

## Features

- Designed for Jazz SiGe 60 Process
- On-Chip Inductor
- 2.8 to 3.6 GHz operation
- Phase noise -137 dBc/Hz at 1 MHz offset -100 at 100 kHz offset
- Low phase noise variation with process and temperature
- Automatic-level-controlled output
- Simple integration into existing designs
- 2.7 to 3.6 V operation
- Current consumption 3.3 mA at 3 V

## Applications

- Wireless
- General purpose VCO

## Description

The Kaben KR-VCO-36-JZ60-01 Voltage Controlled Oscillator cell provides a low phase-noise output and the ability to easily integrate into your design. This VCO is a key building block in designing high-performance wireless systems that require fine resolution, low phase noise, high tuning linearity, and low power.

When integrating the VCO into your Jazz SiGe 60 Process SoC, our engineers support your design for system-level integration and verification, fabrication, and maximum re-use. Using proven and characterized cells help in making your SoC designs predictable across many applications.

Although specified from 2.8 to 3.6 GHz, the Kaben VCO cells can be customized to operate over a 20% tuning range between 2 GHz and 6 GHz. The cells are ideal for integration with the Kaben family of synthesizers and are optimized for narrowband wireless systems including Multi-mode radios, cable modems, pagers, two-way radios, satellite receivers, and CDMA systems.

The VCO has low phase noise of -100 dBc/Hz at a 100 kHz offset and -137 dBc/Hz at a 1 MHz offset in the range from 2.8 to 3.6 GHz. This high level of performance is delivered without sacrificing power consumption. The cell operates using 3.5 mA from a 3 V supply and powers down to 0.05 nA.

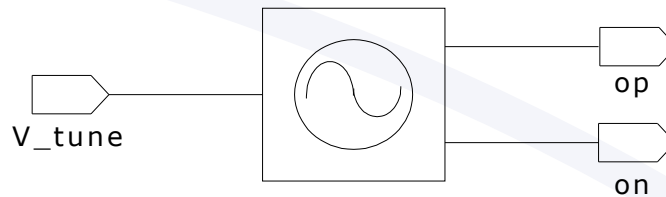
Support can be provided for all phases of the life cycle of your SoC. At the circuit design level, Kaben's Release Kit contains GDSII files, Verilog files, and Cadence™ design libraries containing test benches, schematics, symbols, and cell layouts.

## Options

Options include custom center frequency, additional programmable frequency bands and voltage-mode or current-mode output buffering.

# VCO 2.8 – 3.6 GHz

KR-VCO-36-JZ60-01 Data Sheet



KR-VCO-36-JZ60-01 VCO

## Electrical Characteristics

Parameter	Conditions	Min	Typ	Max	Units
Supply Voltage		2.7	3.0	3.6	V
Total Supply Current	Vcc = 3 V, Temp = 25 °C		3.5		mA
Powerdown Current	Vcc = 3 V, Temp = 25 °C		0.05		nA
RF Output Frequency		2.8		3.6	GHz
VCO Phase Noise with on-chip inductor	100 kHz offset		-100		dBc/Hz
	1 MHz offset		-137		
Output Signal Level	Peak-to-Peak differential across 400 ohms differential		400		mV
Tuning Gain			300		MHz/V
Operating Temperature (Junction)		-40		+85	°C