

Digital Signal Controller, dsPIC30F Series, 40 MHz, 48 KB, 20 I/O's, CAN, I2C, SPI, UART, 5.5 V



Images are for reference only

|               |   |
|---------------|---|
| Manufacturers | <a href="#">Microchip Technology, Inc</a> |
| Package/Case  | SOIC-28                                   |
| Product Type  | Embedded Processors & Controllers         |
| RoHS          | Rohs                                      |
| Lifecycle     |   |

Please submit RFQ for DSPIC30F4012-30I/SO or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

## General Description

dsPIC30F Motor Control Digital Signal Controller Seamless migration options from this device to dsPIC33F and PIC24 devices in similar packages.

For product comparison, please consider: dsPIC33EV64GM102

## Features

High-Performance dsPIC30F core

Modified Harvard architecture

C compiler optimized instruction set architecture

24-bit wide instructions, 16-bit wide data path

Up to 30 MIPS operation

DSP Engine for math intensive operations

Modulo and Bit-Reversed Addressing modes

Two, 40-bit wide accumulators with optional saturation logic

17-bit x 17-bit single cycle hardware fractional/ integer multiplier

Single cycle Multiply-Accumulate (MAC) operation

40-stage Barrel Shifter

Dual data fetch

Operating Conditions

Wide operating voltage range (2.5V to 5.5V)

Industrial and Extended temperature ranges

Peripheral Features

High current sink/source I/O pins: 25 mA/25 mA

Optionally pair up 16-bit timers into 32-bit timer modules

3-wire SPI™ modules (supports 4 Frame modes)

I2C™ module supports Multi-Master/Slave mode and 7-bit/10-bit addressing

Addressable UART modules with FIFO buffers

1 CAN module, 2.0B compliant

Motor Control PWM Module Features

Motor Control PWM Module with Complementary or Independent Output modes

Edge and Center Aligned modes

Multiple duty cycle generators

Dedicated time base with 4 modes

Programmable output polarity

Dead time control for Complementary mode

Manual output control

Trigger for synchronized A/D conversions

Quadrature Encoder Interface Module Features

QEI with Phase A, Phase B and Index Pulse input

16-bit up/down position counter

Count direction status

Position Measurement (x2 and x4) mode

Programmable digital noise filters on inputs

Alternate 16-bit Timer/Counter mode

Interrupt on position counter rollover/underflow

## Analog Features

10-bit 1 Msps Analog-to-Digital Converter (A/D)

A/D Conversion available during Sleep and Idle

4 Sample/Hold Channels

Multiple Conversion Sequencing Options

## Special Microcontroller Features

Enhanced Flash program memory with 10,000 erase/write cycle (min.) for industrial temperature range, 100K (typical)

Data EEPROM memory with 100,000 erase/write cycle (min.) for industrial temperature range, 1M (typical)

Self-reprogrammable under software control

Power-on Reset (POR), Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)

Flexible Watchdog Timer (WDT) with on-chip low power RC oscillator for reliable operation

Fail-Safe clock monitor operation

Detects clock failure and switches to on-chip low power RC oscillator

Programmable code protection

In-Circuit Serial Programming™ (ICSP™)

DC to 40 MHz external clock input

4 MHz-10 MHz oscillator input with PLL active (4x, 8x, 16x)

Programmable Brown-out Detection and Reset generation

Sleep, Idle and Alternate Clock modes for power management

## Related Products



### [DSPIC30F6014A-20E/PE](#)

Microchip Technology, Inc  
TQFP-80



### [DSPIC33EP512MU814-I/PH](#)

Microchip Technology, Inc  
TQFP-144



### [DSPIC30F5011-30I/PT](#)

Microchip Technology, Inc  
TQFP-64



### [DSPIC33EP512GM710-I/PE](#)

Microchip Technology, Inc  
TQFP-100



[DSPIC33FJ256MC710-I/PE](#)

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[DSPIC30F4011-30I/PT](#)

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TQFP-44