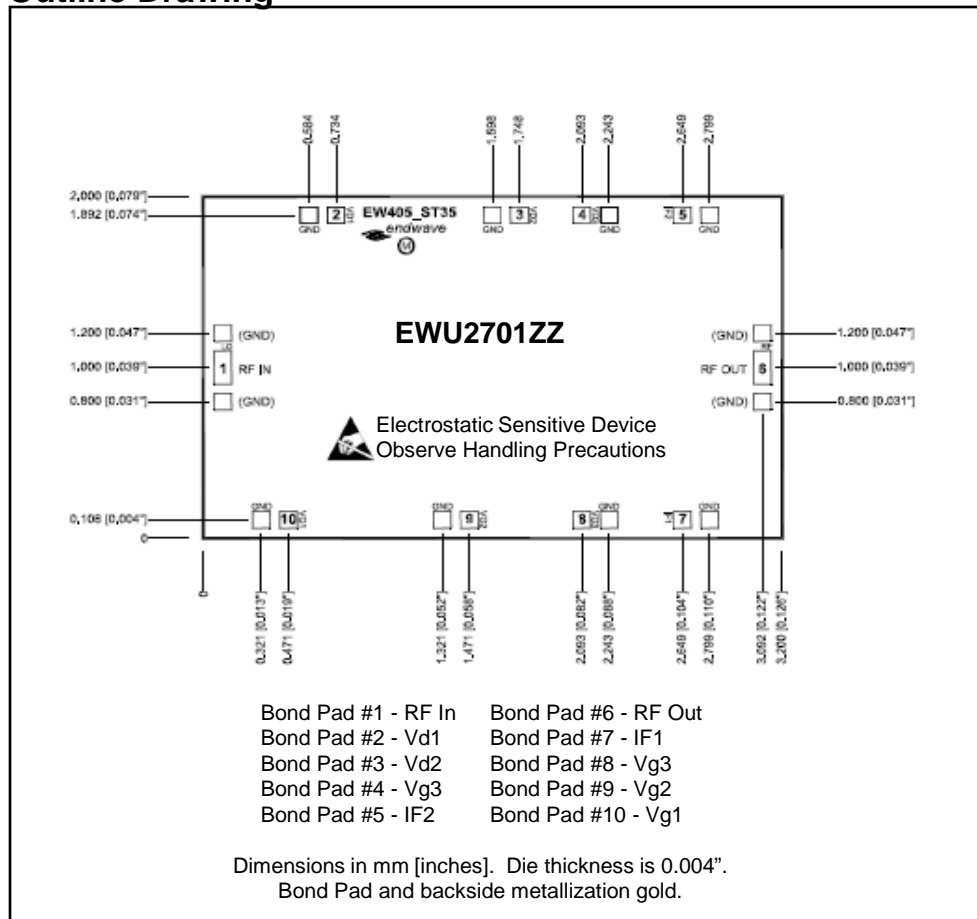
RF USB Return Loss with LO Pin of -5.0 and +5.0 dBm



Assembly Drawing



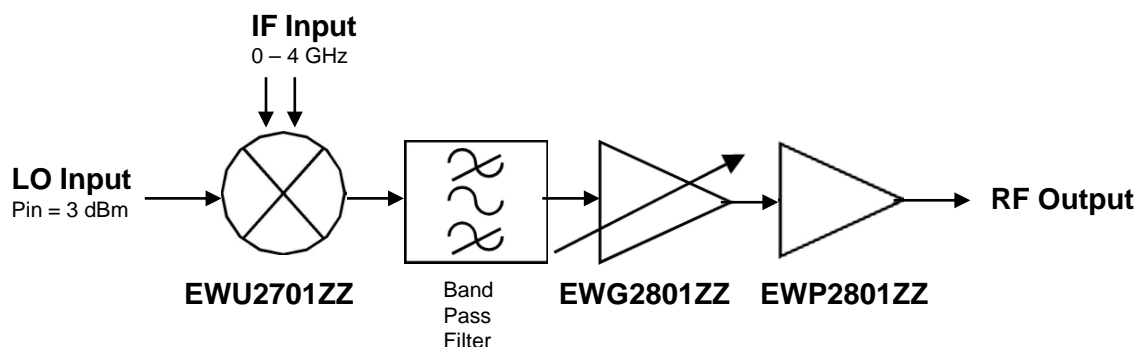
Outline Drawing



Absolute Maximum Ratings

IF Input Power	+ 15 dBm
LO Input Power	+ 15 dBm
Supply Voltage (Vd1, 2, 3)	+ 5.5 V
Supply Gate Voltage (Vg1, 2, 3)	-5 to 0 V
Supply Current (Id1,+Id2)	125 mA
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
EWU2701ZZ	RoHS compliant bare die in waffle or gel packs
EWU2071ZZ-EV	EWU2071ZZ in a connectorized test fixture