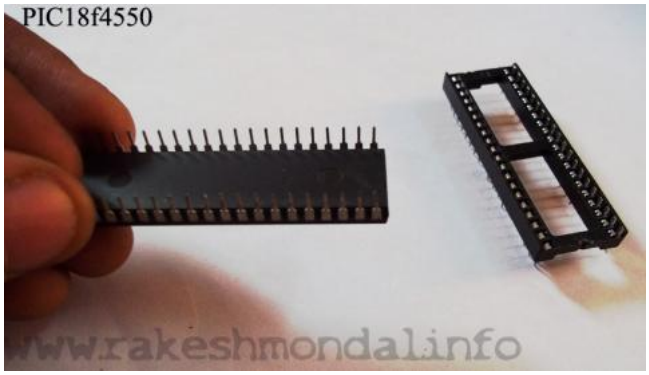
PIC18F4550 MICROCONTROLLER

Submitted by RakeshRon on Mon, 09/30/2013 - 04:51



PIC18F4550 MICROCONTROLLER

Summary
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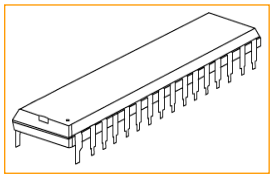
PIC18F4550

PIC18F4550 belongs to pic18f family of microcontrollers. PIC18F4550 is one among the advanced Microcontrollers from the microchip tec

between hobbyist and learners due it functionalities and features such as ADC and USB Integration. A typical PIC18F4550 comes in variou

can be selected according to the project requirement.



FEATURES

PIC18F4550 is an 8 bit microcontroller. PIC18F4550 has been implemented with **Nano WATT technology** hence it requi

PIC18F4550 has **16 bit Instruction Set Architecture**, (ISA) which provides a degree of freedom to programmers with various data types , reg

addressing modes, interrupt and IO operations. PIC18F4550 also has an **Extended Instruction Set** as a special feature; it's an optional ext

Memory Specifications: A PIC18F4550 has 256 bytes of EEPROM (Electrically Erasable and Programmable Read Only Memory), 2KB of SRAM (Stati

proves another degree of freedom to programmers.

Communication Protocol: PIC18F4550 is remarked as advanced, as it uses well sophisticated protocols for communications. The modern protoc

PIC18F4550. These technologies integrate with **Nano Watt Technology** (as mentioned before) to produce PIC18F4550, a well equipped, low powe

A Dedicated ICD/ICSP Port allows the programmers to code and debug easily.

- Enhanced flash program and the 1KB Dual Access RAM for USB are used for buffering.
- PIC18F4550 consists of up to 13 channels for analog to digital converter. The converter accuracy amounts to 10-bit to convert analog
- PIC18F4550 is compatible to work with different internal and external clock sources. It comes with four built-in timers or an extern
- The frequency limit for a PIC18F4550 is from 31 KHz to 48 MHz respectively.
- The microcontroller PIC18F4550 comes with ADC comparators and other such peripherals as an in-built feature.

A very good description and in detailed features of PIC18F4550 microcontroller can be found in its respective datasheet. A copy of that P

microchip's website.

USB SPEEDS AND USB REGISTERS IN PIC18F4550

PIC18F4550 supports USB functionality that it comes with a USB2.0 hardware inbuilt which can operate in two USB standard speeds.

USB Speed supported by pic18f4550

- Full speed 12 MBit per second
- Low speed 1.2 MBit per second

The entire USB configuration is handled with UCFG register (USB CONFIGURATION REGISTER) which helps in defining the mode, or in which US

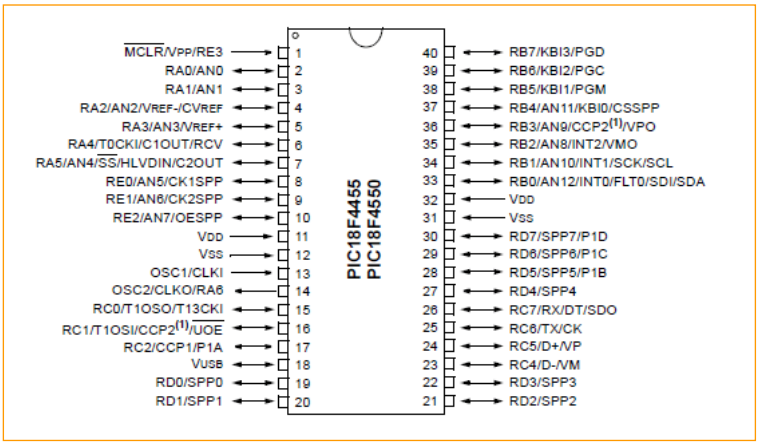
can find more details about various USB Operation registers in PIC18F4550 like **UCON, UCFG, USTAT, UADDR etc.** from PIC18F4550 datasheet.

PINOUT DIAGRAM / PACKAGE

This PIC18F4550 microcontroller comes in varieties of pinout package, making it more usable for its users. The most commonly used package structure (two rows of pins on either ends 20 left- 20 right).

40 PIN Package DIP (Dual Inline package)

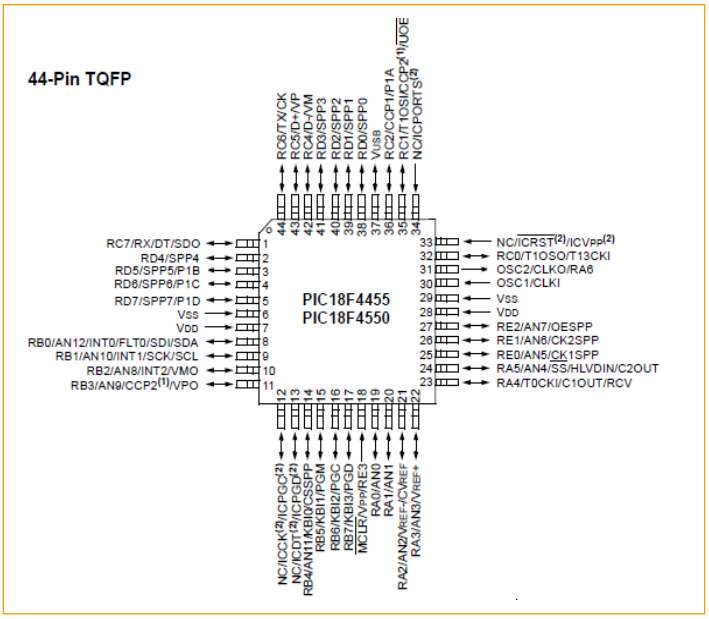
PIC18F4550's 40 pin DIP (Dual inline package) has got its special reputation in between hobbyist, it's also easily available in any nothing but a typical microcontroller with two rows of pins on either side. A 40 pin DIP PIC18F4550 has 20 pin on each row.



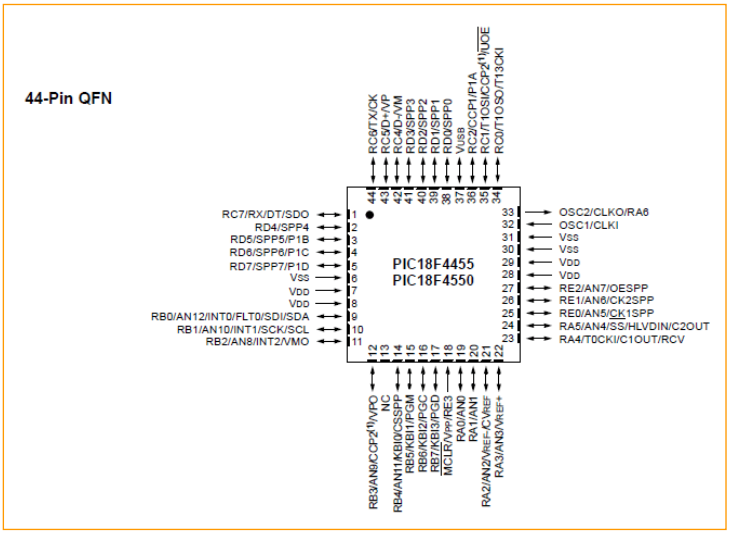
44 Pin packages for PIC18F4550

44 pin packages are mostly focused on for production level devices, for other industries who wish to use them in their devices.

44-Pin QFP (Quad Flat Package) Pinout



44-Pin QFN (quad-flat no-leads) Pin out



PORTS

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40 pins of PIC18F4550 are divided into 5 ports. Out of which, 35 pins are Input-Output pins which can be configured for general Inpu

them. Please Refer the Pinout diagram above for a clear idea about location of these pins on the microcontroller.

Ports	Number of pins	Pin Name

PORTA	7	RA0-RA6
PORTB	8	RB0-RB7
PORTC	7	RC0-RC2, RC4-RC7 *(Check t*
PORTD	7	RD0-RD7
PORTE	4	RE0-RE3

REGISTERS ASSOCIATED WITH PORTS IN PIC18F4550

Each port in pic18f4450 is associated with three 8 bit registers for IO operations.

1. **TRISX** (8 bit)
2. **LATx** (8 bit)
3. **PORTx** (8 bit)

TRISx : where **X** is the name of the ports either of A, B, C, D, E. For example TRISA, TRISB etc.This register assigns the direction of

0xF0", will set all the pins in port B to Output.

LATX: The latch registers reds and modifies the write operation on the value of I/O pin and stored the output data that is to be passed o

PORTX: Reads the device level, stores the Input level of the pins and reads and registers the input signal from the external device if th

DATASHEET

Microchip is very well known for its extremely good and detailed documentation. Please download a copy PIC18F4550 Data sheet from their o

Download PIC18f4550 Datasheet

PIC18f4550 Section

MISCELLANEOUS

PROGRAMMING MICROCONTROLLER

A C18 compiler with Mplab ide or Mplab X with XC8 Compiler must be good to getting started with programming a PIC18F4550. A free ver

downloaded from microchip's website for getting started with pic18f4550. However other IDE software's such as MikroC can also used for pr

A series of tutorial can help you learn to program a pic18f4550 microcontroller.

Tutorials

PIC18F4550 Programming with hardware C

MPLAB IDE AND C18

PIC18F4550 Blinking led | Method 1

PIC18F4550 Blinking led | Method 2

Mplab X IDE Programming Tutorial

PIC18F4550 ADC stepper Motor Control

Some projects on pic18f4550 Microcontroller for your reference.

PROJECTS

- USB Interface board
- USB Demo Interface board
- PIC18F4550 LCD Interface
- USB Stepper Motor Driver (PIC18F4550)
- (IR) Infrared Sensor Interface with PIC18F4550
- USB DC motor Control
- IR sensor

Tags: PIC18F4550 Microcontroller

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- Infrared (IR) Object Detection Module Circuit Using IR LED &
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