

# Product Brief

## SQC 6100

### Terrestrial Receiver for DVB-T



The SQC 6100 is a Digital Terrestrial Receiver Device which is fully compliant with the standard DVB-T (ETSI 300 744) standard for terrestrial transmission systems.

The SQC 6100 integrates all analog and digital data processing functions from the second intermediate frequency input to the transport stream output.

# SQC 6100

#### Applications

- Digital terrestrial TV sets
- Digital terrestrial STB's
- Portable and mobile terrestrial receivers

#### System Integration

- Second intermediate frequency input
- DVB-compliant transport stream output
- Single free running oscillator (nominal 28.9 MHz)
- Four general purpose I/O's, including two PDM's
- I<sup>2</sup>C-bus interface
- Two interrupt (IRQ) pins
- 3.3V power supply
- TTL compatible I/O's
- P-MQFP-100 package

#### Features

- Fully compliant to DVB-T and ETSI 300 744
- 2k/8k-COFDM
- 6, 7, 8 MHz channels
- All code rates according to DVB-T
- All modulation schemes according to DVB-T
- All guard interval lengths according to DVB-T
- BER measurements
- On-chip FEC

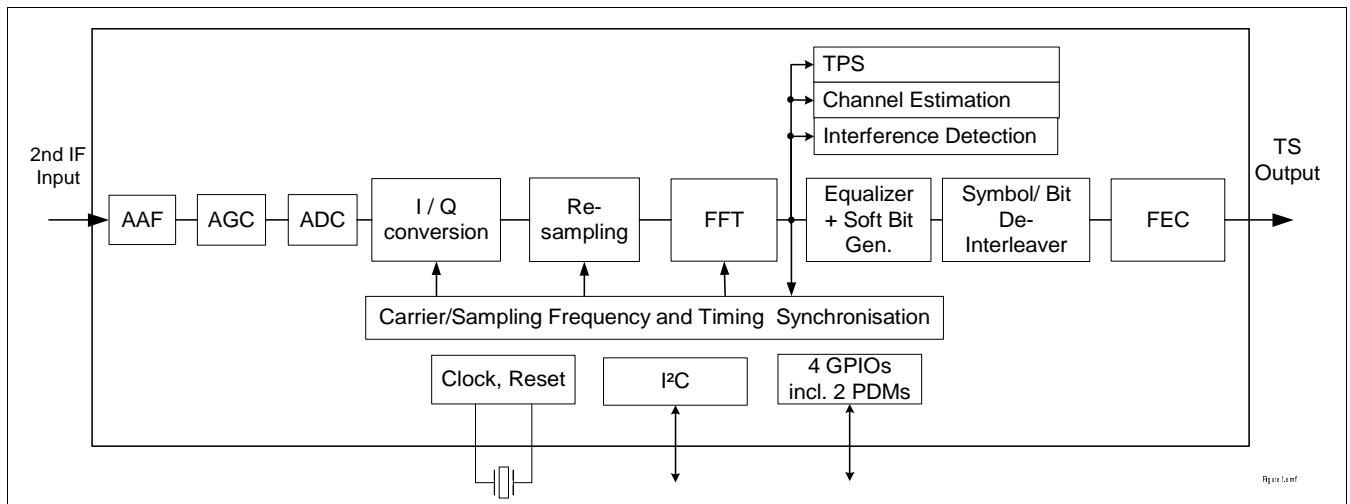
#### Benefits

- Fast acquisition and tracking modes
- Low implementation losses
- Pre-echo tolerant
- Time varying channel tolerant
- Small outline

- Minimum external components

#### Technology

- Internal anti-alias filter
- On-chip AGC
- On-chip ADC for 2K/8K COFDM
- Digital demodulation and channel decoding
- Entirely digital synchronisation on chip
- Based on Infineon mixed-signal technology and embedded DRAM technology
- P-MQFP-100 package



## Processing Internals of the Single-Chip Terrestrial Receiver SQC 6100

A second intermediate frequency of 7.225 MHz typical is fed into the SQC 6100 Single-Chip Terrestrial Receiver. Unwanted spectral components are suppressed by the internal anti-alias filter. The AGC ensures optimal use of the analog-to-digital converter. The I/O conversion mixes the signal to the baseband. A resampling unit fits the baseband signal to the sampling rate of the FFT. Coarse estimation for positioning the guard interval is provided to align the FFT window. Pilot carriers are used to fine tune the FFT. The TPS unit retrieves the parameters for demodulation. Channel estimation is used to interpolate in time and frequency dimensions. The interference detection unit uses scattered pilots in parallel to detect co-channel interference such as caused by analog TV. This unit corrects the data carriers and produces 4-bit wide soft bits. Symbol and bit de-interleaver feeds the datastream into the FEC. The datastream is accessible via transport stream output in serial and parallel modes.

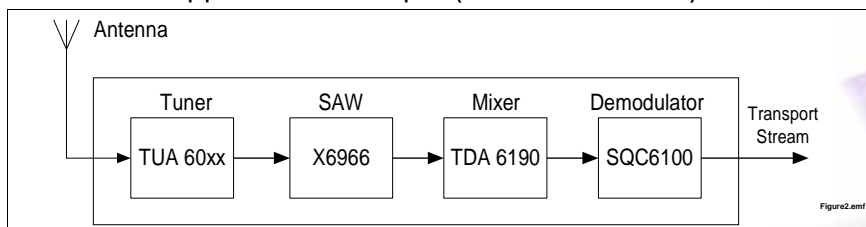
The entirely digital clock and timing concept are based on a free running oscillator. The status of the SQC 6100 can be monitored via the I<sup>2</sup>C-bus. Four general purpose I/O's are provided, including two pulse density modulators.

## Availability

The SQC 6100 device is available with complete documentation.

Please contact your local Infineon Technologies office for further details.

## SQC 6100: Application Example (Terrestrial Tuner)



An antenna receives the digital terrestrial signal. The tuner selects, filters, and mixes the carrier (program) down to a first IF of 36.125 MHz typical. Adjacent channels are suppressed by SAW-filters. A second mixer shifts the spectrum to the second IF. The SQC6100 provides analog filtering and digital processing of the channel information. Output is the transport stream.

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