

Body Control Module Resources to Make Your Design More Efficient and Reliable



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The core function of the body control module (BCM) is to monitor inputs such as the state of the high-beam switch and enable or disable power to the corresponding loads such as the high-beam lamp. The BCM also includes circuits that monitor different functions for faults. When a fault is detected, the driver could be notified, in some cases additional circuits in the BCM drive the load to the default state determined by the limp home requirements.

The three application briefs referenced in this article discuss optimal circuits to monitor inputs in 24-V systems, to drive inductive circuits such as relays and to detect open lamp load condition and to transition the BCM operation to limp home mode.

Open Load Detection and Limp-Home Function in BCM	The Half-Bridge DRV8912 Using As High Side or Low Side Driver	Protecting 12-V MSDI devices in a 24-V system
Optimize your body control module (BCM) functions with open load detection and limp home functions for safer driving and maintenance diagnostics. Open load detection enables the BCM to perform open-circuit diagnosis and is a principal function of the high-side switch (HSS). Limp home functions detect when the software is running incorrectly, generating a high-level signal allowing key modules to operate normally while the driver safely drives the car home or to a maintenance point.	Functionalize the half-bridge DRV8912-Q1 device to drive DC motors / LEDs and operate as a low-side or high-side switch via SPI commands. When combined with the load driven as a resistive load or LED string, this device with alternative functions operates with similar performance to a general high-side or low-side switch and can also be used to drive relay coils. Typically for general high side or low side switches, the relay/solenoid release time that is less than 10ms is acceptable in body control applications, and the DRV8912-Q1 can meet this requirement.	Protect your 12-V Multiple Switch Detection Interface (MSDI) devices in a 24-V system. The TIC12400-Q1/TIC10024-Q1 MSDI devices detect external mechanical switch status in a 12-V automotive system by acting as a low power consumption interface between the switches and the low-voltage microcontroller. Utilizing these devices with an input protection circuit enables operation in 24-V systems while protecting the MSDI during the jump start condition, ISO 7637-2 battery transients, and ISO 16750-2 load dump situations.

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