

Configurable power-management IC from STMicroelectronics for automotive microcontrollers

Suited to general-purpose and functional-safety applications throughout vehicles

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STMicroelectronics has revealed a flexible power-management IC for highly integrated processors like Stellar automotive microcontrollers that lets users program the power-up sequence and fine-tune output voltages and current ranges to fulfill system requirements. The [SPSB100](#) can be used throughout vehicles, in zonal control unit (ZCU), vehicle control platform (VCP), body control (BCM), and gateway modules.



The SPSB100, with three switched-mode buck converters and two linear voltage regulators (LDOs), supplies the voltage rails required for the system microcontroller and can power external peripheral loads and sensors. Additionally, there are two wake-up inputs and advanced failsafe functionalities. An internal boost controller stabilizes the power during transients such as cold-cranking pulses, start/stop operation, and weak battery conditions.

All the SPSB100 buck converters have overcurrent detection and current limiting for safety, with built-in soft start to prevent excessive inrush currents. Two of the converters can deliver up to 3A output current at a selectable output voltage of 3.3V, 5V, or 6.5V. The third converter can deliver up to 6A at 3.3V, 1.25V, 1.2V, 1.1V, or 0.98V. Among the LDOs, one has a fixed 5V output capable of sourcing up to 120mA with 2% accuracy. The second can be configured to track any of the buck converters at 3.3V or 5V. There is also one high-side driver, which provides open-load and over-current diagnostics.

Further features include integrated non-volatile memory (NVM) for storing the output-voltage values and power-up sequence. An SPI port allows programming and supports control and diagnostics, allowing designers to use the SPSB100 in many electronic platforms that require

different rails and peripherals. The SPSB100 has a deep-sleep mode that draws less than 40µA quiescent current. There is also a dedicated interrupt pin for failure communication, a microcontroller-reset generator, and overtemperature warning and protection. Documentation is available for applications that must fulfill Automotive Safety Integrity Level (ASIL) requirements in accordance with ISO 26262 for functional safety.

Although fully configurable, the PMIC is supplied in one of two pre-programmed configurations, SPSB100B or SPSB100P respectively, for directly powering the core or the internal switched-mode power supply of the microcontroller.

The SPSB100 is AEC-Q100 qualified and available now in an 8mm x 8mm VFQFN56 package, from \$2.40 for orders of 1000 pieces.

For more information, please visit www.st.com/spsb100-power-management-ic

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