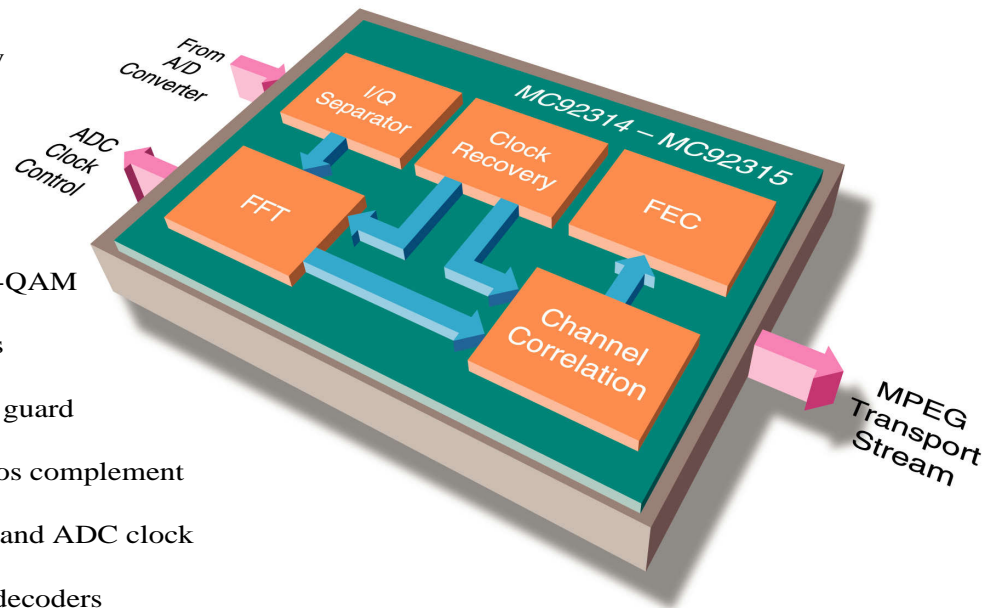


MC92314/MC92315

Integrated OFDM Demodulator for DVB-T Implementation

Feature Set –

- Usable for 8/7/6 MHz channels by adjusting the clock rate
- 2 K and 8 K transmission modes supported by the MC92315 (MC92314 is 2 K only)
- Digital I/Q separation on chip
- Digital AFC on chip
- Supports QPSK, 16-QAM and 64-QAM (non-hierarchical for the MC92314)
- Supports all guard interval lengths (1/32, 1/16, 1/8, 1/4)
- Automatic locking to any DVB-T guard interval
- Accepts 8-bit TTL-compatible twos complement and offset-binary data input
- Provides control signals for AGC and ADC clock frequency control
- DVB Reed-Solomon and Viterbi decoders
- Channel estimation and correction using the pilot carriers
- 3.3 V operation for the MC92314, 1.8 V for the MC92315
- Each part is pin compatible in a 160 QFP



MC92314/MC92315 Block Diagram

The MC92314 is a DVB-T (Digital Video Broadcast-Terrestrial) compliant demodulator for a 2 K transmission mode according to the ETSI specification for digital terrestrial broadcasting. The MC92315 device is a pin-for-pin version of the MC92314 which supports the 8 K transmission mode as well. This two-part option allows for flexibility in cost for system designs without spending resources on engineering.

Both devices are derived from three 1st generation DTV parts: FFT, OFDM demodulator and FEC. The OFDM block combines an effective I/Q demodulator with active, real time control blocks for AFC and AGC on the input. The FFT block performs either a 2 K or 8 K (MC92315) length Fourier Transform and has a selectable output accuracy of 10 or 12-bit. The FEC combines a DVB Reed-Solomon decoder, a Viterbi decoder and error monitoring and bit-setting while allowing an output MPEG-2 Transport Stream rate of up to 37 Mbit/s.

The MC92314/MC92315 has been designed with system effectiveness in mind. Multi-path signals (which cause ghosting), signal strength conditions (which cause distortion to the picture) and many other artifacts need to be considered in a terrestrial design. The MC92314/MC92315 combines a high-performance, active front end along with a precise FFT which allows the DVB-T system to operate normally under the worst conditions.

Operational interface is provided via a I²C bus protocol. Operation is simplified by having the device preconfigured such that only minimal set up programming is required.

Motorola was the first to market the DVB-T demodulation technology and has provided its customers with a migration to more cost effective solutions. Today, Motorola provides a promising road-map, with state-of-the-art manufacturing capabilities, making them an attractive partner for the future.