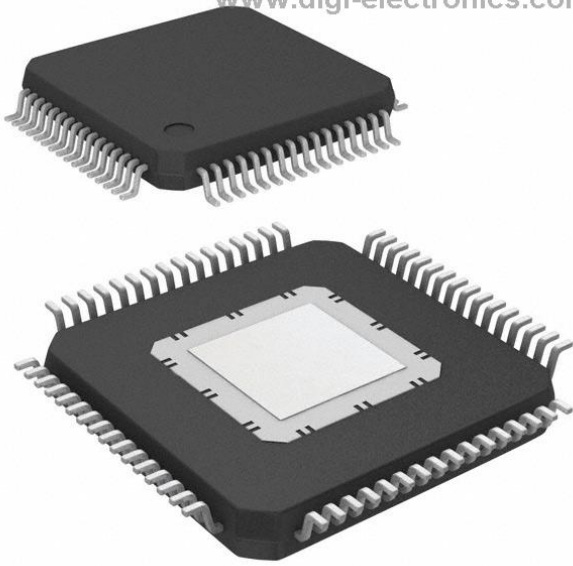


www.digi-electronics.com



S912ZVML64F3MKHR Datasheet

| | |
|------------------------------|--------------------------------|
| DiGi Electronics Part Number | S912ZVML64F3MKHR-DG |
| Manufacturer | NXP USA Inc. |
| Manufacturer Product Number | S912ZVML64F3MKHR |
| Description | IC MCU 16BIT 64KB FLASH 64LQFP |

<https://www.DiGi-Electronics.com>

Detailed Description S12Z S12 MagniV Microcontroller IC 16-Bit 50MHz 64KB (64K x 8) FLASH 64-HLQFP (10x10)

This model S912ZVML64F3MKHR is available at DiGi Electronics.

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Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.

Purchase and inquiry

Manufacturer Product Number:

S912ZVML64F3MKHR

Series:

S12 MagniV

DiGi-Electronics Programmable:

Not Verified

Core Size:

16-Bit

Connectivity:

CANbus, LINbus, SCI, SPI

Number of I/O:

31

Program Memory Type:

FLASH

RAM Size:

4K x 8

Data Converters:

A/D 9x12b

Operating Temperature:

-40°C ~ 125°C (TA)

Supplier Device Package:

64-HLQFP (10x10)

Base Product Number:

Manufacturer:

NXP USA Inc.

Product Status:

Active

Core Processor:

S12Z

Speed:

50MHz

Peripherals:

DMA, POR, PWM, WDT

Program Memory Size:

64KB (64K x 8)

EEPROM Size:

512 x 8

Voltage - Supply (Vcc/Vdd):

3.5V ~ 40V

Oscillator Type:

Internal

Mounting Type:

Surface Mount





Package / Case:




64-LQFP Exposed Pad

S12 MagniV Mixed-Signal MCUs S12ZVM Family

Integrated solution for 3-phase BLDC motor control applications

Features

-  3-Phase Motor Control
-  Integrated LIN Phy
-  Integrated CAN Phy
-  V_{REG} for 12 V Supply

-  6-ch. MOSFET Gate Driver
-  Ultra-reliable Industrial
-  AEC-Q100 Grade0
(150 °C Ta / 175 °C Tj)

Product One-Sheet

Get Sample

Data Sheet

Tools

System in a package—Highly integrated solution ideal for 3-Phase motors

High performance—S12Z performance supports field-oriented control (FOC) for maximum energy efficiency/lowest audible noise

Scalable—CAN-, LIN-, and HV-PWM-PHY options with memory up to 256 KB

High Reliability—High immunity to EMI and ESD stresses, LIN 2.x compliant with +/- 8 kV ESD capability

Low System Cost—Operating straight from car battery, integrated Phy for LIN or CAN, 6 channel motor control MOSFET gate pre-drivers

Enablement—Supported by comprehensive hardware and software solution

S12ZVM Specifications

| | | | |
|-----------------------|--------------------------------|-------------|---|
| Core | S12Z; 50 MHz bus | Gate Driver | 6-ch. motor control FET driver |
| 12 V V _{REG} | 70 mA (boost option to 140 mA) | PWM | –6-ch. motor control PWM –Additional 4-ch., 16-bit PWM |
| Flash | 16–256 KB | PTU | Triggering ADC & PWM |
| RAM | 2–32 KB | ADC | 2 ADCs, 1+3 to 8+8 ch., 12-bit |
| EEPROM | 128 B–1 KB | OpAmp | 2 x for current sensing |
| PHY | CAN, LIN or PWM | EVDD | 1-ch. 5 V/ 20 mA (source) |
| SCI/SPI | Up to 2/1 | Op Range | 3.5 V–20 V |
| HVI | Up to 1 | Timer | 4-ch., 16-bit |

Orderable Sample Part Numbers

| Part Number | Flash | Temp Range | Package |
|-----------------|--------|------------------|------------|
| S912ZVMC12F1MKH | 128 KB | -40 °C to 125 °C | 64 LQFP-EP |
| S912ZVMC12F1WKH | 128 KB | -40 °C to 150 °C | 64 LQFP-EP |
| S912ZVML12F1WKH | 128 KB | -40 °C to 150 °C | 64 LQFP-EP |
| S912ZVML12F1MKH | 128 KB | -40 °C to 125 °C | 64 LQFP-EP |
| S912ZVML31F1WKH | 32 KB | -40 °C to 150 °C | 64 LQFP-EP |
| S912ZVML31F1WKF | 32 KB | -40 °C to 150 °C | 48 LQFP-EP |
| S912ZVMC25F1WKK | 256 KB | -40 °C to 150 °C | 80 LQFP-EP |

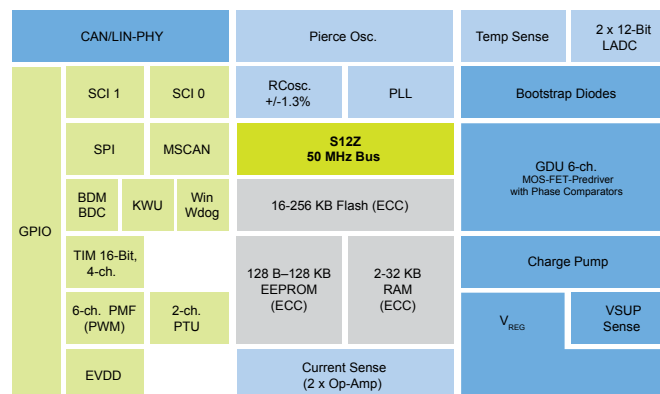
*Limited Sample-availability for 256 KB version with CAN-PHY. Contact your local sales

www.NXP.com/S12ZVM

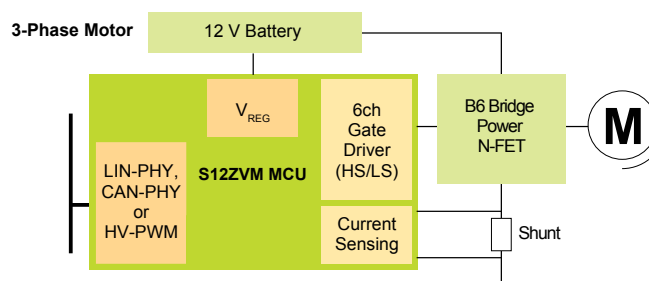
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Document Number: S12ZVMFS REV 5

Product Block Diagram



Application Example Block Diagram



Success Stories

- ▶ Engine cooling fans
- ▶ Fuel pumps
- ▶ Water pumps
- ▶ HVAC blower
- ▶ Superchargers

Target Applications

- ▶ Engine cooling fan/HVAC blower
- ▶ Oil/Fuel/Water pumps
- ▶ Compressors
- ▶ Turbo/Supercharger
- ▶ Wipers

Enablement Tools

- ▶ Evaluation boards/hardware
 - S12ZVML12EVBLIN
 - S12ZVMC12EVBCAN
 - S12ZVM32EVB
 - S12ZVML-MINIBRD
 - S12ZVMC256EVB
- ▶ Software Tools
 - Motor Control Development Toolbox
 - Automotive Math and Motorcontrol Libraries
 - FreeMASTER Run-Time Debugging Tool
 - MCAT Motorcontrol Algorithm Parameter Tuning
- ▶ Reference Solutions
 - BLDC: MTRCKTSBNZVM128
 - PMSM: MTRCKTSPNZVM128
- ▶ Compiler/Debugger
 - CodeWarrior® IDE
 - Cosmic IDE
- ▶ LIN Stack



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