

Body Control

Overview

The body control system showcases new and innovative Freescale Semiconductor devices in a powerful, reliable solution with enhanced diagnostic capabilities.

These innovative products allow automotive engineers to design faster, more cost-

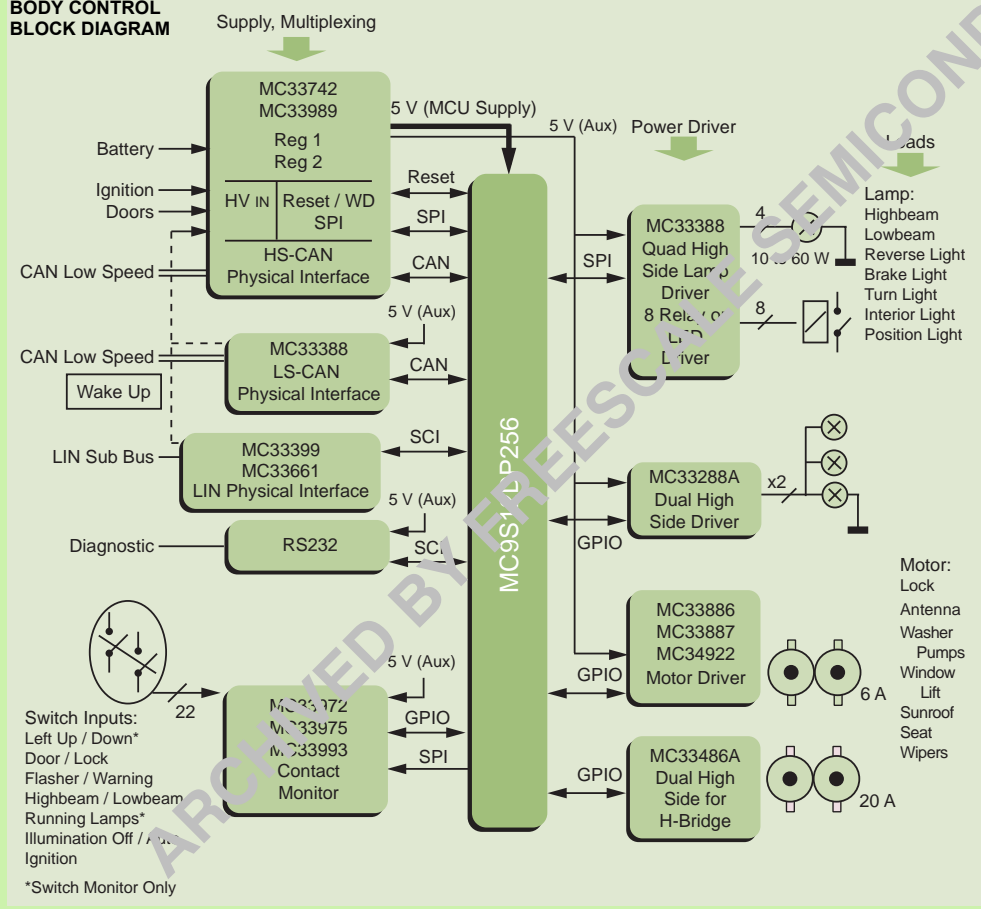
efficiently, and to make an easy transition from mechanical to electrical systems.

Analog SMARTMOS™ Power ICs surround the MCU in body control systems with load control, contact monitor interface, power management and connectivity devices.

Key Benefits

- > Enhances diagnostic capabilities
- > Promotes rapid design
- > Easy mechanical to electrical system transition
- > Allows cost-efficient designs

BODY CONTROL BLOCK DIAGRAM



Freescale Ordering Information^{Note}

Part Number	Product Highlights	Additional Information
MC33288A	Solid State Relay for High-Current Incandescent Lamps	www.freescale.com/analog
MC33388	Fault Tolerant CAN Interface	
MC33399	Local Interconnect Network (LIN) Physical Layer	
MC33486A	Dual High-Side for H-Bridge	
MC33661	eLIN—Enhanced LIN Physical Layer (Local Interconnect Network)	
MC33742	System Basis Chip with Enhanced High-Speed CAN	
MC33886	H-Bridge Driver (5.2 A)	
MC33887	H-Bridge Driver with Sleep Mode (5.2 A)	
MC33972	22 Input Multiple Switch Detection Interface with Suppressed Wake-Up	
MC33975	22 Input Multiple Switch Detection Interface with Higher Wetting Current	
MC33989	System Base Chip with High-Speed CAN	
MC33993	22 Input Multiple Switch Detection Interface	
MC34922	Dual Power H-Bridge (4.0 A)	
MC9S12DP256	16-Bit Microcontroller	www.freescale.com

Note: Search on the listed part number.

Design Challenges

Automotive body control presents interesting design challenges to the system engineer. These challenges include jump start, reverse battery, high current control, and large I/O requirements. Freescale Semiconductor's Analog products help solve these automotive-specific issues with integrated automotive capabilities. These new solutions provide the control functions and advanced diagnostic capabilities unavailable in older mechanical systems.

Freescale Semiconductor Solution

Freescale Semiconductor's leading-edge body control IC solutions are "smart" products providing designers with superior diagnostic abilities, high reliability, and reduced part counts. These IC system capabilities are optimized for rugged automotive environments. Freescale Semiconductor's first advanced, high performance HC12, 16-bit MCU with automotive Flash and six multiplex network modules is the master governing unit in a system where all ICs

have intelligence. Designed to demonstrate the expanding demands of body control architecture, the body control system includes a hub for two CAN networks, a LIN sub-bus, a short range/RF receiver, high current silicon switches, and up to 30 switch inputs. This reliable, low-power solution has self-protected switching devices meeting the high power demands of lighting.

Development Tools^{Note}

Tool Type	Product Name	Vendor	Description	Additional Information
Software	CodeWarrior development systems	Metrowerks		www.metrowerks.com
Software	Low-cost debugger	P&E Microcomputer Systems		www.pemicro.com
Software	Flash programming tools	P&E Microcomputer Systems		www.pemicro.com
Software	In-circuit emulator	Nohau Corporation		www.nohau.com
Hardware and Development Kits	Contact vendor	Axiom Manufacturing		www.axman.com
Hardware and Development Kits	Contact vendor	Diavarre		www.diavarre.com
Hardware and Development Kits	Contact vendor	Elektronikladen		www.elektronikladen.de
Hardware and Development Kits	Contact vendor	Metrowerks		www.metrowerks.com
Hardware and Development Kits	Contact vendor	P&E Microcomputer Systems		www.pemicro.com
Hardware and Development Kits	Contact vendor	Technological Arts		www.technologicalarts.com
Evaluation Kit	KIT33388DEVB	Metrowerks	Fault Tolerant CAN Interface	www.metrowerks.com
Evaluation Kit	KIT33661DEVB	Metrowerks	LIN Enhanced Physical Interface	
Evaluation Kit	KIT33886DHEVB	Metrowerks	H-Bridge Integrated Circuit	
Evaluation Kit	KIT33887DWBEVB	Metrowerks	225 mΩ 150 C and Sleep Mode and Current Sense	
Evaluation Kit	KIT33989DWEVB	Metrowerks	System Basis Chip with High-Speed CAN	
Evaluation Kit	KIT33993DWBEVB	Metrowerks	2-Input Multiple Switch Detection Interface	
Evaluation Kit	KIT34922PNAEVB	Metrowerks	Dual H-Bridge with Load Current Feedback	

Note: Search on listed product name.

Related Documentation^{Note}

Document Number	Description	Additional Information
APDPAK	Analog IC Pitch Pack	www.freescale.com
BR1871	BR1871 Automotive Body Control	
SG187	Automotive Product Selector Guide	
SG1002	Analog Selector Guide	

Note: Search on listed document number.

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