

Digital Signal Controller, dsPIC33E Series, 60 MHz, 536 KB, 122 I/O's, DCI, ECAN, I2C, SPI, UART

|               |   |
|---------------|---|
| Manufacturers | <a href="#">Microchip Technology, Inc</a> |
| Package/Case  | LQFP-144                                  |
| Product Type  | Embedded Processors & Controllers         |
| RoHS          | Rohs                                      |
| Lifecycle     |   |



Images are for reference only

Please submit RFQ for DSPIC33EP512MU814-I/PL or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

## General Description

Microchip's dsPIC33E family of digital signal controllers (DSCs) features a 70 MIPS dsPIC® DSC core with integrated DSP and enhanced on-chip peripherals. These DSCs enable the design of high-performance, precision motor control systems that are more energy efficient, quieter in operation, have a great range and extended life. They can be used to control brushless DC, permanent magnet synchronous, AC induction and stepper motors. These devices are also ideal for high-performance general purpose applications.

## Features

### Operating Conditions

3.0V to 3.6V, -40°C to +125°C, DC to 60 MIPS

3.0V to 3.6V, -40°C to +85°C, DC to 70 MIPS

dsPIC33E Core

Modified Harvard Architecture

C Compiler Optimized Instruction Set

16-bit Wide Data Path

24-bit Wide Instructions

16x16 Integer Multiply Operations

32/16 and 16/16 Integer Divide Operations

## 11 Additional Instructions

Two 40-bit Accumulators with Rounding and Saturation Options

Flexible and Powerful Addressing modes

Single-Cycle Multiply and Accumulate

Single-Cycle shifts for up to 40-bit Data

16x16 Fractional Multiply/Divide Operations

Motor Control PWM

Two master time base modules can control dual 3-phase motors simultaneously

Up to seven PWM generators

Two PWM outputs per PWM generator

8.32 ns PWM resolution

Quadrature Encoder Interface (QEI)

32-bit position counter

32-bit Index pulse counter

Integrated Analog Features

Two independent ADC modules

One ADC configurable as 10-bit, 1.1 Msps with four S&H or 12-bit, 500 ksps with one S&H

One 10-bit ADC, 1.1 Msps with four S&H

Eight S&H using both ADC 10-bit modules

24 analog channels (64-pin devices) up to 32 analog channels (100/121/144-pin devices)

Flexible and independent ADC trigger sources

Up to three Analog Comparator modules with programmable 32 voltage points references

Timers / Capture / Compare / Standard PWM

9 16-bit Timers/Counters. Unused Output compares can be used as standard times for a total of 25 timers

16 Input Capture

16 Output Compare/ PWM

Hardware Real-Time Clock and Calendar

Peripheral Pin Select (PPS) to allow function remap

Direct Memory Access (DMA)

15-channel DMA with user-selectable priority arbitration

Communication Interfaces

USB 2.0 OTG-Compliant Full-Speed Interface

Four UART modules (15 Mbps), supporting LIN/J2602 protocols and IrDA®

Four 4-Wire SPI modules (15 Mbps)

Two ECAN™ modules (1 Mbaud) CAN 2.0B Support

Two I2C modules (up to 1 Mbaud) with SMBus Support

Data Converter Interface (DCI) module with Support for I2S and Audio Codecs

PPS to allow Function Remap

Parallel Master Port (PMP)

Qualification and Class B Support

AEC-Q100 Grade 1 (-40°C to +125°C)

AEC-Q100 Grade 0 (-40°C to +150°C)

Class B Safety Library, IEC 60730

## Related Products



[DSPIC30F6014A-20E/PF](#)

Microchip Technology, Inc  
TQFP-80



[DSPIC33EP512MU814-I/PH](#)

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TQFP-144



[DSPIC30F5011-30I/PT](#)

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TQFP-44