

# MTRCKTSPNZVM128

## 3-Phase Sensorless PMSM KIT

**MC9S12ZVML128** – The S12ZVM family combines all the elements needed to build a very compact and power efficient 3-phase PMSM (or BLDC) motor control.

**Low System Cost** – Directly powered by battery, integrated Vreg, LIN physical layer and a gate drive unit made of three low-side and three high-side drivers to control up to six external MOSFETs.

**Motor Control Algorithms** – Vector control (FOC) for PMSM motors implementation.

**Math and Motor Control Library Set** – Part of the development kit reference software.

### MC9S12ZVML128 Specifications

Flash	128 KB	PMF	6 ch., 15-bit PWM
RAM	8 KB	12 V VREG	120 V / 70 mA, 170 mA with ballast
EEPROM	512 B	EVDD	1 ch. 5 V / 20 mA (source)
Speed	50 MHz	PTU	2 trigger input sources / 2 trigger output
ADC	2x1 6 ch., 12-bit	Comms	2 SCI, 1 SPI
GDU	3/3	Packages	64-LQFP
LIN Phy	1	Op Range	150 °C Ta

### Orderable Samples

Part Number
MTRCKTSPNZVM128

### Features



Built-in gate drive unit (GDU)



Operates from car battery



LIN Interface



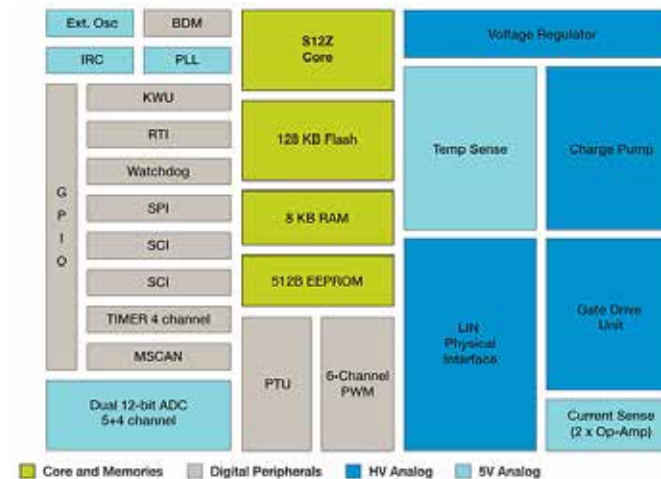
Ultra-reliable industrial

Get Sample

Data Sheet

Tools

### S12ZVM128: S12 MagniV Mixed-Signal MCU Block Diagram



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### Success Stories

- Capability to drive high wattage motors has made the part attractive for applications such as battery cooling fan, HVAC blower, and engine cooling fan
- Very successful in pump applications such as water, oil and fuel because of space savings due to high integration and capability to work at high temperatures

### Target Applications

- Actuators and valve controls
- Blower fan in HVAC systems
- Electric fuel, water and oil pumps
- Engine cooling fans
- Windshield wipers

### Enablement Tools

- MC9S12ZVML128 evaluation board
- 24 V PMSM / BLDC motor
- FreeMASTER
- Sensorless control using extended-BEMF observer