

Digital Signal Controller, dsPIC30F Series, 30 MHz, 12 KB, 21 I/O's, I2C, SPI, UART, 5.5 V

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



Images are for reference only

Please submit RFQ for DSPIC30F2020-30I/SO or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

## General Description

dsPIC30F SMPS & Digital Power Conversion 16-bit Digital Signal Controller. These devices offer features supporting common, multi-loop digital switch-mode power supplies (SMPS) and other digital power-conversion applications such as:

- AC to DC Converters
- DC to DC Converters
- Power Factor Correction (PFC)
- Uninterruptible power supply (UPS)
- Inverters
- Embedded Power-Supply Controllers
- Circuit Breakers, Arc Fault Detection
- Digital Lighting

For product comparison, please consider:dsPIC33EP16GS202

## Features

High-Performance dsPIC30F core

Up to 30 MIPS operation

Modified Harvard architecture

C compiler optimized instruction set architecture

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

DSP Engine for math intensive operations

Modulo and Bit-Reversed 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

3.3V and 5.0V operation ( $\pm 10\%$ )

Industrial and Extended temperature ranges

Peripheral Features

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

Three 16-bit timers/counters; optionally pair up 16-bit timers into 32-bit timer modules

Four 16-bit Capture input functions

Two 16-bit Compare/PWM output functions (Dual Compare mode available)

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

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

Power Supply PWM Module Features

Four PWM generators with 8 outputs

Each PWM generator has independent time base and duty cycle

Duty cycle resolution of 1.1 ns at 30 MIPS

Individual dead time for each PWM generator

Phase-shift resolution of 4.2 ns @ 30 MIPS

Frequency resolution of 8.4 ns @ 30 MIPS

Independent Current-Limit and Fault Inputs

Output Override Control

Special Event Trigger

PWM generated ADC Trigger

Analog Features

10-bit ADC with 2000 Ksps conversion rate

Up to 12 input channels

PWM control loop with up to six conversion pairs where each conversion pair has up to four PWM and seven other selectable trigger sources

Interrupt hardware supports up to 1M interrupts per second

Comparator

Four Analog Comparators with 20 ns response time and 10-bit DAC reference generator

PWM module interface with Duty Cycle Control, Period Control and Fault Detect

Special Event Trigger

PWM-generated ADC Trigger

Special Microcontroller Features

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

Selectable Power Management modes: Sleep, Idle and Alternate Clock modes

## Related Products



[DSPIC30F6014A-20E/PF](#)

Microchip Technology, Inc  
TQFP-80



[DSPIC30F5011-30I/PT](#)

Microchip Technology, Inc  
TQFP-64



[DSPIC33EJ256MC710-I/PF](#)

Microchip Technology, Inc  
TQFP-100



[DSPIC33EP512MU814-I/PH](#)

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[DSPIC30F5015-30I/PT](#)

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