

GW7120

Smart Ultrasonic Sensor SoC with LIN Interface

Description

The GW7120 is a device that combines an integrated microcontroller and an analog front end to provide ultrasonic range detection using a minimal number of components. Its pulse-width modulation (PWM) output allows for programmable bursts ranging from 30kHz to 80kHz to be sent to a single ultrasonic transducer connected through a center-tapped transformer. With the use of supported transducers, this device enables distance measurement between 30cm and 5m, achieving a resolution of 1cm.

By utilizing internal components such as a programmable gain amplifier (PGA), a 12-bit analog-to-digital converter (ADC), digital filters, an envelope detector, and a peak detector, the desired measurement range and resolution can be achieved. Additionally, the device includes an internal temperature sensor and ADC for reading operating temperature information.

The device includes a 16KB embedded Flash memory for storing application-specific program and data, while a 2K SRAM is available for storing data required for signal processing purposes.

The GW7120 offers various communication interfaces, including LIN, UART, and I2C, making it convenient to connect with a host device.

Features

- Analog Front End integrated stand-alone Ultrasonic Park Assist Solution
- PWM output driver for Ultrasonic Transducer
- Programmable Transducer Power
- Programmable Receiver Sensitivity
- Digital Filtering and Signal Processing including Envelope Detection
- Adjustable Burst Length and Filter Bandwidth
- Internal Oscillator
- LIN 2.x interface
- 8bit CPU with 16MHz Clock
- 16K Flash memory for application program
- 2K SRAM
- Fast Calibration Data and Program Update via

LIN interface

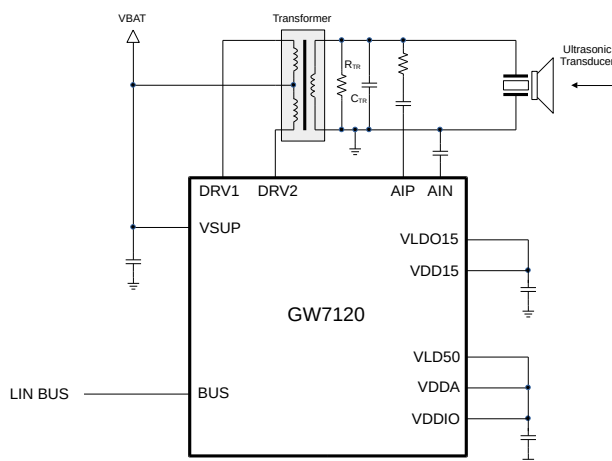
Physical Characteristics

- Operating voltages
 - External supply voltage: 8V ~ 18V
 - I/O supply voltage: 5V
 - Analog core voltage: 5.0V
 - Digital core voltage: 1.5V
- Operating temperature: -40°C ~ 105°C (AEC-Q100 Grade 2)
- Available in 5x5 0.4mm pitch 40-QFN package

Typical Applications

- Ultrasonic Park Assist Systems
- Blind Spot Detection
- Industrial Distance Measuring
- Robotics

Basic Application Diagram



Block Diagram

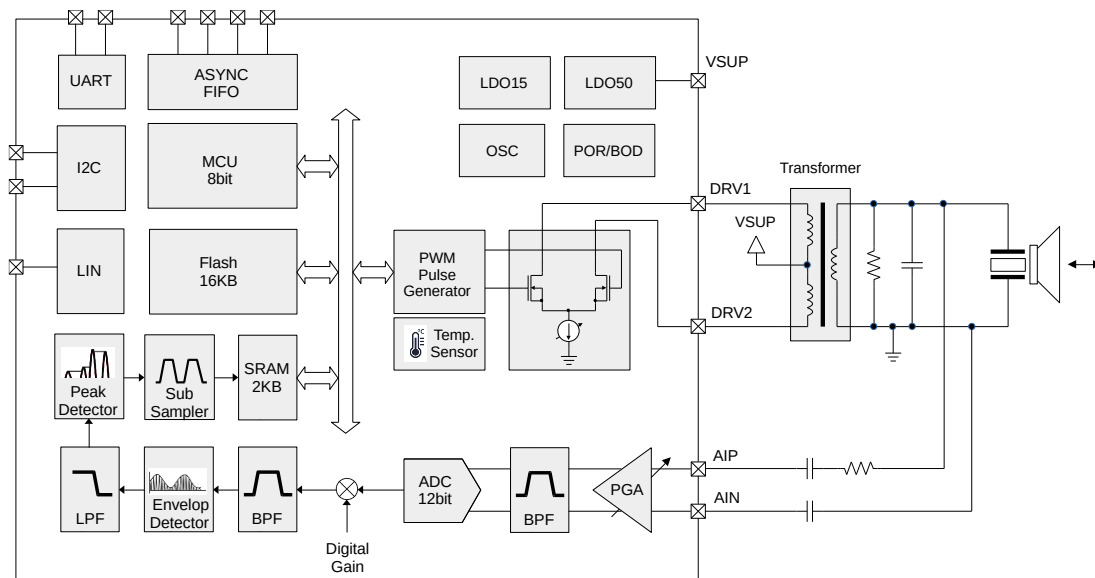
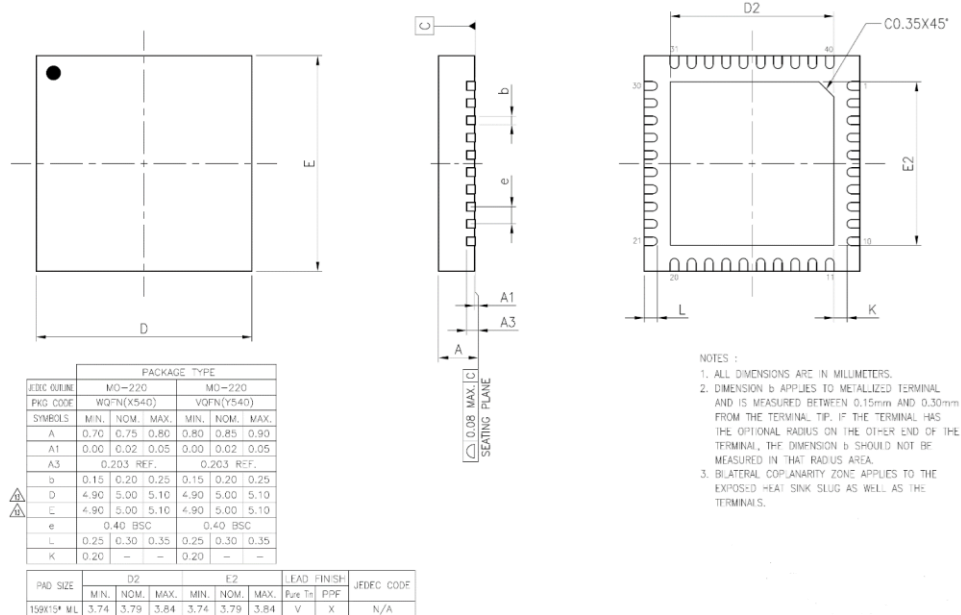


Figure 1 Functional Block Diagram of the GW7120

Package Information



Ordering Information

Device name	Package	Remark
GW7120_Q40A	40QFN, 5x5, 0.4 mm pitch	QFN40, Automotive
GW7120_Q40I	40QFN, 5x5, 0.4 mm pitch	QFN40, Industrial

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