DIGITAL ULTRASONIC TRANSCEIVER DRIVER AND SIGNAL PROCESSOR E524.03

PRODUCTION DATA - APR 04, 2012

RoHS compliant

Features

- Minimum Component Ultrasonic Park Assist Solution
- Single Transceiver Architecture
- Programmable to transducer frequencies 40kHz to 58kHz
- Supports “Receive Only” Mode
- High Sensitivity and Low Noise Down to 0.5µVRMS
- Driver Power and Signal Gain Programmable
- Digital Filtering and Signal Processing
- 14 Programmable Threshold / Time Settings for Echo Envelope Evaluation
- One Wire I/O to Program and Receive Echo Signal
- Embedded EEPROM to Store Settings
- Automotive Supply and I/O Protection
- AEC-Q100 Qualification

Applications

- Ultrasonic Park Assist (USPA)
- Industrial Distance Measuring
- Robotics

General Description

The E524.03 offers ultrasonic range detection with minimum component count.

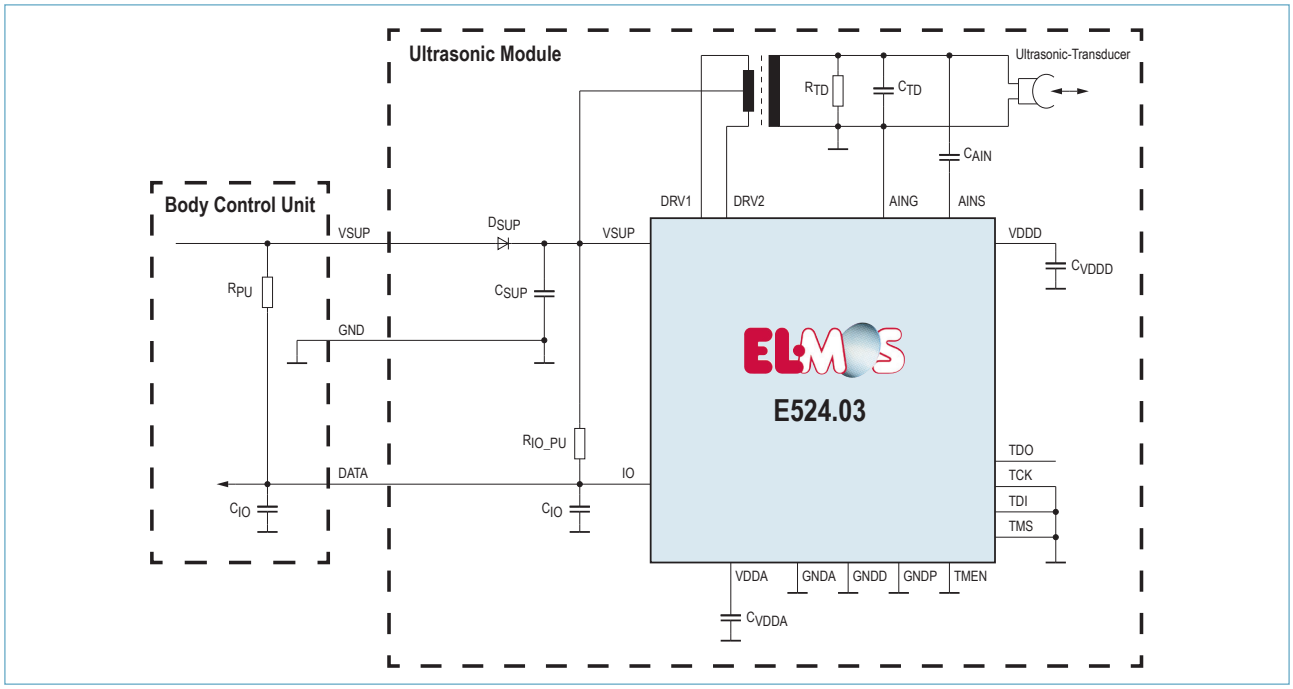
In transmit mode, the IC drives a center tapped transformer directly. Driver frequency, transmitted burst power and other parameters are user configurable and stored in embedded EEPROM via a single wire IO pin at assembly. The device features settings for short and long distance measurement.

In receive mode, the echo signal is first amplified with a programmable gain amplifier and converted by an internal analog-to-digital converter. The signal is subsequently digitally filtered and compared. Comparator thresholds are adjustable via registers for defined interval lengths within a measurement period. The resulting signal is available at pin IO for the hosting BCU. A “Receive Only” mode enables the reception of indirect echos. The E524.03 interfaces with the BCU via one dedicated line.

Ordering Information

Product ID	Temp. Range	Package
E524.03	-40°C to +85°C	QFN20L4

Typical Applications Circuit



ELMOS Semiconductor AG reserves the right to change the detail specifications as may be required to permit improvements in the design of its products.

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