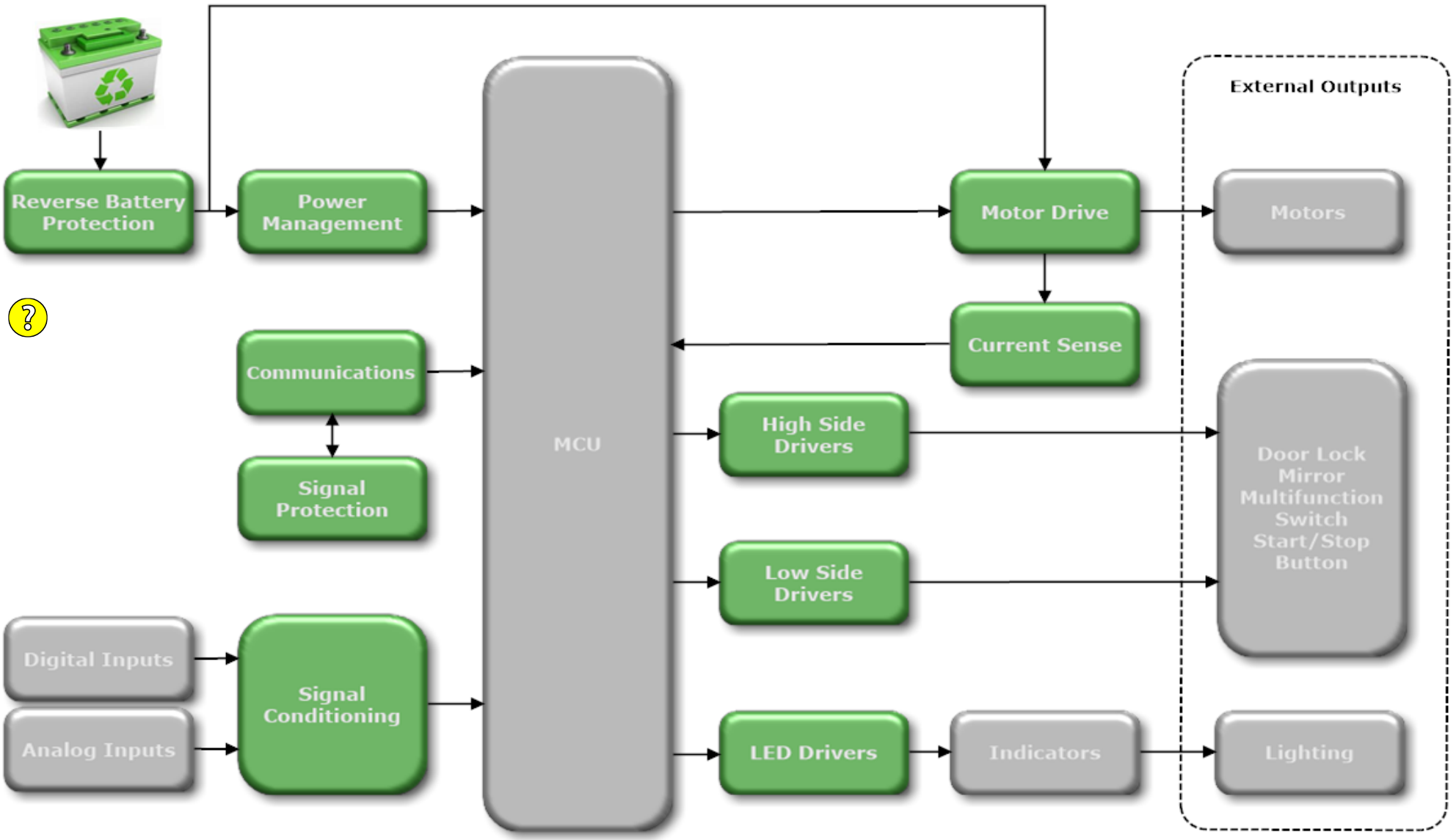
Body Control Module (BCM)



Solution Description

Product Recommendation Table

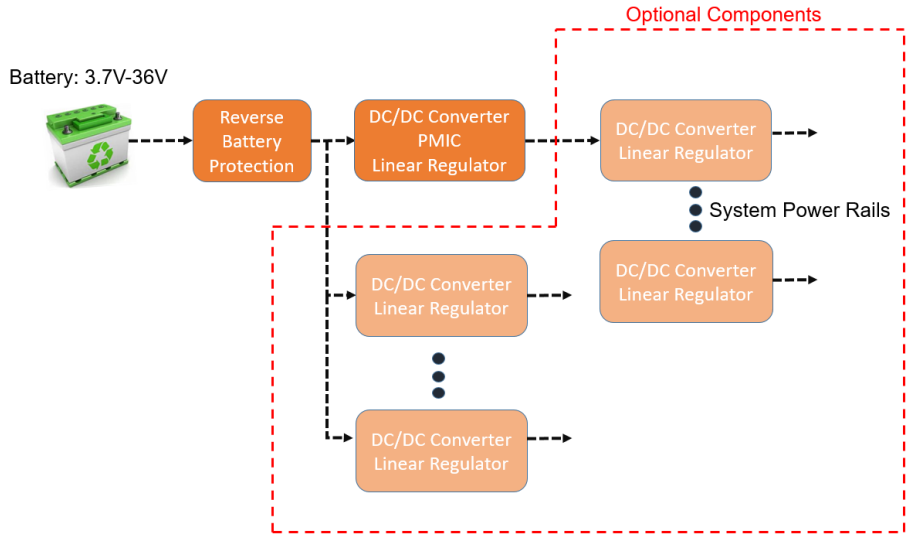
Introducing the next solution review in our Block Diagram of the Month series – Body Control Module (BCM). The BCM functions as a central vehicle gateway providing signal outputs to execute functions for comfort and convenience applications such as lighting, windshield wiper control, door locks, mirrors, windows, powertrain components and wireless interfaces. The BCM functions as a communication gateway by routing vehicle messages between various ECU based subsystems in the vehicle. Depending on the complexity required, there may be multiple BCM systems integrated into a vehicle.

Primary system blocks in the topology:

- Power management including reverse battery protection
- System basis chip and transceivers for in-vehicle communications
- Signal conditioning of any digital and analog inputs
- High and low side drivers
- LED drivers
- Motor drive and control

Power Management and Reverse Battery Protection

Depending on the complexity of the BCM, the power architecture may require a single regulator or a multi-stage power architecture depending on the system power requirements. The system power requirements are driven by the number of loads the BCM is required to control. In most cases, the power source that operates the BCM originates from the 12 V Bus in both internal combustion engine and hybrid vehicles. The power architecture can be segmented into the reverse battery protection stage (internal combustion vehicles) and either single or multiple device power stages if several power rails are required.



The topology selected for the power stages is driven by the maximum power consumption of the system, total number of power rails, target switching frequency, power efficiency requirements, size/space constraints and functional safety considerations. Depending on the magnitude of the total power requirement, multiple or singular converters can be utilized to create intermediate voltages for the system power rails. ON Semiconductor offers AECQ-100 component solutions with a wide voltage input range, +/- 2% output voltage accuracy, operation at 2MHz, integrated/pseudo-random spread spectrum capability, PMIC solutions with multiple buck/boost outputs, high power efficiencies (> 90%), integrated functions that monitor the system for failures in functional safety applications and enable pins to control operation.

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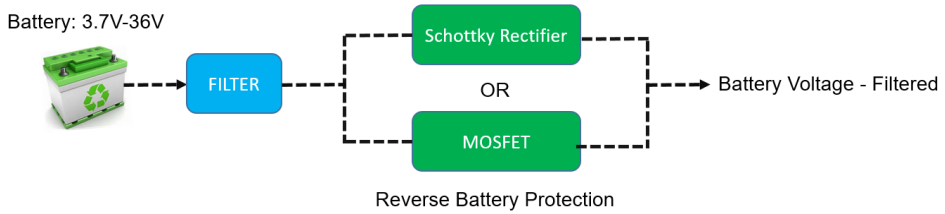

The primary purpose of the reverse battery protection circuit is to prevent damage to electronic components in vehicle battery connected systems if the leads are reversed in internal combustion engine vehicles. AECQ-101 qualified rectifiers, 40/60 V N-Channel MOSFETS connected to ideal diode controllers, and stand-alone 40/60 V P-Channel MOSFETS are solutions available in ON Semiconductor's product portfolio to construct reverse battery protection circuits. The N-Channel and P-Channel MOSFET portfolio contain solutions with low R_{DS}-on and gate charge values that minimize switching and conduction losses encapsulated in packages smaller than the legacy D2PAK/DPAK packages that exhibit equivalent thermal performance. The rectifier portfolio contains devices encompassed in small-profile packages with low forward voltage drop resulting in reduced power and heat dissipation.

System Basis Chip and Transceivers for In-Vehicle Communications

Our automotive portfolio offers AECQ-100 qualified in-vehicle network solutions to facilitate communication using CAN, CAN-FD, LIN and FlexRay protocols. In-vehicle network solutions are available in single-channel, multi-channel, and SBC (System Bases Chip) configurations capable of transmission speeds ranging from 1 Mb/s to 10 Mb/s with transient and thermal protection capability. The SBC devices implement either a 3.3 V or a 5 V voltage regulator to aid in reduction of component count for the power supply architecture. In addition, AECQ-101 qualified protection discretes rating designed to protect vehicle communication lines from ESD and other harmful transient voltage events are available if protection to the IEC61000-4-2 (+/- 30 kV) standard is a requirement for the design.

In-vehicle network and SBC transceivers are compatible to the following standards:

- ISO 11898-2, ISO 11898-5 standards (CAN)
- ISO 11898−2:2016 (CAN-FD)
- LIN compliant to specification revision 2.1 (backward compatible to versions 2.0 and 1.3) and SAE J2602
- LIN compliant to ISO 17987−4 (backward compatible to LIN specification rev. 2.x, 1.3) and SAE J2602
- FlexRay electrical physical layer specification rev 3.0.1

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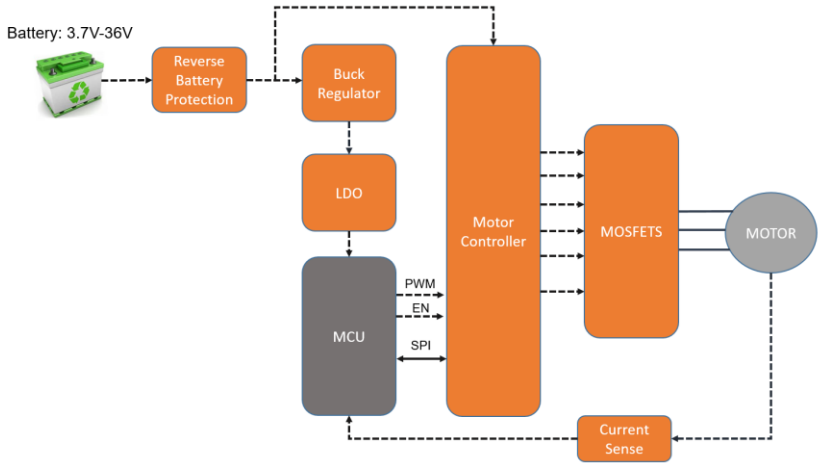
Motor Drive and control



The automotive portfolio offers AECQ-100 qualified solutions for both brushed and brushless DC motor controls that can be integrated into the BCM. The LV8907 is a sensor-less three phase brushless DC motor controller containing integrated gate drivers for driving external MOSFETS with a set of system protection and diagnostic functions. The device is rated for operation up to 175°C and is LIN compatible. Another option, the LV8968 is a three-phase BLDC pre-driver with integrated phase voltage sensing capability with logic level FET compatibility. This device contains protection and monitoring features that make the device suitable for ISO26262 applications. The NCV7535 is a highly integrated, SPI controlled solution for control of brushed DC motors that facilitates relay replacement using MOSFETS. This device contains a charge pump for high side supply and fault monitoring features. Precision current sense amplifiers can be used for motor current measurement.

High Side and Low Side Drivers

We offer AEC qualified self-protected high side and low side drivers used to switch a variety of loads such as bulbs, solenoids and other actuators. These devices feature short circuit protection, low R_{DS}-on, thermal shutdown capability, automatic restart, ESD protection and integrated clamps for inductive switching.

LED Drivers

We also offer LED drivers that facilitate the development of sophisticated lighting systems incorporating movement and variable intensity within rear combination lamps (RCLs), turn signals, fog lamps, and other externally modulated LED clusters to give clearer and highly visible warnings to other road users. The Automotive Portfolio contains LED drivers that incorporate programmable linear current sources capable of driving multiple LED strings with PWM controls to adjust the output current delivered to the LED strings. These devices can be powered using DC-DC converters or LDO voltage regulators. The current delivery to the led strings can be regulated using AECQ-101 qualified NPN bipolar transistors and constant current regulators.

Signal Conditioning for Digital and Analog Inputs:

Our automotive portfolio offers operational amplifiers and logic components to process digital and analog inputs into the BCM. The precision operational amplifier portfolio contain devices with a wide supply range, large signal bandwidth, low current consumption, zero drift capability and operation over wide temperature ranges. The automotive logic portfolio contains solutions encapsulated in small package sizes, capable of bi-directional operation, and facilitates data transmission rates greater than 250 Mbps.

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Suggested Block	Option	WPN	Why Select?	WPN Desciption	ONTarget?
Reverse Battery Protection	1	NVMFS5C612NL	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 60V, 235A, 1.5mΩ	
Reverse Battery Protection	2	NVMFS5A140PLZ	Wettable flank package option, low Rds-ON, SO-8FL Package	Single P-Channel Power MOSFET, -40 V, -140 A, 4.2 mΩ	
Reverse Battery Protection	3	NVMFS5A160PLZ	Wettable flank package option, low Rds-ON, SO-8FL Package	Single P-Channel Power MOSFET, -60 V, -100 A, 7.7 mΩ	
Reverse Battery Protection	4	NVMFS5C604N	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 60V, 288A, 1.2mΩ	
Reverse Battery Protection	5	NVMFS5C612N	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 60V, 225A, 1.65mΩ	
Reverse Battery Protection	6	NVMJS0D8N04CL	low Rds-ON, SO-8FL Package	Power MOSFET 40 V, 0.83Ω, 336 A, Single N-Channel	
Reverse Battery Protection	7	NVMFS5113PL	Wettable flank package option, low Rds-ON, SO-8FL Package	Power MOSFET −60V, 64A, 14 mOhm, Single P-Channel, SO8-FL, Logic Level.	
Reverse Battery Protection	8	NVMFS5C404N	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 40V, 378A, 0.7mΩ	
Reverse Battery Protection	9	NVMFS5C404NL	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 40V, 370A, 0.67mΩ	
Reverse Battery Protection	10	NVMFS5C406N	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 40V, 353A, 0.8mΩ	
Reverse Battery Protection	11	NVMFS5C410N	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 40V, 300A, 0.92mΩ	
Reverse Battery Protection	12	NVMFS5C410NL	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 40V, 330A, 0.82mΩ	
Reverse Battery Protection	13	NVMFS5C604NL	Wettable flank package option, low Rds-ON, SO-8FL Package	Single N-Channel Power MOSFET 60V, 287A, 1.2mΩ	
Reverse Battery Protection	14	NRVTS2H60ESF	High efficiency, low leakage, low thermal resistance	Trench Schottky Rectifier, Very Low Leakage 2A, 60V	
Reverse Battery Protection	15	NRVTSM245E	Low profile, small footprint, low thermal resistance, fast switching, high surge capability	Trench Schottky Rectifier, Very Low Leakage 45V, 2A in Powermite package	
Power Management	1	NCV891330	Wide VIN:3.7 V to 36.5 V, Load Dump up to 45 V, 2 MHz Switching Frequency, +/-2 % Output Voltage Accuracy, Logic level Enable pin	3 A, 2 MHz Low-Iq Dual-Mode Step-Down Regulator for Automotive	
Power Management	2	NCV891930	VIN: 3.5V to 18V, UVLO and Overvoltage Protection, Integrated Spread Spectrum, 2 MHz Operating Frequency, Enable and Reset pins, withstands Load Dump up to 45 V	Low Quiescent Current 2 MHz Automotive Synchronous Buck Controller	
Power Management	3	NCV97200	Wide VIN: 4.1 to 40 V, 2 MHz Operating Frequency, Window Watchdog, 1 buck and 1 Boost Regulator, Pseudo−random Spread Spectrum, withstands Load Dump up to 45 V, Integrated safety features for safety applications	Automotive Multi-Output Power Management IC (PMIC) for Safety Applications	
Power Management	4	NCV97400	Wide VIN: 4.1 to 40 V, 2 MHz Operating Frequency, Window Watchdog ,3 enabled buck converters and 1 boot converter, Pseudo−random Spread Spectrum, withstands Load Dump up to 45 V, Integrated safety features for safety applications	Automotive Multi-Output Power Management IC (PMIC) for Safety Applications	
Power Management	5	NCV881930	VIN: 3.5V to 18V, 410 kHz Operating Frequency, Integrated Spread Spectrum, UVLO and Overvoltage Protection, Adjustable Soft−Start, withstands Load Dump up to 45 V, Enable and Reset pins	Low Quiescent Current 410 kHz Automotive Synchronous Buck Controller	
Power Management	6	NCV890430	Wide VIN: 3.5 V to 37 V, Enable Pin, ± 2% Output Voltage Accuracy, Fixed Output Voltage, 2 MHz Switching Frequency, withstands Load Dump up to 45 V	Automotive 0.6 A 2 MHz 100% Duty Cycle Step-Down Synchronous Regulator	
Power Management	7	NCV97311	Wide VIN: 4.1 to 45 V, Programmable Spread Spectrum, Fixed Frequency Operation from 2.0 to 2.6 MHz, 3 total buck regulators(2 micro-controller enabled buck regulators), Overcurrent and current limit protection	Automotive Battery-Connected Low-Iq Multi-Output Power Management Unit with 3 Buck Regulators	
Power Management	8	NCV97310	Wide VIN: 4.1 to 18V, Programmable Spread spectrum, Fixed Frequency Operation from 2.0 to 2.6 MHz, 3 output regulator, Undervoltage, overvoltage, and short circuit protection, current limiting feature	Multi-output Power Management Unit (PMU) with 3 Buck Regulators	
Power Management	9	NCV898031	Wide VIN: 3.2 V to 40 V, 2 MHz Operating Frequency, Suitable for Start-Stop Systems, withstands Load Dump up to 45 V, current limit and short circuit protection	Non-Synchronous SEPIC / Boost Controller, 2 MHz	
Power Management	10	NCV890100	2-MHz Free-Running Switching Frequency, High VIN Operation Up to 36 V, Low VIN Operation Down to 4.5 V, Withstands Load Dumps to 40 V, current limit and short circuit protection	Automotive Switching Regulator, Buck, 1.2 A, 2 MHz	
Power Management	11	NCV896530	Synchronous Rectification, 2.1 MHz Switching Frequency, Thermal and Short Circuit Protection	Dual Output Buck Converter, Low Voltage, 2.1 MHz	
Power Management	12	NCV6323	VIN: 2.5 V to 5.5 V, 3 MHz Switching Frequency, Capable of 2A Output	Synchronous Buck Converter, 3 MHz, 2 A	
Power Management	13	NCV6356	VIN: 2.5 V to 5.5 V, I2C compatible, Up to 2.4 MHz Switching Frequency	Synchronous Buck Converter, Processor Supply, I2C Programming, 5.0 A	
Power Management	14	NCV6357	VIN: 2.5V to 5.5V, I2C Compatible, Up to 2.4 MHz Switching Frequency	Synchronous Buck Converter, Processor Supply, I2C Programming, 5.0 A	
Power Management	15	NCV8164	VIN: 1.6V to 5V, PSRR: 85 dB at 1 kHz, Ultra-Low Noise: 9μVRMS, 150C operating Junction temperature, Enables higher power capability with extended temperatures	300mA LDO Regulator, Ultra-Low Noise, High PSRR with Power Good	
Power Management	16	NCV8170	ILoad: 150mA, PSRR:57dB, Noise:85μVRMS, Dropout:170mV	LDO Regulator, 150 mA, Low Dropout, Ultra-Low Iq	
Power Management	17	NCV8752	ILoad: 200mA, PSRR:68dB, Noise:11.5μVRMS, Dropout:130mV	LDO Regulator, 200 mA, Ultra-Low Dropout, Ultra-Low Iq, High PSRR, Ultra-Low Noise	
Power Management	18	NCV8163	ILoad: 250mA, PSRR:92dB, Noise:6.5μVRMS, Dropout:80mV	LDO Regulator, 250 mA, Ultra-Low Dropout, Ultra-Low Iq, Ultra-High PSRR, Ultra-Low Noise	
Power Management	19	NCV8114	ILoad: 300mA, PSRR:75dB, Noise:70μVRMS, Dropout: 135mV	LDO Regulator, 300 mA, Low Iq	
Power Management	20	NCV8161	ILoad: 450mA, PSRR:90dB, Noise:10μVRMS, Dropout:225mV	LDO Regulator, 450 mA, Low Dropout, Low Iq, Ultra-High PSRR, Ultra-Low Noise	
Power Management	21	NCV8165	ILoad: 500mA, PSRR:85dB, Noise:8.5μVRMS, Dropout:190mV	LDO Regulator, 500 mA, Low Dropout, Ultra-Low Iq, Ultra-High PSRR, Ultra-Low Noise	
Power Management	22	NCV8705	ILoad: 500mA, PSRR:75dB, Noise:12μVRMS, Dropout:230mV	LDO Regulator, 500 mA, Low Dropout, Ultra-Low Iq, High PSRR, Ultra-Low Noise	
Power Management	23	NCV8177	ILoad: 500mA, PSRR:75dB, Noise:54μVRMS, Dropout:200mV	LDO Regulator, 500 mA, High PSRR, with Enable	
Power Management	24	NCV8152 Dual	ILoad: 150mA, PSRR:75dB, Noise:75μVRMS, Dropout:150mV	LDO Regulator, 150 mA, Ultra- Low Dropout, Low-Iq, High PSRR	
Power Management	25	NCV8154 Dual	ILoad: 300mA, PSRR:75dB, Noise:75μVRMS, Dropout:160mV	LDO Regulator, 300 mA, Low Dropout, Low Iq, High PSRR	
Power Management	26	NCV8130	ILoad: 300mA, PSRR:65dB, Noise:40μVRMS, Dropout:75mV	LDO Regulator, 300 mA, Ultra-Low Dropout, High PSRR	
Power Management	27	NCV8720	ILoad: 350mA, PSRR:65dB, Noise:40μVRMS, Dropout:110mV	LDO Regulator, 350 mA, Ultra-Low Dropout, High PSRR, with Bias Rail	
Power Management	28	NCV8133	ILoad: 500mA, PSRR:70dB, Noise:40μVRMS, Dropout:140mV	LDO Regulator, 500 mA, Ultra-Low Dropout, High PSRR	
Power Management	29	NCV8135	ILoad: 500mA, PSRR:60dB, Noise:35μVRMS, Dropout:40mV	LDO Regulator, 500 mA, Ultra-Low Dropout, Low Iq, Ultra High PSRR, Low Noise	
Power Management	30	NCV8716	ILoad: 80mA, PSRR:52dB, Noise:190μVRMS, Dropout:250mV	LDO Regulator, 80 mA, Ultra-Low Iq	
Power Management	31	NCV8718	ILoad: 300mA, PSRR:60dB, Noise:36μVRMS, Dropout:305mV	LDO Regulator, 300 mA, Wide Vin, Ultra-Low Iq	
Power Management	32	NCV59800	ILoad: 1A, PSRR:63dB, Noise:15μVRMS, Dropout:200mV	LDO Regulator, 1 A, Low Dropout, low Iq	
Power Management	33	NCV8187	ILoad: 1.2A, PSRR:75dB, Noise:15μVRMS, Dropout:200mV	1.2A LDO Regulator, Low Dropout Voltage, Low Noise with Power Good Output	
Power Management	34	NCV59748	ILoad: 1.5A, PSRR:60dB, Noise:25μVRMS, Dropout: 60mV	LDO Regulator, 1.5 A, Ultra-Low Dropout, High PSRR, Low Noise	
Power Management	35	NCV59745	ILoad: 3A, PSRR:75dB, Noise:6μVRMS, Dropout:105mV	3 A, LDO Regulator with Bias Rail, Ultra-Low Noise, Very Low Dropout and Programmable Soft-Start	

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Suggested Block	Option	WPN	Why Select?	WPN Desciption
Communications	1	NCV7420	Output voltage 5.0 V / 50 mA or 3.3 V / 50 mA, Transmission rate up to 20 kbps, Thermal Shutdown, ESD protection up to +/- 8kV	System Basis Chip with LIN and LDO Regulator
Communications	2	NCV7428	Protection and Monitoring Functions, 3.3 V or 5 V VOUT Supply on LDO	System Basis Chip with LIN and LDO Regulator
Communications	3	NCV7425	Transmission Rate up to 20 kBaud, Protection Features, load dump protection features, LDO output voltage of 3.3 or 5 V with loads up to 150mA	System Basis Chip with LIN and 150 mA LDO Regulator
Communications	4	NCV7429	Operating range: 5V to 28V, LIN Physical Layer According to LIN 2.x and SAE J2602, 24-bit SPI Interface, short-circuit, over voltage, and Over Temperature protection, Low Drop Voltage Regulator with 2% output accuracy	System Basis Chip with LIN, LS and HS Switches
Communications	5	NCV7424	System ESD on LIN Pin exceeding 10 kV, Transient protection, Transmission Rate 1 kbps to 20 kbps, short circuit and transient protection	Quad LIN Transceiver
Communications	6	NCV7422	Thermal and undervoltage protection, Compliant to ISO 17987-4 (Backwards Compatible to LIN Specification rev. 2.x, 1.3) and SAE J2602, multiple operation modes	Dual LIN Transceiver
Communications	7	NCV7450	250 mA LDO with +/- 2% output voltage accuracy, Output voltage monitoring, Protection features: Over-current protection, Current Limitation	System Basis Chip with CAN FD, LDO Regulator and HS Driver
Communications	8	NCV7441	Compatible with the ISO 11898 Standard ISO 118982, ISO 118985 and SAE J2284, Low Iq, High Speed (up to 1 Mbps), Thermal Protection features, Low EME without Commonmode Choke	Dual CAN Transceiver, High Speed, Low Power
Communications	9	NCV7446	CAN FD timing specified up to 5 Mbps, Thermal protection, Wettable Flank Option	Dual CAN FD Transceiver, High Speed, Low Power
Communications	10	NCV7462	Operating Range from 5V to 28V, low and high side driver, 24-bit SPI Interface, 5V 250mA +/- 2% Output Tolerance	LDO Regulator, 250 mA/50 mA, Low Dropout, Ultra-Low Iq, High PSRR
Communications	11	NCV7344	CAN/CAN-FD: Based on chosen protocol	CAN FD Transceiver, High Speed, Low Power Yes
Communications	12	NCV7357	CAN/CAN-FD: Based on chosen protocol	CAN FD Transceiver, High Speed
Communications	13	NCV7327	LIN: Based on chosen protocol	Stand-alone LIN Transceiver
Communications	14	NCV7329	LIN: Based on chosen protocol	LIN Transceiver, Stand-alone
Communications	15	NCV7381A	Clamp 30 compliant with FlexRay3.0.1. spec.	FlexRay® Transceiver, Clamp 30
Communications	16	NCV7383	Clamp 15 compliant with FlexRay3.0.1. spec.	FlexRay® Transceiver, Clamp 15
Signal Protection	1	SZNUP1128	175°C TJ(max) – Rated for High Temperature, AECQ-101 Qualified, IEC 61000−4−2 (ESD): Level 4, IEC 61000−4−4 (EFT): 50 A (5/50 ns), IEC 61000−4−5 (Lighting) 3.0 A (8/20 s)	Single Line, +175°C TJ(MAX) LIN Bus Protector
Signal Protection	2	SZNUP2128	175°C TJ(max) – Rated for High Temperature, AECQ-101 Qualified, IEC 61000−4−2 (ESD): Level 4, IEC 61000−4−4 (EFT): 50 A (5/50 ns), IEC 61000−4−5 (Lighting) 3.0 A (8/20 s)	Dual Line, +175°C TJ(MAX) CAN Bus Protector
Signal Protection	3	SZCM1213A-02SR	Low Capacitance, Protection against ESD pulses upt to 12 kV per the IEC 61000-4-2 Standard, Ethernet Protection	ESD Protection Array, Low Capacitance, 1, 2 and 4-Channel
Signal Protection	4	SZNUP2115	150°C TJ(max)- ESD Protection, Low Capacitance, AECQ-101 Qualified, IEC 61000−4−2 (ESD): Level 4, IEC 61000−4−4 (EFT): 50 A (5/50 ns), IEC 61000−4−5 (Lighting) 3.0 A (8/20 s)	ESD protection for FlexRay transceiver
Signal Conditioning - Analog Inputs	1	NCV20071	Wide supply range, wide bandwidth, low supply current	Operational Amplifier, Wide supply range, 3Mhz CMOS Op-Amp
Signal Conditioning - Analog Inputs	2	NCV2333	High accuracy, lower drift	Precision Operational Amplifier, Low Power, Zero-Drift, 30 µV Offset
Signal Conditioning - Analog Inputs	3	NCV20061	Wide bandwidth (3MHz), rail-to-tail voltage	Operational Amplifier, 5.5V Rail-to-Rail Input and Output, 3 MHz, Single
Signal Conditioning - Analog Inputs	4	NCV21911	Zero-Drift low input voltage	Precision Operational Amplifier, 2 MHz Bandwidth, Low Noise, Zero-Drift, 25 µV Offset
Signal Conditioning - Digital Inputs	1	NLSX4373	Wide VCC Operating Range: 1.5V to 5.5V, Wide VL Operating Range: 1.5V to 5.5V, High-Speed with 20 Mb/s Guaranteed Data Rate	Level Translator, 2-Bit, 20 Mbps, Dual-Supply
Signal Conditioning - Digital Inputs	2	NLV9306	Allows voltage level translation at mulitiple voltages, Bidirectional Voltage Translation	Dual Bidirectional I2C Bus and SMBus Voltage Level Translator
Signal Conditioning - Digital Inputs	3	MiniGate™	Standard Logic devices in small packages	1-gate, 2-gate, and 3-gate MiniGate™ standard logic devices, in advanced micro-packages.
Motor Drive	1	LV8907UW	Operating Voltage Range: 5.5 V to 20 V, tolerance up to 40V, Operating Junction Temp up to 175°C, Fault Detection	Sensor-less Three-phase Brushless DC Motor Controller, with Gate Drivers, for Automotive
Motor Drive	2	LV8968BBUWR2G	Full Drive Power from 8 V to 28 V Supply Voltage, Protection Features: Short Detection for External FET, Overcurrent Shutoff, low voltage gate warning, over-temperature warning	Multi-purpose BLDC Pre-driver, For Automotive
Motor Drive	3	NVMFS5C426NT1G	low Rds-ON, Available in Wettable Flanks Package, AECQ-101 Qualified	Single N-Channel Power MOSFET 40V, 235A, 1.3mΩ
Motor Drive	4	STK984-090A-E	Integrated Module, Built-in Gate Driver, Protection Features	Intelligent Power Module (IPM), 40 V, 20 A
Motor Drive	5	STK984-190-E	Three phase mosfet bridge with reverse battery protection, can operate motors up to 300W	Power Integrated Module (PIM), MOSFET, 40 V, 30 A
Motor Drive	6	NCV7723B	Half-bridge Connected High-side & Low-side Driver Configuration, Protection: Overcurrent, Overtemperature	6 Channel Half-Bridge Driver
Motor Drive	7	NCV7725B	Half-bridge Connected High-side & Low-side Driver Configuration, Protection: Overcurrent, Overtemperature	10 Channel Half-Bridge Driver
Motor Drive	8	NCV7535	SPI controlled H-bridge pre-driver providing control of a DC-motor	SPI controlled H-bridge and Dual-Half Bridge pre-driver
Motor Drive	9	NCV7703C	SPI Control, Configurable as H-Bridge Drivers, Fault Reporting	Triple Half-Bridge Driver for automotive side-view mirror control.
Motor Drive	10	NCV7718	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	Hex Half-Bridge Driver
Motor Drive	11	NCV7718B	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	Hex Half-Bridge Driver
Motor Drive	12	NCV7719	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	Octal Half-Bridge Driver
Motor Drive	13	NCV7720	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	Deca Half-Bridge Driver
Motor Drive	14	NCV7721	Capable of high side, low side, and H-Bridge control	Motor Driver, Double Half-Bridge with Direct Control
Motor Drive	15	NCV7726A	Half-bridge Connected High-side & Low-side Driver Configuration	12 Channel Half-Bridge Driver
Motor Drive	16	NCV7726B	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	12 Channel Half-Bridge Driver
Motor Drive	17	NCV7728	High Side and Low Side Drivers Connected in a HalfBridge Configuration, Protection: Overcurrent, Overtemperature	Hex Half-Bridge Driver
Current Sense	1	NCV210R	Different gain values, offset V and %error. High accuracy, high-low side, wide input voltage.	Current Sense Amplifier, 26V, Low-/High-Side Voltage Out, Bidirectional Current Shunt Monitor
Current Sense	2	NCV211R	Different gain values, offset V and %error. High accuracy, high-low side, wide input voltage.	Current Sense Amplifier, 26V, Low-/High-Side Voltage Out, Bidirectional Current Shunt Monitor
Current Sense	3	NCV213R	Different gain values, offset V and %error. High accuracy, high-low side, wide input voltage.	Current Sense Amplifier, 26V, Low-/High-Side Voltage Out, Bidirectional Current Shunt Monitor
Current Sense	4	NCV214R	Different gain values, offset V and %error. High accuracy, high-low side, wide input voltage.	Current Sense Amplifier, 26V, Low-/High-Side Voltage Out, Bidirectional Current Shunt Monitor

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Suggested Block	Option	WPN	Why Select?	WPN Desciption
High Side Drivers	1	NCV84140	Current Monitoring Capability, Immediate Fault Reporting, Rds-ON: 140 m-ohm	Self Protected Very Low Iq High Side Driver with Analog Current Sense
High Side Drivers	2	NCV84160	Current Monitoring Capability, Immediate Fault Reporting, Rds-ON: 160 m-ohm	Protected MOSFET High-Side Driver, 12 A, 160 mΩ
High Side Drivers	3	NCV8445	Temperature shutdown and currrent limit capability, Rds-ON: 45 m-ohm	Self-Protected High Side Driver
High Side Drivers	4	NCV8450A	Temperature shutdown and currrent limit capability	Self Protected High Side Driver with Temperature and Current Limit
High Side Drivers	5	NCV8452	Temperature shutdown and currrent limit capability, Rds-ON: 100 m-ohm	Self-Protected High Side Driver with Temperature Shutdown and Current Limit
High Side Drivers	6	NCV8460A	Temperature shutdown and currrent limit capability, Rds-ON: 60 m-ohm	Self-Protected High Side Driver
High Side Drivers	7	NCV8461	Temperature shutdown and currrent limit capability, Rds-ON: 350 m-ohm	Self-Protected High Side Driver with Temperature Shutdown and Current Limit
Low Side Drivers	1	NCV8413	Short Circuit Protection with In−Rush Current Management, Thermal shutdown, Automatic restart, Rds-ON: 37 m-ohm	Self-Protected Low Side Driver with In-Rush Current Management
Low Side Drivers	2	NCV8401B	Temperature shutdown and current limit capability, Rds-ON: 23 m-ohm	Self-Protected Low Side Driver with Temperature and Current Limit
Low Side Drivers	3	NCV8403A/B	Temperature shutdown and current limit capability, Rds-ON: 53 m-ohm	Self-Protected Low Side Driver with Temperature and Current Limit
Low Side Drivers	4	NCV8405A/B	Temperature shutdown and current limit capability, Rds-ON: 90 m-ohm	Self-Protected Low Side Driver with Temperature and Current Limit
Low Side Drivers	5	NCV8406A/B	Temperature shutdown and current limit capability, Rds-ON: 210 m-ohm	Self-Protected Low Side Driver
Low Side Drivers	6	NCV8408B	Temperature shutdown and current limit capability, Rds-ON: 55 m-ohm	Self-Protected Low Side Driver with Temperature and Current Limit
Low Side Drivers	7	NCV8411DTRKG	Short Circuit Protection with In−Rush Current Management, Thermal shutdown, Automatic restart, Rds-ON: 23 m-ohm	Self-Protected Low Side Driver with In-Rush Current Management
LED Drivers	1	NCV7685	12 Common Current Programmable Sources up to 60 mA, Over Temperature Detection and Protection	12 Channels 60 mA LED Linear Current Driver I2C Controllable for Automotive Applications
LED Drivers	2	NCV7683	Constant Current Outputs for LED String Drive, Thermally enhanced package for higher power operation	LED Driver, Automotive, Octal, 100 mA Sequencing
LED Drivers	3	NCV7691	Constant Current Output for LED String Drive, External Bipolar Device for Wide Current Range Flexibility	Current Controller for Automotive LED Lamps
LED Drivers	4	NCV7692	Constant Current Output for LED String Drive, External Bipolar Device for Wide Current Range Flexibility	Current Controller for Automotive LED Lamps
LED Drivers	5	NSV50350ADT4G	Robust Power Package: 11 W, Wide operating voltage range	LED Driver, Constant Current Regulator, 50 V, 350 mA
LED Drivers	6	NSV45020AT1G	Robust Power Package: 460 mW, Wide operating voltage range, UL94-V0 Certified	LED Driver, Constant Current Regulator, 20 mA, 45 V
LED Drivers	7	NSV50150AD	Adjustable up to 350 mA, Wide Operating Voltage Range, Immediate Turn-On, Voltage Surge Suppressing to protect LEDs	LED Driver, Adjustable Constant Current Regulator, 50 V, 150 - 350 mA
LED Drivers	8	NSV45060JD	Robust Power Package: 2.7 Watts, Adjustable up to 100 mA, Wide Operating Voltage Range, Immediate Turn-On, Voltage Surge Suppressing to protect LEDs	LED Driver, Adjustable Constant Current Regulator, 45 V, 60 - 100 mA
LED Drivers	9	NSVBCP56-10T3G	High Current: 1.0 Amp	NPN Bipolar Transistor

Return to block diagram