

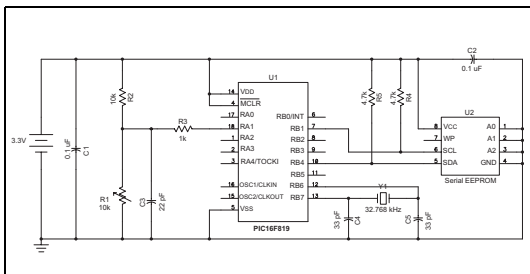
TIP #1 Switching Off External Circuits/ Duty Cycle

All the low power modes in the world won't help your application if you are unable to control the power used by circuits external to the microprocessor. Lighting an LED is equivalent to running most PICmicro[®] microcontrollers (MCUs) at 5V - 20 MHz. When you are designing your circuitry, decide what physical modes or states are required and partition the electronics to shutdown unneeded circuitry.

EXAMPLE:

The application is a long duration data recorder. It has a sensor, an EEPROM, a battery and a microprocessor. Every two seconds, it must take a sensor reading, scale the sensor data, store the scaled data in EEPROM and wait for the next sensor reading.

Solution 1:

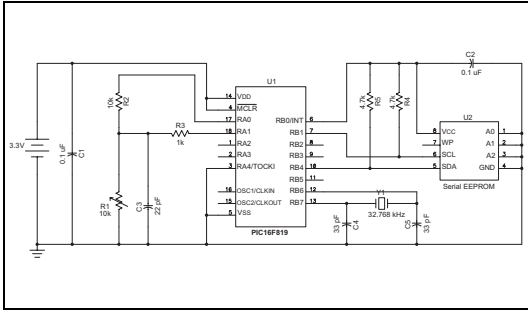


Tips 'n Tricks

TIP #1 Switching Off External Circuits/ Duty Cycle (Cont.)

The system shown above is very simple and clearly has all the parts identified in the requirements. Unfortunately, it has a few problems in that the EEPROM, the sensor, and its bias circuit, are energized all the time. To get the minimum current draw for this design, it would be advantageous to shutdown these circuits when they are not required. See Solution 2.

Solution 2:



In Solution 2, I/O pins are used to power the EEPROM and the sensor. Because the I/O pins can source 20 mA, there is no need to provide additional components to switch the power.