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Product Brief

TC35890XBG – General I/O Pin Expander Solution for Mobile Applications

Highlights

- Enables I/O expansion of baseband processors by providing up to 24 general-purpose I/O pins at the location where needed.
- Connects complex keypad to baseband processors from 2 x 2 to 8 x 12 keypad configurations and expands your mobile phone with up to 96 keys.
- Enables connectivity for various mechanical designs such as additional glue logic to phone and rotator wheel interfaces.
- Three independent versatile timers can be programmed to generate modulated PWM signals without interaction with the host processor during runtime.

Description

Designated TC35890XBG, this IC addresses mechanical and electrical challenges that arise during the design of a high-end clamshell mobile phone or advanced feature phone such as Smartphones or even PDAs. Typical baseband or application processor packages are kept at a minimum pin count. Very often pin multiplexers have to be incorporated into the processor compromising functionality or flexibility with respect to the cost. Moreover signals of the main processors must often be transported over a mechanical hinge to remote areas of the mobile phone. The number of wires being routed over these hinges should be minimized due to the mechanical properties of the hinge. TC35890XBG overcomes those limits. Its flexible expansion capabilities make it particularly useful for entire platform roadmaps with different functional extensions for each member of the platform family.

Features

Low-power Features

- Operates from low frequency clock source, 32 kHz, optional up to 20 MHz
- Power supply range, 1.7V to 3.6V
- Three different power modes for minimum power consumption
- Power watchdog
- Low leakage process technology

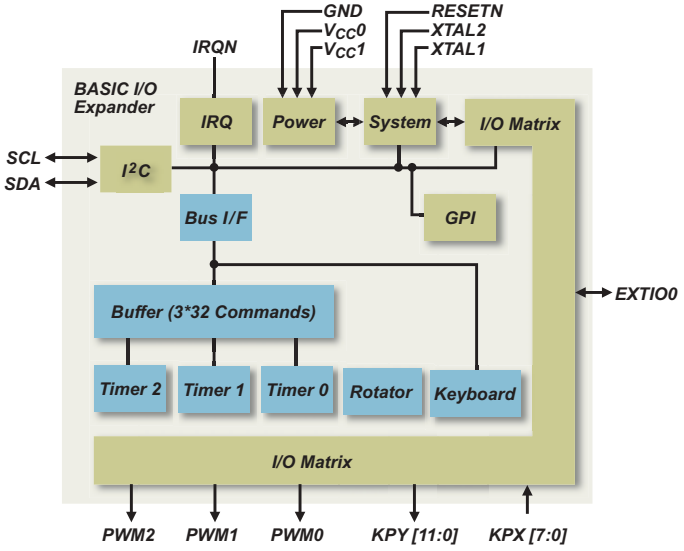
Twenty-four Configurable Input/Output Ports

- Open drain configuration
- Programmable pull up/down resistors
- Programmable drive strength
- Schmitt trigger inputs
- Asynchronous interrupt generation
- Separate voltage supply for three dedicated I/Os

Three Cascable 32-bit Timers

- PWM with programmable aspect ratio
- µSequencer to generate PWM ramping without interaction of the host processor
- Watchdog functionality
- One-shot perpetual interrupt generation

TC35890XBG Block Diagram



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I²C Slave

- Transmission speed up to 400 kHz
- Configurable slave address

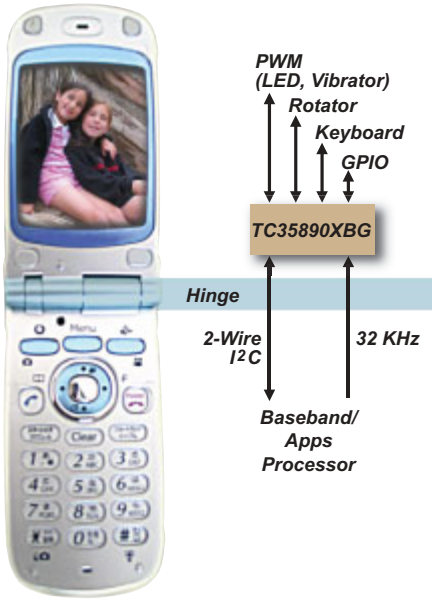
Failsafe Operation

- Failsafe operation for I²C, Interrupt, Reset and Clock

Package

- 36-pin 0.5 ball pitch package
- P-TFBGA36–0505–0.50
- Maximum height: 1.2 mm, 5 x 5 mm²

TC35890XBG Application Block Diagram



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