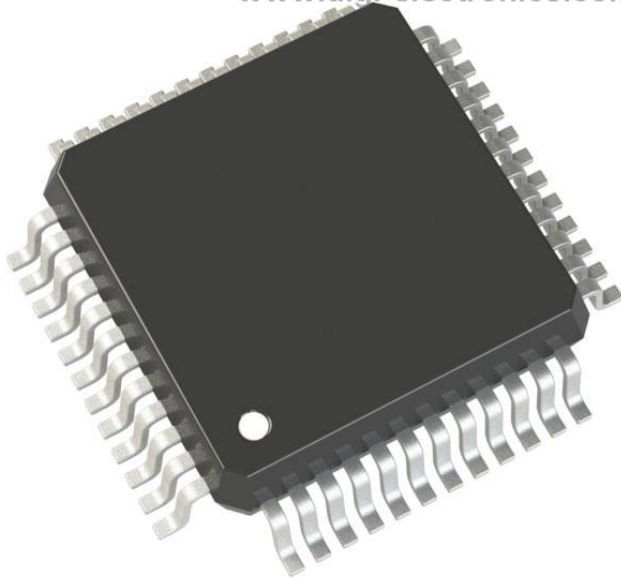


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# S912ZVMAL3F0WLF Datasheet

DiGi Electronics Part Number [S912ZVMAL3F0WLF-DG](#)

Manufacturer [NXP USA Inc.](#)

Manufacturer Product Number [S912ZVMAL3F0WLF](#)

Description [IC MCU 16BIT 32KB FLASH 48LQFP](#)

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

**Detailed Description** [S12Z S12 MagniV Microcontroller IC 16-Bit 32MHz 3](#)

[2KB \(32Kx8\) FLASH 48-LQFP \(7x7\)](#)

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## Purchase and inquiry

Manufacturer Product Number:

S912ZVMAL3F0WLF

Series:

S12 MagniV

DiGi-Electronics Programmable:

Not Verified

Core Size:

16-Bit

Connectivity:

LINbus, SCI, SPI

Number of I/O:

22

Program Memory Type:

FLASH

RAM Size:

2K x 8

Data Converters:

A/D 7x10b

Operating Temperature:

-40°C ~ 150°C (TA)

Supplier Device Package:

Manufacturer:

NXP USA Inc.

Product Status:

Active

Core Processor:

S12Z

Speed:

32MHz

Peripherals:

PWM, WDT

Program Memory Size:

32KB (32K x 8)

EEPROM Size:

128 x 8

Voltage - Supply (Vcc/Vdd):

3.5V ~ 20V

Oscillator Type:

Internal

Mounting Type:

Surface Mount

Package / Case:

# S12 MagniV® Mixed-Signal MCUs S12ZVMA Family

Integrated solution with half bridge driver (unidirectional DC-motor or other loads)

## Features

-  DC Motor Control
-  Integrated LIN PHY
-  V<sub>REG</sub> for 12 V Supply
-  2-ch. MOSFET Gate Driver
-  Ultra-reliable Industrial
-  AEC-Q100 Grade0 (150 °C Ta / 175 °C Tj)

## Product One-Pager

**System in a package**—Highly integrated solution ideal for mechatronic approach to DC Motors controlled by LIN or PWM command

**Scalable**—32-/48-pin, up to 32 KB flash, up to 150 °C Ta

**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, 2-channel motor control MOSFET gate pre-drivers and op-amp for current sensing to reduce BOM

**Enablement**—Supported by comprehensive hardware and software solution

## S12ZVMA Specifications

Core	S12Z; 32 MHz bus	Gate Driver	1–2-ch. FET Gate driver
12V VREG	70 mA/170 mA	PWM	6-ch. motor control PWM
Flash	16–32 KB	PTU	Triggering ADC & PWM
RAM	1–2 KB	ADC	7-ch., 10-bit
EEPROM	128 B	OpAmp	1 x for current sensing
Core	S12Z	EVDD	1-ch. 5 V/ 20 mA (source)
Phy	LIN	Packages	32/48 LQFP
SCI/SPI	1/1	Temperature	Up to 150 °C Ta / 175 °C Tj
Timer	2-ch. + 2-ch., 16-bit	Op Range	3.5V – 20V

## Orderable Sample Part Numbers

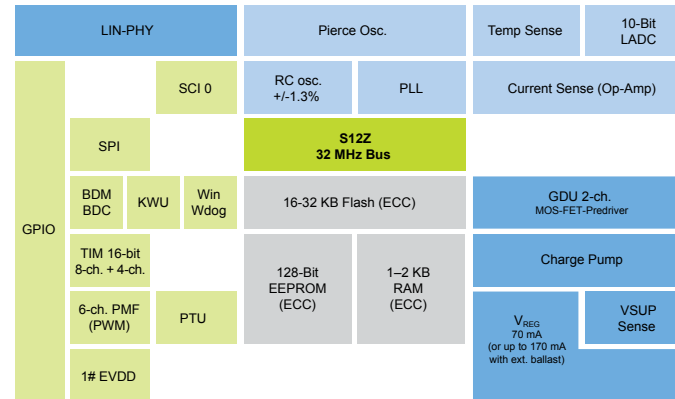
Part Number	Flash	Temp Range	Package	Available
S912ZVMAL3F0MLF	32 KB	-40 to 125 °C	48-LQFP	Now
S912ZVMAL3F0WLF	32 KB	-40 to 150 °C	48-LQFP	Now
S912ZVMAL3F0MLC	32 KB	-40 to 125 °C	32-LQFP	Now

[www.NXP.com/S12VMA](http://www.NXP.com/S12VMA)

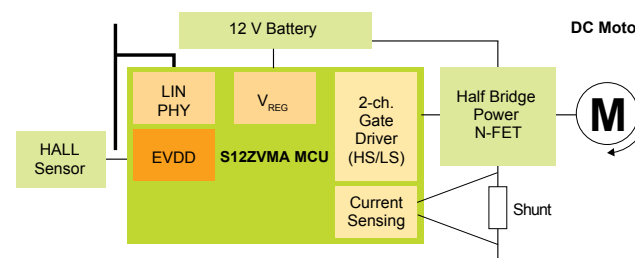
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Document Number: S12ZVMAFSA4 REV 7

## Product Block Diagram



## Application Example Block Diagram



## Target Applications

- ▶ DC-motor drive
- ▶ LIN based actuators
- ▶ Solenoids
- ▶ Valves
- ▶ Smart junction box
- ▶ Driving resistive or inductive loads
- ▶ Pumps (fuel/water/oil)
- ▶ Fans / blower

## Enablement Tools

- ▶ Evaluation boards/hardware
  - S12ZVMAEVB
- ▶ Compiler/Debugger
  - CodeWarrior® IDE
  - Cosmic IDE
- ▶ LIN Stack



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