



### Ring Oscillator

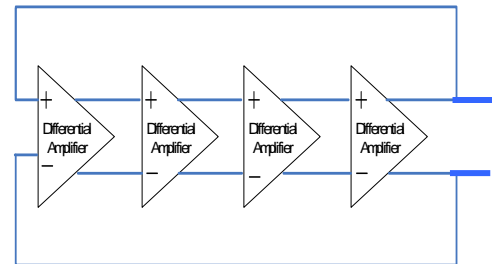
RG01

#### Description

The RG01 is a Ring Oscillator for wide band, Low Phase Noise. In this Ring oscillator frequency range is from 2.2 to 2.8 GHz. The Ring Oscillator designed using the 0.18um CMOS technology.

Post parasitic-extracted layout results verify that the total power dissipation was 1.8 mW (at 2.8 GHz, 1.8 V). In this Ring Oscillator we have used Band Gap Reference to minimize the frequency Drift with temperature and supply variations.

#### Functional Diagram



#### Applications

- PLL
- Mobile Communication
- Frequency Synthesizers

#### Key Features

- Low Phase Noise
- Low frequency Drift with temperature and supply Variations.

#### Electrical Specification

Conditions: Vdd = 1.8 V & TA= -40°C to 125°C

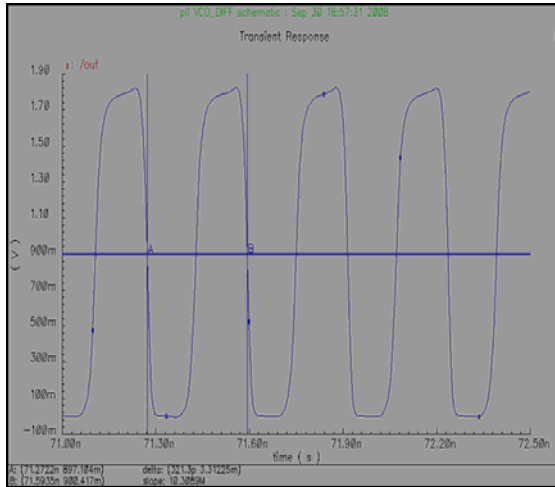
Parameter	Min	Typical	Max	Units
Frequency Range	2200		2800	MHz
Ring Oscillator Gain(Kvco)		680		MHz/V
Tuning Voltage	0.6		1.5	V
Phase Noise	-40@10 KHz offset -100@1 MHz Offset			dBc/Hz
Frequency Drift	<1 MHz up to 125 °C			MHz
Duty Cycle	48	50	52	%
Power supply	1.98	1.8	1.62	V
Current	.	0.9		mA
Output Rise Time (Tr)		75	100	pS
Output Fall Time (Tf)		75	100	pS



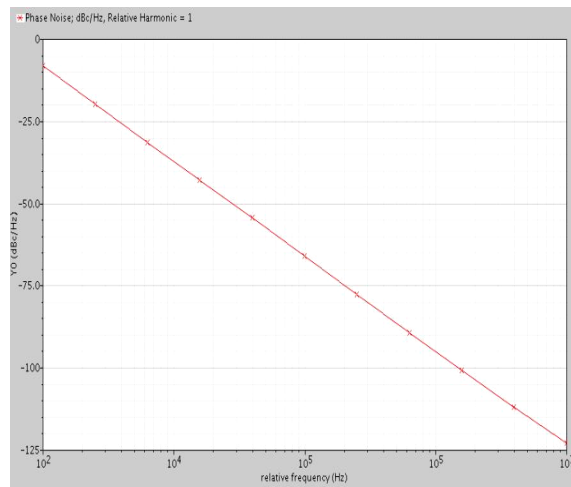
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## Simulation Results



Frequency output at 2800 MHz



Phase Noise

## PIN Diagram

