

ZTE-C S170 is a mobile phone, which is based on the solution of QUALCOMM Single Chip QSC1100. The baseband, radioOne RF, and power management is integrated in the QSC1100 device. The main parts of ZTE-C S170 are QSC1100, FLASH, LCD, KeyPad and UIM card. FLASH is M36W0R6050U4ZSE W0. It is the MCP (64Mb FLASH & 32Mb PSRAM). Dots of LCD is 128*128.

The RUIM is a smart card for CDMA cellular applications; it provides personal authentication information that allows the mobile station or handset to be connected with the network. The RUIM card can be inserted into any CDMA RUIM equipped handset to enable its user to receive or make calls and receive other subscribed services, thus enabling more handset independence for the user. The internal power management circuits, UIM circuit, and UIM pads allow for implementing 1.8V OR 2.85 V cards via a direct connection.

The QSC1100 device includes most of the active RF and LO functions for low cost CDMA wireless handset applications. It is organized according to function: RF receive signal path, Rx LO circuits, RF transmit signal path, and Tx LO circuits. The cellular CDMA receiver is supported and largely implemented by the QSC1100 device. The handset antenna collects the base station forward link signals and radiates the handset reverse link signal. The antenna interfaces with receive and transmit paths through a duplexer that exploits their frequency spacing to separate them from one another. The receive signal is routed from the duplexer to the QSC cellular LNA through a matching network (MN) that optimizes the power transfer into the LNA. The four-gain state LNA is followed by an external bandpass filter that suppresses out-of-band received signals and handset transmitter leakage. Suppression must be adequate to ensure cross-modulation products do not severely degrade receiver performance under jammed conditions. The LNA output impedance is matched to this filter, which provides a single-ended to differential transformation for compatibility with the differential downconverter input. A carefully controlled differential match is required between the filter and the downconverter input to maintain the QSC device's high common-mode rejection and second-order intermodulation performance. The downconverter's RF circuitry includes two gain states that supplement the LNA gain

steps to further extend the receiver dynamic range. The quadrature downconverter translates the RF signal directly to baseband, producing two analog outputs: in-phase (I) and quadrature (Q). The baseband signals are routed to lowpass filters whose passband and stopband characteristics are optimized for the CDMA waveform. Both filter outputs are buffered and routed to analog-to-digital converters for digitization. The digital baseband outputs are routed to QSC baseband circuits for further processing.

Cellular CDMA handsets implemented using the QSC1100 device include a single RF transmitter, much of which is contained within the device. The RF transmit path begins with the analog I and Q differential baseband signals from the device's baseband circuits. These baseband signals are lowpass filtered and amplified to levels sufficient for driving the quadrature upconverter. The transmitter LO signals are generated by circuits, and delivered to the upconverter circuits at the correct frequency, with the proper phase relationship, and with adequate drive level. The upconverter's output is at the desired RF channel frequency and drives the QSC output stages. These RF circuits include multiple variable gain stages that provide transmit AGC control. Greater than 85-dB gain control range is realized using a pulse density modulated(PDM) signal from the baseband circuits that is lowpass filtered to generate the necessary analog control signal. The wide range of driver amplifier output levels is achieved while supporting the CDMA2000 standard's requirements for ACPR, spurious emissions, Rx-band noise, etc. A single driver amplifier output is sufficient for all cellular applications. This Tx output has a differential configuration that includes some integrated matching components; additional external matching components are required to achieve the desired 200- Ω differential nominal output impedance. The driver amplifier ends the signal path circuitry within the QSC1100 device, but the transmit path continues by routing the QSC Tx output to a bandpass filter whose center frequency is suitable for the specific band supported by the handset. This filter passes the transmit channel power while suppressing wideband noise, spurs, harmonics, and other undesired out-of-band spectra. Next, the power amplifier boosts the channel power to the desired level. A coupler provides a

low-level sample of Tx power that is routed to a temperature detector circuit that generates an analog indication of output power for the baseband circuits. This assists the software in setting the transmit gains and assuring the maximum allowed output power is not exceeded. The transmit signal continues through the duplexer's Tx port to the antenna port; the duplexer provides filtering and separates the Tx and Rx signals present at the antenna. And finally, the antenna collects the cellular CDMA forward link signals and radiates the handset reverse link signal.

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