



16-bit Microcontrollers

S12G Family

Feature-rich 16-bit microcontrollers for body applications

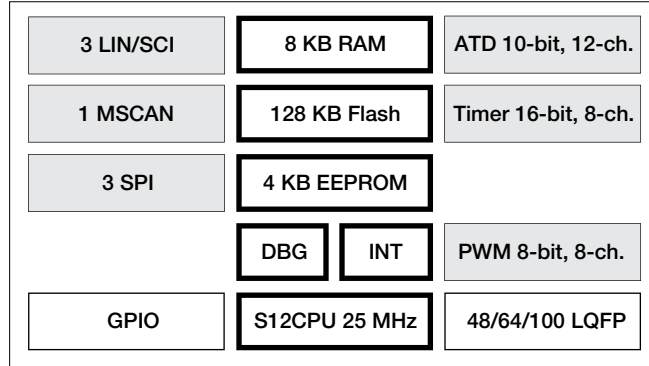
Target Applications

- Space-constrained applications
- Body controllers
- Door modules
- HVAC
- Seat controllers
- Smart actuators
- RKE receivers
- Occupant detection
- Lighting modules
- Smart junction boxes

Overview

The Freescale Semiconductor MC9S12G family is a feature-rich 16-bit microcontroller product line focused on low cost, high performance and low pin count for automotive applications. This family bridges the gap between high-end 8-bit microcontrollers and high-performance 16-bit microcontrollers, such as the MC9S12XS family. The MC9S12G family is targeted at generic automotive applications requiring CAN or LIN/SAE J2602 communication and is used in applications such as body controllers, door modules, occupant detection and lighting modules.

MC9S12G128/96 Block Diagram



The MC9S12G family uses many of the same features found on the MC9S12XS and MC9S12P family, including error correction code (ECC) on flash memory, a fast analog-to-digital converter (ADC) and a frequency modulated phase locked loop (IPLL) that improves the EMC performance. In order to make using the MC9S12G family easier in your embedded designs, it features an EEPROM with a small erase sector size.

In addition, the MC9S12G family delivers the advantages and efficiencies of a 16-bit MCU while retaining the cost-effective, power consumption, EMC and code-size efficiency advantages of Freescale's existing 8-bit and 16-bit MCU families. Like the MC9S12XS family, the MC9S12G family runs 16-bit wide accesses without wait states for peripherals and memories. The MC9S12G family is available in a range of package options and aims to maximize the amount

of functionality, especially for the lower pin count packages. For example, the MC9S12G128/96 is available in 48, 64 and 100 LQFP packages for embedded design flexibility. In addition to the I/O ports available in each module, further I/O ports are available with interrupt capability allowing wake-up from stop or wait modes.

Modular Tower Development System TWR-S12G128/TWR-S12G128-KIT (\$99*)

Cost-effective Tower Board kit, including S12G MCU module with soldered 9S12G128 in a 100LQFP package.

Enablement Tools

The S12G family leverages and expands on the extensive suite of hardware and software development tools available today for the S12 and S12X families. Cost-sensitive S12G family tower boards are available.

CodeWarrior Development Tool Suite and a range of third-party development software support are available for rapid application development.

* Manufacturer's Suggested Retail Price

Features	Benefits
<ul style="list-style-type: none"> S12 CPU core, 25MHz Bus 	<ul style="list-style-type: none"> Offers you industry proven S12 architecture and high horsepower for your more complex 8-bit design applications
<ul style="list-style-type: none"> Up to 128 KB on-chip flash with ECC 	<ul style="list-style-type: none"> Offers on-chip flash to store code and help save on-board flash/ROM
<ul style="list-style-type: none"> Up to 4 KB EEPROM with ECC 	<ul style="list-style-type: none"> Easier user interface than data flash
<ul style="list-style-type: none"> Up to one multi-scalable controller area network (MSCAN) module (supporting CAN protocol 2.0A/B) 	<ul style="list-style-type: none"> Designed to support complex system needs CAN communication port
<ul style="list-style-type: none"> Up to three serial communication interface (SCI) modules supporting LIN communications and up to three serial peripheral interface (SPI) modules 	<ul style="list-style-type: none"> Helps to give more flexibility, options and advantages when your system needs more SCI/LIN or SPI communication ports
<ul style="list-style-type: none"> Up to 8 KB on-chip SRAM 	N/A
<ul style="list-style-type: none"> Phase locked loop (IPLL) frequency multiplier with internal filter 	N/A
<ul style="list-style-type: none"> Timer module (TIM) supporting up to eight channels that provide a range of 16-bit input capture, output compare, counter and pulse accumulator functions 	N/A
<ul style="list-style-type: none"> Pulse width modulation (PWM) module with up to eight x 8-bit channels 	N/A
<ul style="list-style-type: none"> Up to 12-channel, 10-bit resolution successive approximation analog-to-digital converter (ADC) 	N/A
<ul style="list-style-type: none"> Precision fixed voltage reference for ADC conversions 	N/A
<ul style="list-style-type: none"> On-chip voltage regulator (VREG) for regulation of input supply and all internal voltages 	N/A

Package Options											
Device	Flash	RAM	EEPROM	Freq	MSCAN	SCI	SPI	ATD	PWM	Tim	Packages
S12G128	128K	8K	4K	25 MHz	1	3	3	12-ch., 10-bit	8-ch., 8-bit	8-ch., 16-bit	48/64/100 LQFP
S12G96	96K	8K	3K	25 MHz	1	3	3	12-ch., 10-bit	8-ch., 8-bit	8-ch., 16-bit	48/64/100 LQFP

Learn more: For current information about Freescale products and documentation, please visit www.freescale.com/s12g.