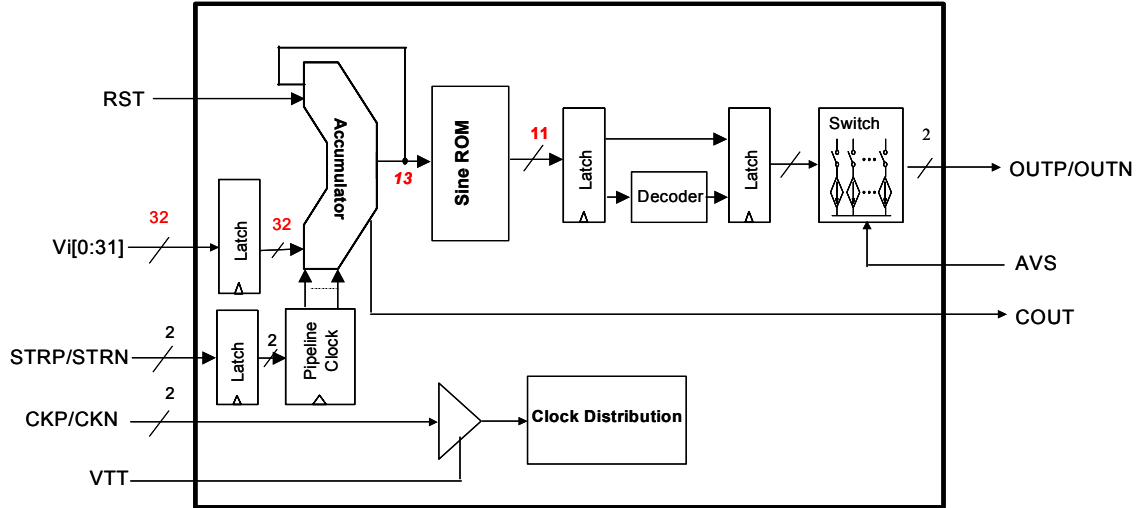


DS856 – High Speed 3GHz Direct Digital Synthesizer



Key Features

- 32-bit frequency tuning word & 13-bit phase resolution
- On chip DAC with 11 bit resolution
- Clock rate up to 3.2 GHz
- Sine wave generation up to 1.6 GHz
- Complementary analog waveform outputs with 50 Ω back terminations
- Worst SFDR > 50 dBc
- LVTTL/CMOS digital frequency word inputs
- Reset pin to initiate phase 0 starting state
- High speed strobe to update the frequency word and DAC output frequency
- High speed strobe inputs to be controlled by micro-controller or DSP chips for real time chirping
- Frequency update rate as fast as 8 clock cycles
- 3.3 W power consumption with a single -5.0V power supply

Applications

- Radar design and testing
- Satellite communications
- VSAT
- Electronic warfare
- Wireless basestations
- RF signal source generation
- Instrumentation and semiconductor testers
- Advanced communication modulations

Description

DS856 is a high-speed Direct Digital Synthesizer (DDS) with a frequency tuning resolution of 32 bits, ROM phase resolution of 13-bit and a DAC amplitude resolution of 11 bits. Sine waves in the 1st Nyquist band can be generated up to near 1.6 GHz (at a 3.2-GHz clock rate). The initial phase can be reset to zero degrees to start with. The chip has a pair of complementary outputs with 50- Ω back terminations. The frequency of output waveforms can be controlled by thirty-two frequency control bits, Vi[0:31]. The **DS856** accepts either differential clock inputs or a single-ended clock input and features 50- Ω on-chip back terminations with user-defined threshold. The frequency resolution bits accept LVTTL or CMOS input levels. Only a single -5V power supply is required.