CCE4510

IO-Link Master Phy with Integrated Frame Handler

IO-Link is a standardized, serial, bi-directional point-to-point connection for signal transmission and power supply under any networks, fieldbuses, or backplane buses. The CCE4510 is a highly integrated IO-Link Master Phy IC providing two IO-Link compliant channels with 1A peak driving current. The built-in IO-Link hardware frame handler significantly improves application performance by automating most of the lower layer communication tasks. By reducing the micro controller load, CCE4510 frees up valuable processing bandwidth enabling developers to add greater value by running additional processor-intensive tasks without the need for higher performance micro controllers. Alternatively, developers can reduce system cost by using less capable micro controllers without reducing overall performance.

CCE4510 supports a wide supply voltage range from 8 to 32V with integrated over voltage detection as well as high current and temperature protection. Flexible configuration options are available with QFN48 7x7mm and QFN24 4x4mm optimised package variants.

CCE4510 provides the perfect solution for 2/4/8/16 port IO-Link master applications connecting IO-Link compliant industrial sensors and actuators.

Features

- Two IO-Link compliant channels with 1 A peak driving current
- Hardware frame handler (support for all IO-Link v1.1 frame types)
- Fully IO-Link v1.1 compliant
- Wide voltage range 8-32 V
- Transceiver mode
- Integrated UART (COM1-3)
- Completely automated wake-up procedure for master
- Two status LED drivers
- Synchronization features for IO-Link channels and LEDs over multiple chips
- Includes NMOS gate drivers to switch power supply of devices
- Supports feed through of clock
- Temperature and supply voltage monitoring and protection
- Overload protection for channels and connected devices
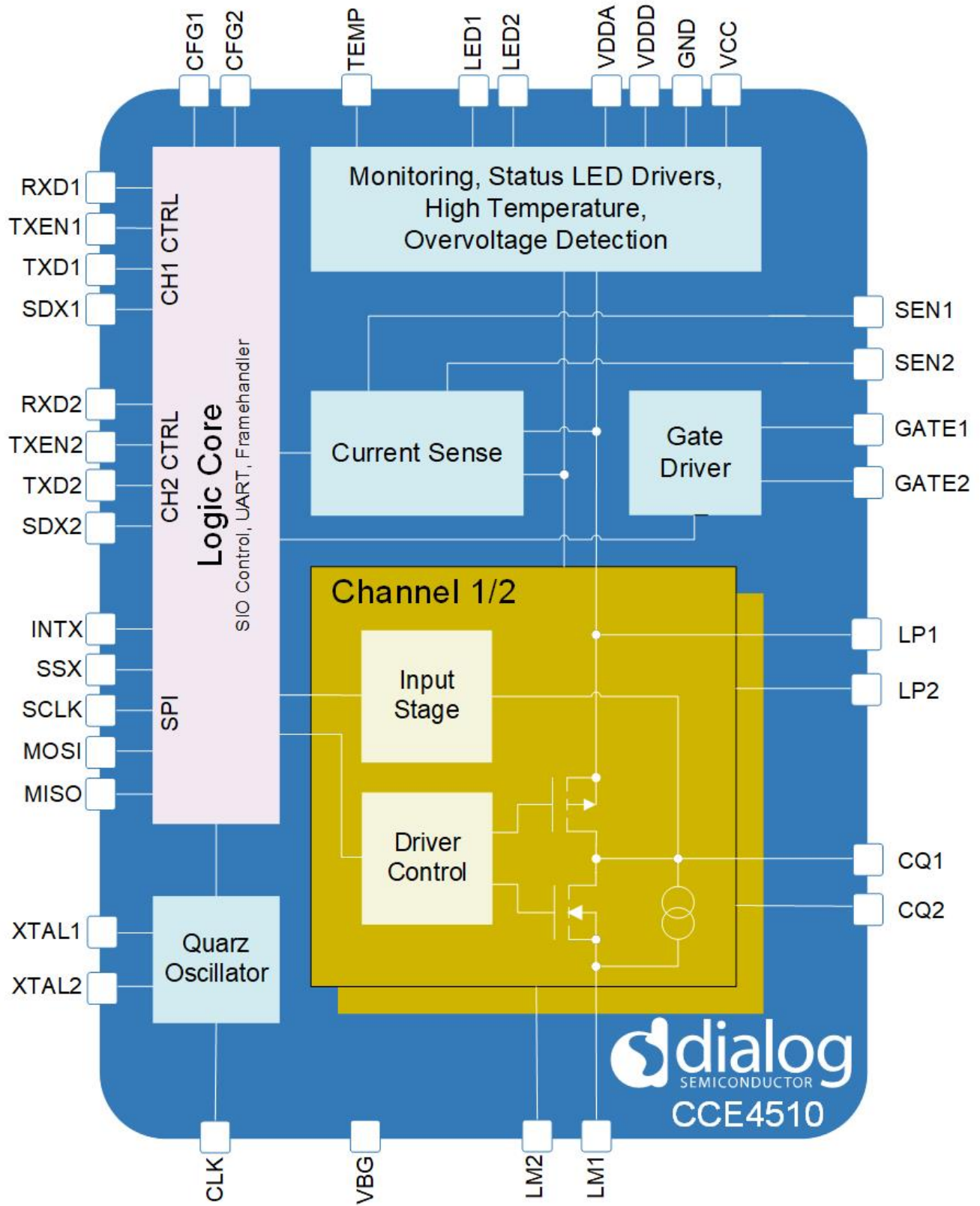- QFN48, 7x7mm and QFN24, 4x4mm package options

Benefits

- Reduced processor loading with integrated Frame Handler
- Flexible configuration supporting Master or Device
- Full compatibility with industry standard software stack (TEConcept)
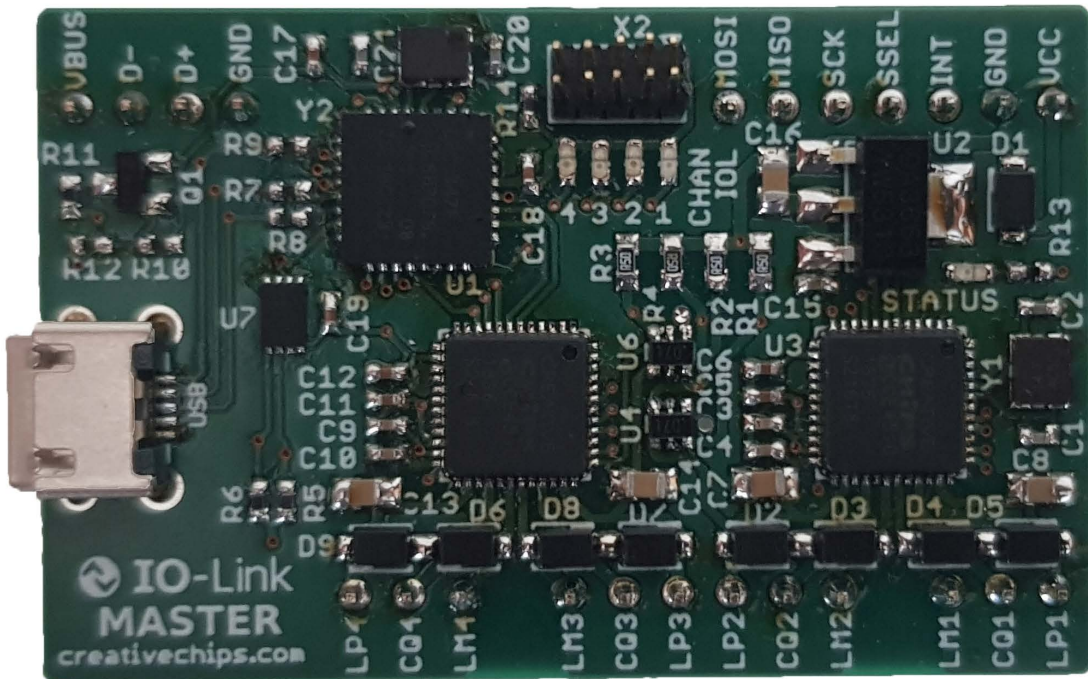- Optimized for 2/4/8/16 port IO-Link master applications

Applications

- Industrial Profibus / IO-Link Network
- Industrial automation
    - Sensors
    - Actuators
    - Hubs
- High voltage level shifter

Block Diagram

Block diagram of the Dialog Semiconductor CCE4510, showing input pins (CFG1, CFG2, TEMP, LED1, LED2, VDDA, VDDD, GND, VCC), CH1 CTRL / CH2 CTRL Logic Core (SIO Control, UART, Framehandler), SPI, Quarz Oscillator, Monitoring, Status LED Drivers, High Temperature, Overvoltage Detection, Current Sense, Gate Driver, Channel 1/2 with Input Stage and Driver Control, and pins RXD1, TXEN1, TXD1, SDX1, RXD2, TXEN2, TXD2, SDX2, INTX, SSX, SCLK, MOSI, MISO, XTAL1, XTAL2, SEN1, SEN2, GATE1, GATE2, LP1, LP2, CQ1, CQ2, CLK, VBG, LM2, LM1.

IO-Link Evaluation Boards

It is quick and easy to incorporate CCE4510 into an IO-Link system with the availability of a full evaluation board.

- Four active channel IO-Link Master reference design using two CCE4510 controlled by a single Cortex M3 processor
- Controlled via USB Interface or SPI Port
- Including 128 kbit EEPROM and four LED indicators
- IO-Link Physical Layer test available
- Compatible with CCE4502 evaluations boards providing an end-to-end system solution

Dialog Semiconductor Worldwide Sales Offices

www.dialog-semiconductor.com email:info@diasemi.com

United Kingdom
Phone: +44 1793 757700

The Netherlands
Phone: +31 73 640 88 22

Japan
Phone: +81 3 5769 5100

Singapore
Phone: +65 648 499 29

Korea
Phone: +82 2 3469 8200

Germany
Phone: +49 7021 805-0

North America
Phone: +1 408 845 8500

Taiwan
Phone: +886 281 786 222

Hong Kong
Phone: +852 3769 5200

China (Shenzhen)
Phone: +86 755 2981 3669

China (Shanghai)
Phone: +86 21 5424 9058