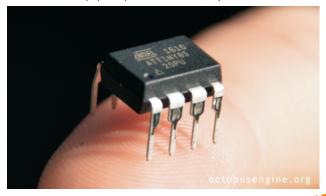
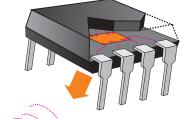
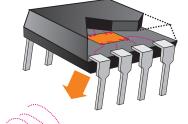
8bit microcontroller Attiny

one of the most popular processors for hobbyists

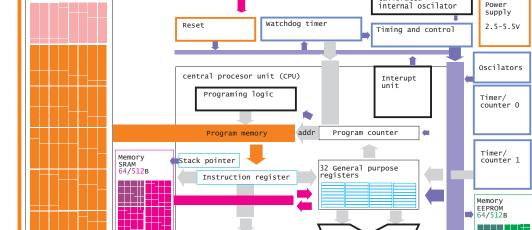




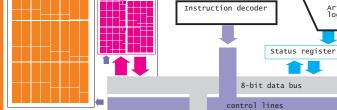
simple logic gate



Flash 1k/8k



PB5/RESET



Serial peripheral interface Data register Direction register USART SPI / I2C PORT B drivers

PBO PB1 PB2 PB3 PB4 PDIP/SOIC (PCINT5/RESET/ADC0/dW) PB5 8 UVCC (PCINT3/XTAL1/CLKI/OC1B/ADC3) PB3 2 7 PB2 (SCK/USCK/SCL/ADC1/T0/INT0/PCINT2) (PCINT4/XTAL2/CLKO/OC1B/ADC2) PB4 7 3 6 PB1 (MISO/DO/AIN1/OC0B/OC1A/PCINT1) 5 PB0 (MOSI/DI/SDA/AIN0/OC0A/OC1A/AREF/PCINTO)

Attiny13 Attiny85 Attiny1614 2003 2005 year 2018 1kB 8kB 16kB flash sRAM 64B 256B 2kB **EEPROM** 64B 256B 256B timers 8/16: 1/0 2/0 1/3 UART/I2C n/n y/y y/y

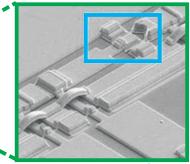
Analog comparator

A/D Converter (ADC)

Calibrated

Arithmetic logic unit Power

silicon chip



one transistor

These chips have a modified Harvard architecture 8-bit RISC processor core. The smallest in their AVR family of microcontrollers are the ATtiny series (8-bit core and fewer features, fewer I/O pins, and less memory than other AVR series). More than 10.000 transistors.

A **microprocessor** is a computer processor that incorporates the functions of a central processing unit on a single integrated circuit. History:

1960 - CPU (MOS LSI chips - a few hundred transistors)

1969 - Four-Phase Systems (acquired by Motorola in 1981)

1970 - electronics calculators

1971 - Intel 4004 (2300 transistors)

A microcontroller (MCU for microcontroller) is a small computer with simple peripherals on a single integrated circuit.

1977 - Intel 8048

1993 - Microchip PIC16x84, Atmel (NOR flash memory)



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Attiny85: The high-performance, low-power Microchip 8-bit AVR RISC-based microcontroller combines 8KB ISP flash memory, 512B EEPROM, 512-Byte SRAM, 6 general purpose I/O lines, 32 general purpose working registers, one 8-bit timer/counter with compare modes, one 8-bit high speed timer/counter, USI, internal and external Interrupts, 4-channel 10-bit A/D converter, programmable watchdog timer with internal oscillator, three software selectable power saving modes, and debugWIRE for on-chip debugging. The device achieves a throughput of 20 MIPS at 20 MHz and operates between 2.7-5.5 volts.

Pinout ATtiny 85

