

VIPower M0-9 technology

Smart high-side switches with 24-bit SPI interface



First automotive intelligent high-side drivers with digital current sensing, integrated PWM generation and fully digital on-chip diagnostics

Designed to meet the needs of smart vehicles with new zonal architectures for increasingly advanced functions, VIPower M0-9 devices integrate new features including ADC, PWM engine, priority manager, and SPI interface in a cost-effective QFN package.

Based on the latest generation of VIPower M0-9 technology with 40V trench vertical MOSFETs, this new series offers smarter devices able to handle and monitor the increased quantity of data required for increasingly complex advanced driver assistance systems (ADAS) and autonomous driving requirements.

KEY FEATURES

- 24-bit, 4-wire SPI interface
- 10-bit ADC with high current accuracy
- 10-bit PWM engine
- Priority management unit
- Advanced limp home functions with two OTP programmable direct inputs
- Deep cold cranking capability
- AEC-Q100 qualified
- AUTOSAR compliant

KEY BENEFITS

- Reduces PCB space
- Cost-effective system design
- Reduced MCU workload
- Reduced MCU resources (I/O and ADC)
- MCU independent software
- Enhanced diagnostics

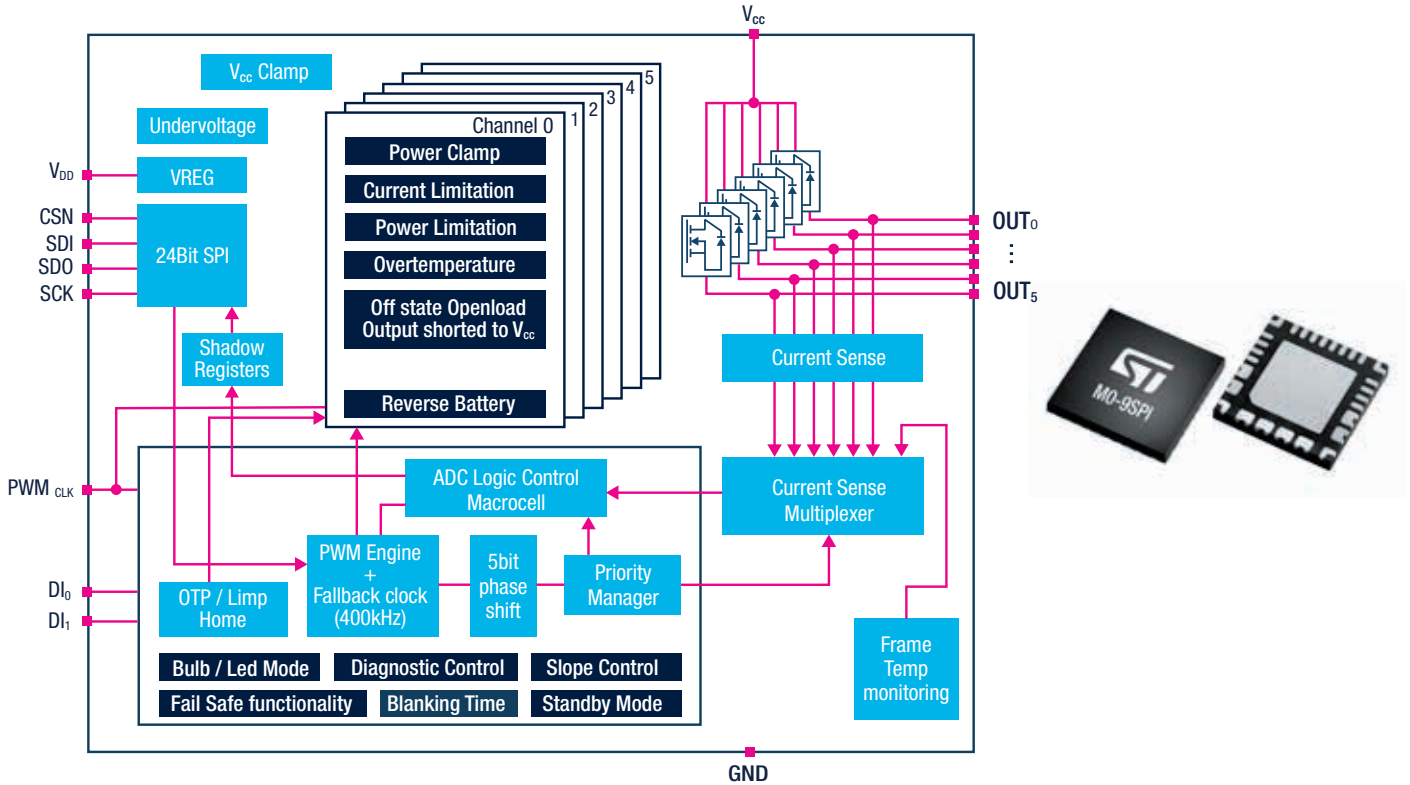
KEY APPLICATIONS

- Body control module (BCM)
- Power distribution
- Lighting (LED and conventional)

A new way to think of SMART driving

Designed for high-side connections in applications powered from a 12V battery, these intelligent high-side drivers simplify the hardware and software design of electronic control units (ECUs) and enhance system reliability. The integrated pulse-width modulation (PWM) generator and priority management unit, with channel conversion arbitration and synchronization, provides a convenient and precise control signal at each output to handle functions. Moreover, these new devices simplify AUTOSAR compliance by providing a complex driver that operates independently from the application, thereby also easing software development.

VIPOWER M0-9 block diagram



VIPOWER M0-9 portfolio

Part number	Package	Channels	On-state resistance $R_{DS(ON)}$	Reverse ON	Adjustable slew rate	Adjustable slew rate
VN9D5D20FN	QFN (6 x 6 mm)	4	2x7.6 mΩ + 2x20 mΩ	N	Yes	Digital current sense Digital junction temperature
VN9D5D20F		4	2x6.7 mΩ + 2x20 mΩ	Y		
VN9D7D20F *		4	2x7.8 mΩ + 2x20.7 mΩ	Y		
VN9D30Q100F		6	2x33 mΩ + 4x90 mΩ	N		
VN9Q25D70F *		6	4x25 mΩ + 2x70 mΩ	Y		
VN9E30F *		6	6x30 mΩ	Y		

(*) In development

FIND OUT MORE

To explore the complete VIPOWER M0-9 portfolio, visit www.st.com or use our VIPOWER Smart Finder mobile app for Android and iOS



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