

44-PIN, 32KB, FLASH, 2048BYTES-RAM, 40 MIPS, 35I/O, 16-BIT FAMILY, -40C to +85C, 44-TQFP, TRAY, Digital signal processorer och kontrollor (DSP, DSC) 16B DSC 44LD 32KB FlashMotor40

Manufacturers	Microchip Technology, Inc
Package/Case	TQFP-44
Product Type	Embedded Processors & Controllers
RoHS	Rohs
Lifecycle	



Images are for reference only

Please submit RFQ for DSPIC33FJ32MC204-I/PT or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.

[RFQ](#)

General Description

16-bit Motor Control family dsPIC33F Digital Signal Controller in low-pin count packages featuring 2 PWM generators with independent timebases and the new Peripheral Pin Select capability. Seamless migration options from and to the PIC24F, PIC24H, dsPIC30F & dsPIC33F product families for this device.

Features

Operating Range:

Up to 40 MIPS operation (@ 3.0-3.6V):

Industrial temperature range (-40°C to +85°C)

Extended temperature range (-40°C to +125°C)

High temperature range (-40°C to +150°C)

High-Performance DSC CPU:

Modified Harvard architecture

C compiler optimized instruction set

16-bit wide data path

24-bit wide instructions

Linear program memory addressing up to 4M instruction words

Linear data memory addressing up to 64 Kbytes

83 base instructions: mostly 1 word/1 cycle

Two 40-bit accumulators with rounding and saturation options

Flexible and powerful addressing modes: Indirect, Modulo and Bit-reversed software stack

16 x 16 fractional/integer multiply operations

32/16 and 16/16 divide operations

Single-cycle multiply and accumulate:

Accumulator write back for DSP operations

Dual data fetch

Up to ± 16 -bit shifts for up to 40-bit data

Timers/Capture/Compare/PWM:

Timer/Counters, up to three 16-bit timers

Can pair up to make one 32-bit timer, 1 timer runs as Real-Time Clock with external 32.768 kHz oscillator, and Programmable prescaler

Input Capture (up to 4 channels): Capture on up, down or both edges, 16-bit capture input functions and 4-deep FIFO on each capture

Output Compare (up to 2 channels): Single or Dual 16-Bit Compare mode and 16-bit Glitchless PWM mode

Interrupt Controller:

5-cycle latency, 118 interrupt vectors, Up to 26 available interrupt sources

Up to 3 external interrupts, 7 programmable priority levels, and 4 processor exceptions

Digital I/O:

Peripheral pin Select functionality

Up to 35 programmable digital I/O pins

Wake-up/Interrupt-on-Change for up to 21 pins

Output pins can drive from 3.0V to 3.6V

Up to 5V output with open drain configuration

All digital input pins are 5V tolerant

4 mA sink on all I/O pins

On-Chip Flash and SRAM:

Flash program memory (up to 32 Kbytes)

Data SRAM (2 Kbytes)

Boot and General Security for program Flash

System Management:

Flexible clock options: External, crystal, resonator, internal RC

Fully integrated Phase-Locked Loop (PLL) and Extremely low jitter PLL

Power-up Timer

Oscillator Start-up Timer/Stabilizer

Watchdog Timer with its own RC oscillator

Fail-Safe Clock Monitor

Reset by multiple sources

Power Management:

On-chip 2.5V voltage regulator

Switch between clock sources in real time

Idle, Sleep and Doze modes with fast wake-up

Motor Control Peripherals:

6-channel 16-bit Motor Control PWM

3 duty cycle generators

Independent or Complementary mode

Programmable dead time and output polarity

Edge-aligned or center-aligned

Manual output override control

1 Fault input

Trigger for ADC conversions

PWM frequency for 16-bit resolution (@ 40>

PWM frequency for 11-bit resolution (@ 40>

2-channel 16-bit Motor Control PWM:

1 duty cycle generator

Independent or Complementary mode

Programmable dead time and output polarity

Edge-aligned or center-aligned

Manual output override control

1 Fault input

Trigger for ADC conversions

PWM frequency for 16-bit resolution (@ 40>

PWM frequency for 11-bit resolution (@ 40>

Quadrature Encoder Interface module

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-to-Digital Converters (ADCs):

10-bit, 1.1 Msps or 12-bit, 500 Ksps conversion

2 and 4 simultaneous samples (10-bit ADC)

Up to 6 input channels with auto-scanning

Conversion start can be manual or synchronized with 1 of 4 trigger sources

Conversion possible in Sleep mode

CMOS Flash Technology:

Low-power, high-speed Flash technology

Fully static design

3.3V ($\pm 10\%$) operating voltage

Industrial and Extended temperature

Low power consumption

Communication Modules:

4-wire SPI:

Framing supports I/O interface to simple codecs

Supports 8-bit and 16-bit data

Supports all serial clock formats and sampling modes

I2C™: F

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