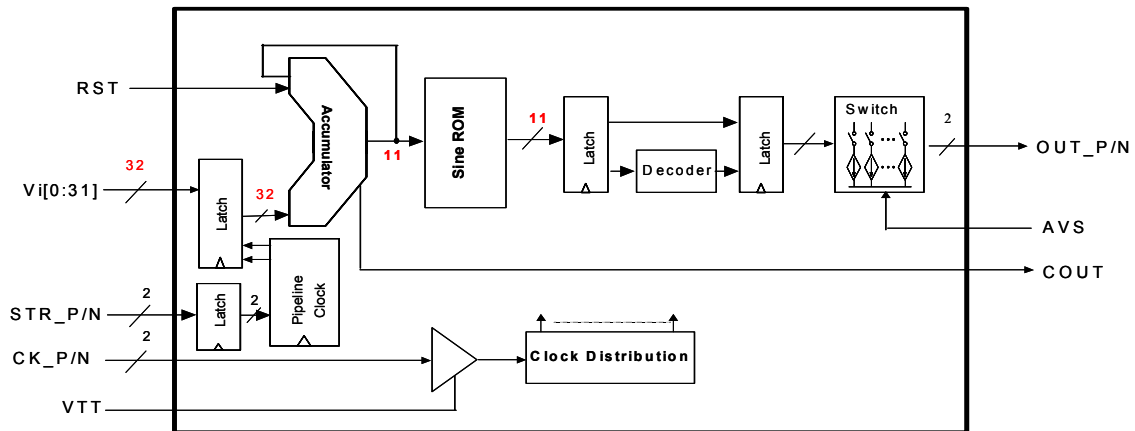


## DS852 – High Speed 2.2 GHz Direct Digital Synthesizer



### Key Features

- 32-bit frequency tuning word & 11-bit phase resolution
- On chip DAC with 11 bit resolution
- Clock rate up to 2.5 GHz
- Sine wave generation up to 1.2 GHz
- Complementary analog waveform outputs with 50  $\Omega$  back terminations
- Worst SFDR > 50 dBc
- LVTTTL/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 allow **DS852** to be controlled by micro-controller or DSP chips for real time chirping function
- Frequency update rate as fast as 8 clock cycles
- 3.0 W power consumption with a single -5.0V power supply
- 64-pin QFN package

### Applications

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

### Description

**DS852** is a high-speed Direct Digital Synthesizer (DDS) with a frequency tuning resolution of 32 bits and an amplitude resolution of 11 bits. Sine waves in the 1<sup>st</sup> Nyquist band can be generated up to near 1.1 GHz (at a 2.2-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- $\Omega$  back terminations. The frequency of output waveforms can be controlled by thirty-two frequency control bits, Vi[0:31]. **DS852** accepts either complementary clock inputs or a single-ended clock input and features 50- $\Omega$  on-chip back terminations with user-defined threshold. The input signals of frequency word accept LVTTTL or CMOS input levels. Only a single -5.0V power supply is required.