



Analog, Mixed-Signal and Power Management

MC10XSC425

Quad High Side Switch—Dual 10 mΩ, Dual 25 mΩ

Target Applications

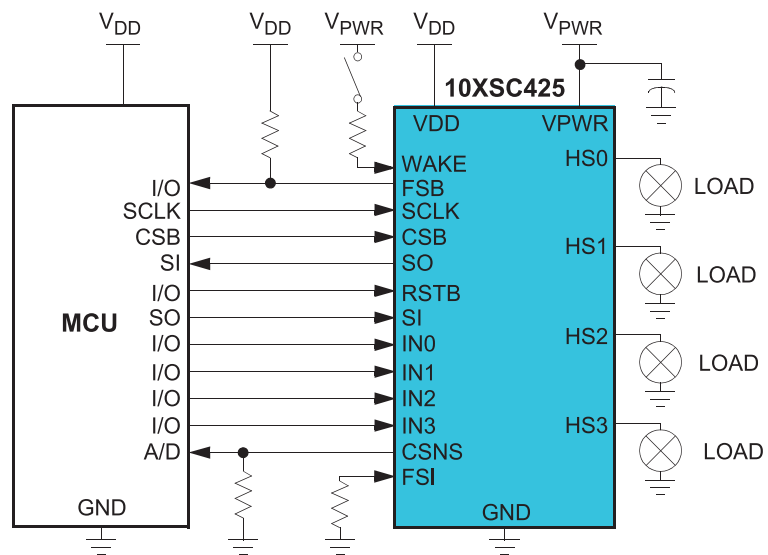
- Low-voltage industrial lighting
- Halogen bulbs
- Incandescent bulbs
- Light-emitting diodes (LEDs)
- HID xenon ballasts
- Low-voltage factory automation

Overview

The MC10XSC425 is one in the family of devices designed for low voltage-lighting or factory automation applications. Its four low $R_{DS(on)}$ MOSFETS (dual 10 mΩ/dual 25 mΩ) can control four separate 55 W/28 W bulbs and/or xenon modules and/or LEDs, and/or DC low voltage motors.

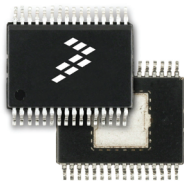
Programming, control, and diagnostics are accomplished using a 16-bit SPI interface. Its output with selectable slew-rate improves electromagnetic compatibility (EMC) behavior. Additionally, each output has its own parallel input or SPI control for pulse-width modulation (PWM) control, if desired. The MC10XSC425 allows the user to program via the SPI port the fault current trip levels and duration of acceptable inrush current. The device has a fail-safe mode to provide fail-safe functionality of the outputs in case of damage to the MCU.

Simplified Application Drawing



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Expanding on more than 30 years of innovation, Freescale is a leading provider of high-performance products that use SMARTMOS technology combining digital, power and standard analog functions. Freescale supplies analog and power management ICs that are advancing the automotive, consumer, industrial and networking markets. Analog solutions interface with real world signals to control and drive for complete embedded systems.



EK SUFFIX (Pb-FREE)
98ASA00368D
32-PIN SOICW-EP

MC10XSC425

Features	Benefits
Four protected 10 mΩ and 25 mΩ high side switches (at 25 °C)	Offers the possibility to drive up to four different kinds of loads separately
Operating voltage range of 6.0 to 20 V with standby current < 5.0 μA, extended mode from 4.0 to 28 V	Optimized consumption with its low-power mode
8.0 MHz 16-bit 3.3 V and 5.0 V SPI control and status reporting with daisy-chain capability	Easy interface to MCU for diagnostics and programming
PWM module using external clock or calibratable internal oscillator with programmable outputs delay management	Programmable slew rate offers the possibility to optimize EMC performance and power loss during commutation
Smart overcurrent shutdown, severe short-circuit, overtemperature protections with time limited autoretry, and fail-safe mode in case of MCU damage	Device is fully protected against unexpected external conditions
Output OFF or ON open-load detection compliant to bulbs or LEDs (<10 mA) and short to battery detection. Analog current feedback with sectable ration and board temperature feedback	Analog diagnostics with high precision for advanced monitoring

Development

Part Number	Description
KIT10XS3425EVBE	Evaluation Board - Contact Freescale Sales

Documentation

Freescal Document Number	Title	Description
MC10XSC425	Quad High Side Switch (Dual 10 mΩ, dual 25 mΩ)	Data sheet
SG1002	Analog Product Selector Guide	Selector guide
SG200	Analog and Power Management Industrial Selector Guide	Selector guide

For more information, please visit freescale.com/analog

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