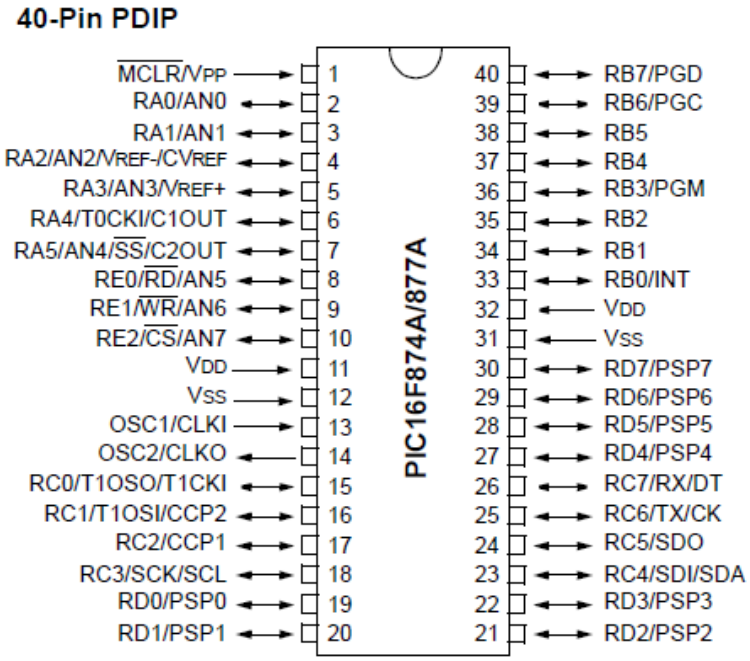
## PIC Specifications




- 8000 line code
- 100000 write/erase
- 368 variable
- 40 years data storage in $E^2$PROM
- 3 Timer/Counter. One of them is 16 bit, others 8 bit
- 10 bit ADC, 8 channel
- Codes are PIC compatible

## Current Limits

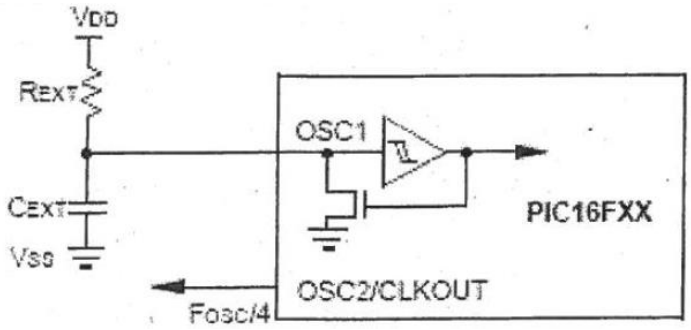
- Max 25mA Output For one pin
- Max 150mA for total output

## Oscillator Types

### 1- RC Oscillator

This type of oscillator is constructed with a resistor and a capacitor. You need to use specified values to acquire the desired frequency.

| R | C | $F_{osc}$ |
|---|---|---|
| 10KΩ | 20pF | 625 KHz |
| 10KΩ | 220pF | 80 KHz |
| 10KΩ | 0.1µF | 80 KHz |



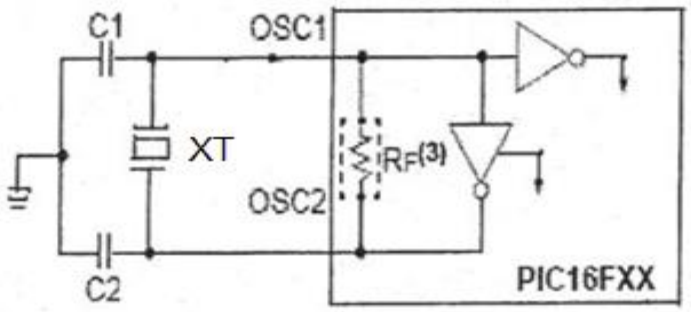

RC Oscillator Circuit

**2- XT Oscillator**

This type of oscillator is constructed with a crystal and twin capacitors. You need to use specified values to acquire the desired frequency.

| $C_1$ | $C_2$ | XT ($F_{osc}$) |
|---|---|---|
| 100-150pF | 100-150pF | 100 KHz |
| 15-33pF | 15-33pF | 2 MHz |
| 15-33pF | 15-33pF | 4 MHz |

*XT: Crystal Oscillator



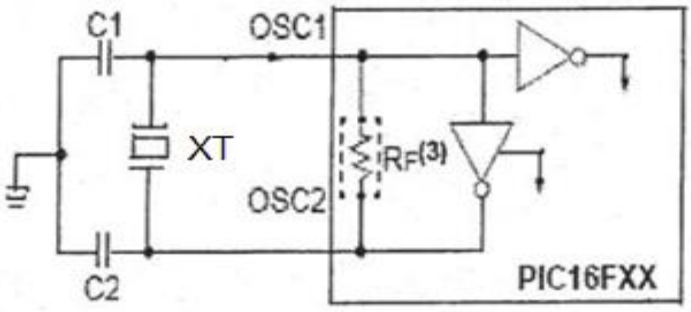

XT Oscillator Circuit

**3- HS Oscillator**

This type of oscillator is constructed with a crystal and twin capacitors. You need to use specified values to acquire the desired frequency. It is preferred for high speed operations.

| $C_1$ | $C_2$ | XT ($F_{osc}$) |
|---|---|---|
| 15-33pF | 15-33pF | 4 MHz |
| 15-33pF | 15-33pF | 20 MHz |

*XT: Crystal Oscillator



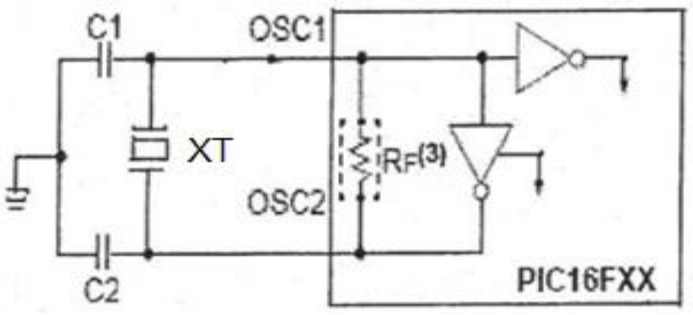

HS Oscillator Circuit

### 4- LP Oscillator

This type of oscillator is constructed with a crystal and twin capacitors. You need to use specified values to acquire the desired frequency. It is preferred for low power operations.

| $C_1$ | $C_2$ | XT ($F_{osc}$) |
|---|---|---|
| 68-100pF | 68-100pF | 32 KHz |
| 15-33pF | 15-33pF | 200 KHz |

*XT: Crystal Oscillator




LP Oscillator Circuit

## Cycle Time of An Instruction

For a 20MHz crystal

$$\frac{20}{4} = 5MHz \qquad \frac{1}{5.10^6} = 0.2\mu s$$

## Reset Circuit of PIC