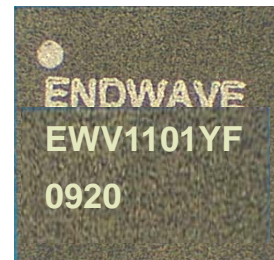


## EWV1101YF

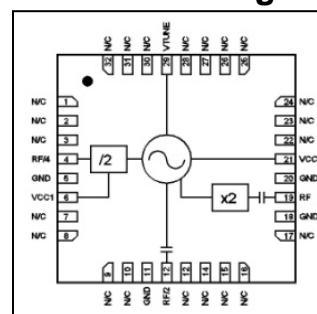
### Features

- Dual Output Frequencies
- Push-push Architecture
- Phase Noise: -111 dBc/Hz @ 100 kHz
- Output Power at  $f_{out}$ : +10 dBm, typical
- Output Power at  $f_{out/2}$ : +12 dBm, typical
- Integrated Divide by 2 Prescaler
- HBM Class 1A – ESD Protection Bias Circuitry
- Package: 5 x 5 mm, 32 Lead, plastic overmold QFN
- 100% RF and DC tested
- Also available in bare die format
- RoHS Compliant

### Device Photo



### Functional Diagram



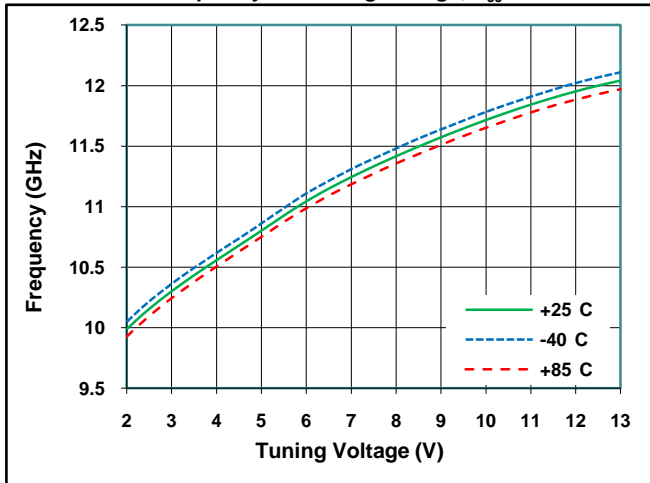
### Description

The Endwave *EWV1101YF* is a high performance InGaP/GaAs HBT MMIC voltage controlled oscillator which provides a set of dual outputs ideal for applications which require 5.215 to 5.815 or 10.43 to 11.63 GHz outputs. The device boasts state of the art phase noise at better than -111 dBc/Hz at a 100 kHz offset. 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 parts are 100% DC and RF tested and visually inspected to IPC-A-610.

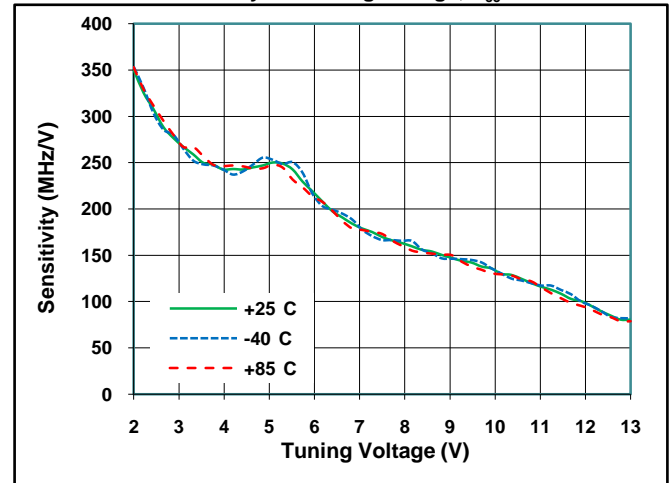
### Electrical Characteristics (Temperature = +25 °C, $V_{cc}=+5V$ )

Parameter	Min.	Typ.	Max.	Units
Frequency Range ( $f_{out}$ )	10.43		11.63	GHz
Frequency Range ( $f_{out/2}$ )	5.215		5.815	GHz
Output Power ( $f_{out}$ )	+6	+10	+14	dBm
Output Power ( $f_{out/2}$ )	+7	+12	+14	dBm
Output Power ( $f_{out/4}$ )	-3	+1	+3	dBm
Phase Noise @ $f_{out}$ 100 kHz Offset, $V_t = +5V$		-111		dBc/Hz
Tune Voltage	2		13	V
Supply Current				
VCO	230	260	290	mA
Prescaler (optional)	35	45	55	mA
Tune Port Leakage Current, $V_{tune} = 13V$			10	uA
Output Return Loss		5		dB
Harmonic / Subharmonics				
$\frac{1}{2}$		25		dBc
$2^{nd}$		7		dBc
Pulling (into a 2:1 VSWR)		5		MHz pp
Pushing @ $V_{tune} = 5V$		15		MHz/V
Frequency Drift Rate			-1.0	MHz/ C

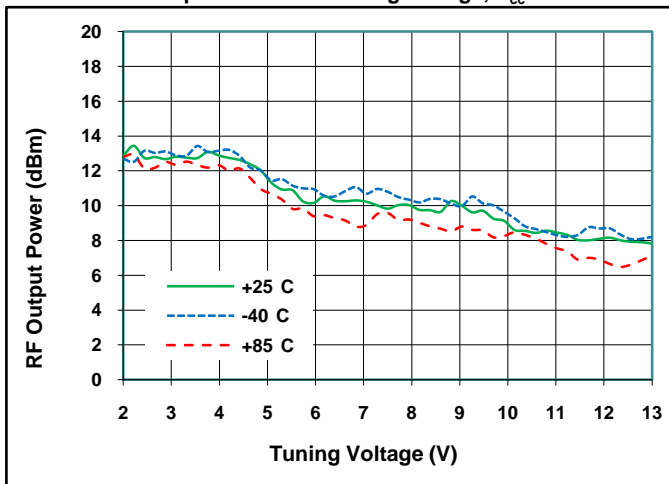
RF Frequency vs. Tuning Voltage,  $V_{cc} = 5V$



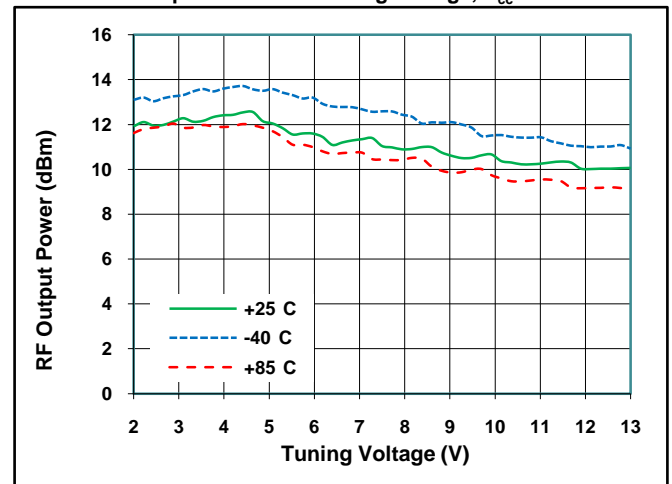
RF Sensitivity vs. Tuning Voltage,  $V_{cc} = 5V$



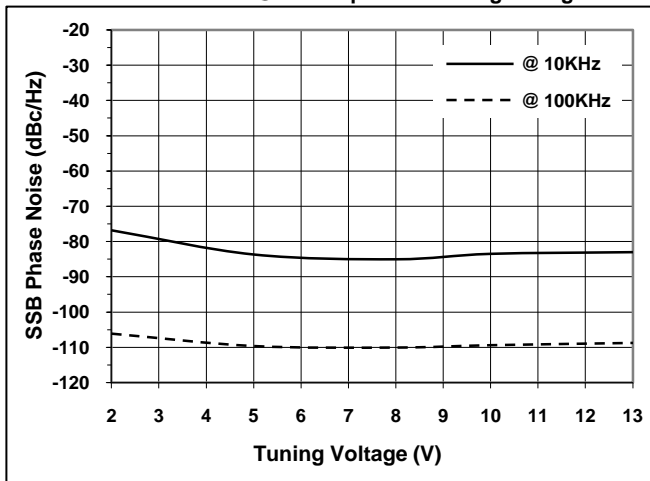
RF Output Power vs. Tuning Voltage,  $V_{cc} = 5V$



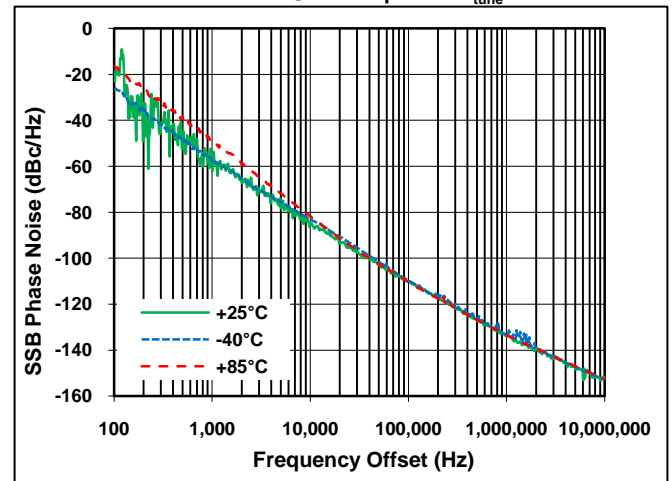
RF/2 Output Power vs. Tuning Voltage,  $V_{cc} = 5V$



SSB Phase Noise @ RF Output vs. Tuning Voltage



SSB Phase Noise @ RF Output vs.  $V_{tune} = 8V$



### DC & RF Pinout

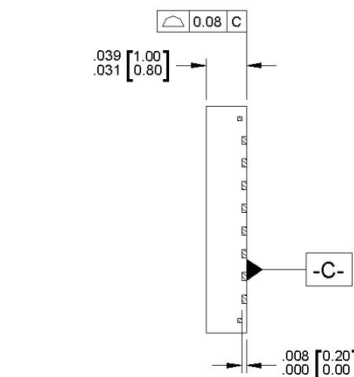
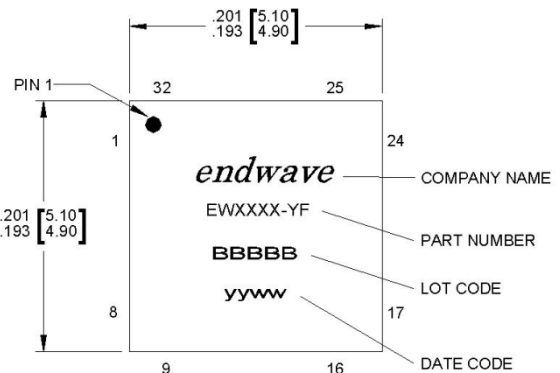
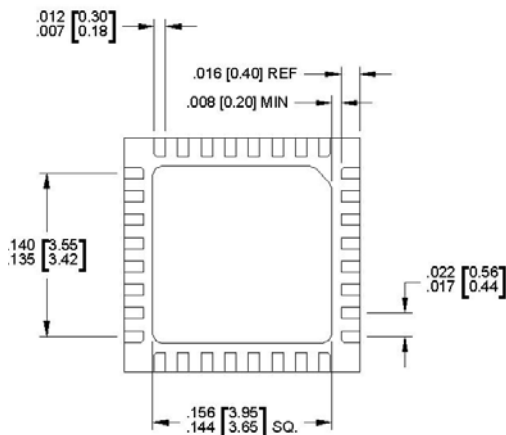
Pin Number	Function
1-3, 7-10, 13-17, 22-28, 30-32	No Connection
5, 11, 18, 20	Ground (or no connection)
19	RF Output ( $f_{out}$ )
12	RF/2 Output ( $f_{out/2}$ ) <sup>Note 1</sup>
4	RF/4 Output ( $f_{out/4}$ ) <sup>Note 2</sup>
6	$V_{cc1}$ for Prescaler
21	$V_{cc}$ for VCO
29	$V_{tune}$

Note 1 It is recommended that RF/2 Output be terminated with a 50 ohm load if not used.

Note 2 DC block must be used at RF/4 output port. 100pf 0402 capacitor is used on ENWV eval boards.

### Outline Drawings

“F” Package – 5 x 5mm, 32 lead



 Electrostatic Sensitive Device  
Observe Handling Precautions

#### Notes:

1. Lead frame material is a copper alloy.
2. Dimensions are in inches (mm).
3. Min and max dimensions indicated.
4. Ground paddle must be soldered to ground. Damage will result if not properly connected.

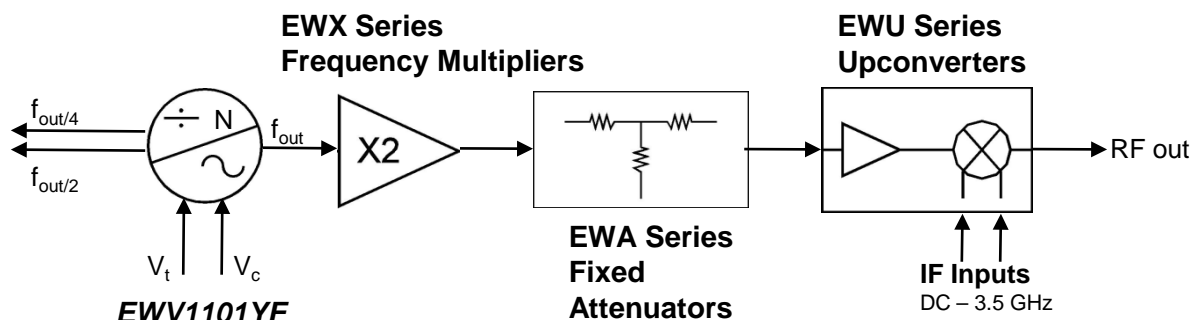
**Absolute Maximum Ratings**

Supply Voltage, $V_{cc}$	+5.5V
Tune Voltage, $V_t$	+0 to +15 V
Channel Temperature	135°C
Continuous Power Dissipation at 25°C	1.32 W
Supply Current, VCO	330 mA
Supply Current, Prescaler	60 mA
Storage Temperature	-65 to +150°C
Operating Temperature	-40 to +85°C

**Typical Supply Current**

$V_{cc}$	$I_{cc}$
4.8 V	237 mA
5.0 V	260mA
5.2 V	283 mA

**Typical Application**



**Support Documentation**

Support documentation including Assembly Notes, Application Notes and Qualification Procedures can be found on our website at [www.endwave.com](http://www.endwave.com).

**Ordering Information**

Part Number	Description
EWV1101YF	RoHS compliant, 5 x 5mm 32 lead, QFN “F” Package
EWV1101YF-EV	EWV1101YF on an Evaluation Board
EWV1101ZZ	RoHS compliant bare die in waffle or gel packs
EWV1101ZZ-EV	EWV1101ZZ in a connectorized test fixture