PIC12F617

8-Pin, 8-Bit Flash Microcontroller Product Brief

High-Performance RISC CPU:

- Only 35 single-word instructions to learn
- All single-cycle instructions except for program branches which are two-cycle
- Eight-level deep hardware stack
- Direct, Indirect and Relative Addressing modes for data and instructions
- Operating speed:
  - DC – 20 MHz clock input
  - DC – 200 ns instruction cycle

Special Microcontroller Features:

- Program Memory Read Capability
- Program Memory Write Capability
- Precision Internal Oscillator:
  - Selectable 4 MHz or 8 MHz frequency
  - Factory calibrated to ±1%
- Power-saving Sleep mode
- Power-on Reset (POR)
- Power-up Timer (PWRT) and Oscillator Start-up Timer (OST)
- Brown-out Reset (BOR)
- Watchdog Timer (WDT) with dedicated on-chip RC oscillator for reliable operation
- Multiplexed $\overline{MCLR}$ input pin with internal pull-up
- Programmable code protection
- Selectable oscillator options:
  - INTOSC: Precision internal oscillator
  - EXTRC: External low-cost RC oscillator
  - XT: Standard crystal/resonator
  - HS: High-speed crystal/resonator
  - LP: Power-saving, low-frequency crystal
  - EC: High-speed external clock input
- In-Circuit Serial Programming™ (ICSP™)
- Programmable Interrupt-on-Change pins

Low-Power Features

- Operating current:
  - 130 μA @ 2V, 1 MHz, typical
  - 240 μA @ 2V, 4 MHz, typical
- Standby current:
  - 50 nA @ 2V, typical
- Watchdog Timer current:
  - 1 μA @ 2V, typical

CMOS Technology:

- Low-power, high-speed Flash technology:
  - 100,000 Flash endurance
  - > 40-year retention
- Fully static design
- Wide operating voltage range: 2.0V – 5.5V
- Wide temperature range:
  - Industrial: -40°C to +85°C
  - Extended: -40°C to +125°C

Peripheral Features:

- I/O pins:
  - 5 I/O pins with individual direction control
  - 1 input-only pin
  - Individually selectable weak pull-ups
  - High current sink/source for direct LED drive
- Analog-to-Digital (A/D) Converter:
  - 10-bit resolution
  - 4 external channels
  - 3 internal channels to convert internal voltage references
- Analog Comparator:
  - One comparator
  - Comparator inputs and output accessible externally
  - On-chip 0.6V absolute voltage reference
  - Programmable on-chip voltage reference (CV_{REF}) module (% of V_{DD})
- Timer0 module: 8-bit timer/counter with 8-bit programmable prescaler
- Enhanced Timer1 module:
  - 16-bit timer/counter with prescaler
  - External gate input
  - Option to use OSC1/OSC2 input in LP mode as Timer1 oscillator when in INTOSC mode
  - Option to use system clock source as Timer1 clock input
- Timer2 module: 8-bit timer/counter with 8-bit prescaler and postscaler
- Enhanced Capture Compare/PWM module (ECCP):
  - User selectable simultaneous PWM and complementary PWM output for bridge drive applications
  - 16-bit capture maximum resolution 12.5 ns
  - Compare maximum resolution 200 ns
  - 10-bit PWM maximum frequency 20 kHz

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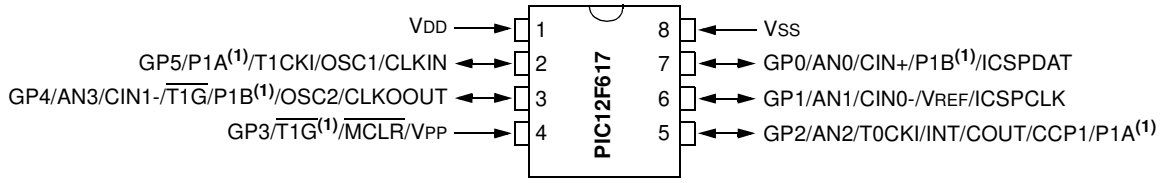
TABLE 1: PIC12F617 FEATURE SUMMARY

Device	Program Memory Flash (Words)	Self Read/ Self Write	SRAM (bytes)	I/O	Timers 8/16 bit	10-bit A/D Channels	Comparators	ECCP
PIC12F617	2048 x 14	Yes/Yes	128	6	2/1	4	1	Yes

Note: Pin details are subject to change.

FIGURE 1: PIC12F617 PIN DIAGRAM

PDIP, SOIC, MSOP, DFN



Note 1: Pin feature is dependent on device configuration.

TABLE 2: PIC12F617 PIN SUMMARY (PDIP, SOIC, MSOP, DFN)

I/O	8-pin PDIP, SOIC, MSOP, DFN	A/D	Reference	Comparator	Timers	ECCP	Pull-up	Interrupt	Basic
GP0	7	AN0	—	CIN+	—	P1B(1)	Y	IOC	ICSPDAT
GP1	6	AN1	VREF	CIN0-	—	—	Y	IOC	ICSPCLK
GP2	5	AN2	—	COUT	T0CKI	CCP1 / P1A(1)	Y	INT IOC	—
GP3	4	—	—	—	T1G(1)	—	Y(2)	IOC	MCLR/VPP
GP4	3	AN3	—	CIN1-	T1G(1)	P1B(1)	Y	IOC	OSC2/CLKOUT
GP5	2	—	—	—	T1CKI	P1A(1)	Y	IOC	OSC1/CLKIN
VDD	1	—	—	—	—	—	—	—	—
VSS	8	—	—	—	—	—	—	—	—

Note 1: Pin feature is dependent on device configuration.
2: Pull-up only available when pin is configured as MCLR.

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