Description

The AK2393 is a MODEM IC for Personal Handy phone System and corresponds to the standard for second-generation cordless telephone systems (RCR STD-28). The modulation part is composed of a base band filter for band limitation (root Nyquist roll-off filter), differential logic circuit, D/A converter, etc. The demodulation circuit is composed of the differential demodulation circuit, the bit synchronization circuit, the clock recovery circuit, etc. The AK2393 additionally includes the RSSI circuit, AFC circuit, three PLL synthesizers, and an D/A converter for APC, and size reduction for the mobile handset can be realized easily.

Features

Modulation Part

- Transmission speed: 384 kbps
- Roll-off filter (digital filter + analog filter)
  - Root Nyquist characteristic $\alpha = 0.5$ (Japan)
  - Pass band (3 dB) 96 kHz
  - Stop band attenuation 60 dB or more (600 kHz detuning)
    65 dB or more (900 kHz and more)
- Modulation accuracy 3% rms or less
- Built-in ramp response circuit
- Built-in D/A converter
- Built-in output level adjustment circuit
- Built-in DC offset voltage adjustment circuit
- Built-in differential logic circuit corresponding to the π/4 shift QPSK modulation

APC Part (power control)

- Built-in 10 bit DAC for level setting
- Built-in 10 bit DAC for level control

Demodulation Part

- IF input frequency: 10.8 MHz, 1.5 Vp-p
- Differential demodulation
- Built-in clock recovery and bit synchronization circuit

RSSI part

- Built-in gain/offset adjustment circuit
- 8 bit ADC
- 3 comparators

Synthesizer Part

- Built-in PLL (high-speed tie-up characteristic) for 1st local
- Built-in PLL for 2nd local (2 systems)

Others

- Built-in reference voltage generation circuits
- Master clock 19.2 MHz
- Low power supply voltage operation 2.7 to 3.3 V, single power supply
- Package 100 pin TQFP

Block Diagram