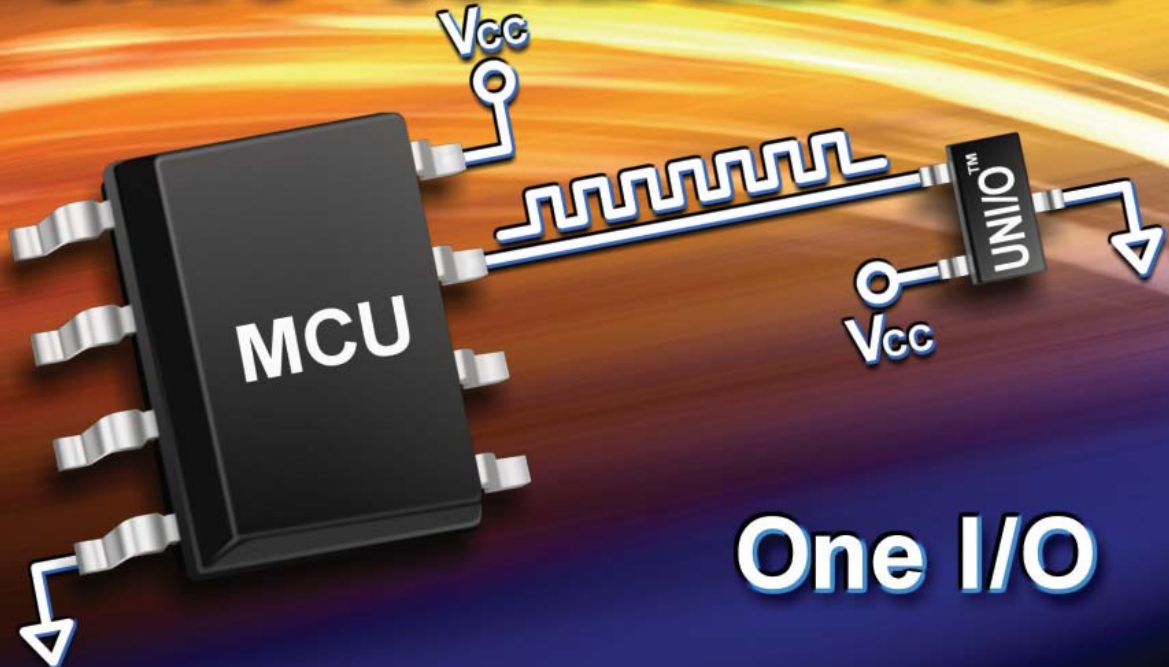




**UNI/O™ Serial EEPROMs**  
**Single I/O Bus Interface**

**UNI/O™ Serial EEPROM**



**One I/O**

# Introducing the UNI/O EEPROM Family

**Need more microcontroller pins for new features?**  
**Want to stay with a low pin-count microcontroller rather than switching to a more expensive one?**

Microchip's new UNI/O serial EEPROM uses only ONE connection to the host microcontroller. This compares to two or three pins for I<sup>2</sup>C™, and three to six pins for Microwire or SPI buses. This new, proprietary bus offers advanced features like a status register and write protection on demand, along with all I/O, memory array and command functions through a single pin.

## New Communications Standard

### UNI/O bus: First introduced on serial EEPROMs

- Manchester Communications
  - Clock and data in a single serial bit stream
  - Signal transition in the middle of bit period
- MCU establishes data rate
- EEPROM tracks data rate – Frequency and Phase
- Software Addressable

## Benefits

### A single I/O EEPROM can simplify your design and reduce system cost

- Free up pins on the MCU
  - Add a new feature to your application
  - Move to a smaller MCU
- Free up pins on your connector
  - Smaller connector = lower cost
- More compact design

## Advanced Features

- Single I/O Interface
- 1-16 Kbit Memory Densities
- 1.8-5.5V Operating Voltage
- 10-100 KHz Operating Frequency
- 1 Million Erase/Write Cycles
- Software Write Protect
  - ¼, ½ or Full Array
- Status Register
- Set/Erase entire memory with a single command
- ESD Protection > 4 KV
- Noise Filtration Circuitry
- Packaging: 3-pin SOT-23  
8-pin SOIC, MSOP & TDFN
- Temperature: Industrial (-40°C to +85°C)  
Extended (-40°C to +125°C)

## Get Started With a Simple Evaluation

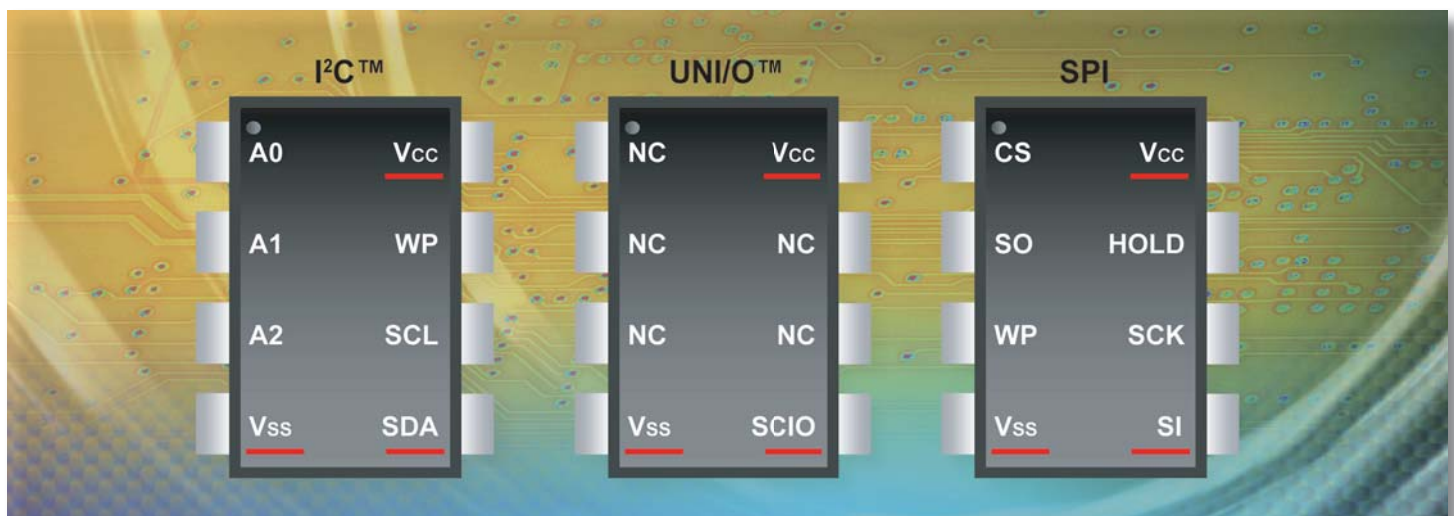
### Use your existing hardware

- UNI/O EEPROMs can fit in existing sockets
  - Pin-out similar to I<sup>2</sup>C and SPI EEPROMs
  - 8-pin packages share Vcc, Vss and Data Line

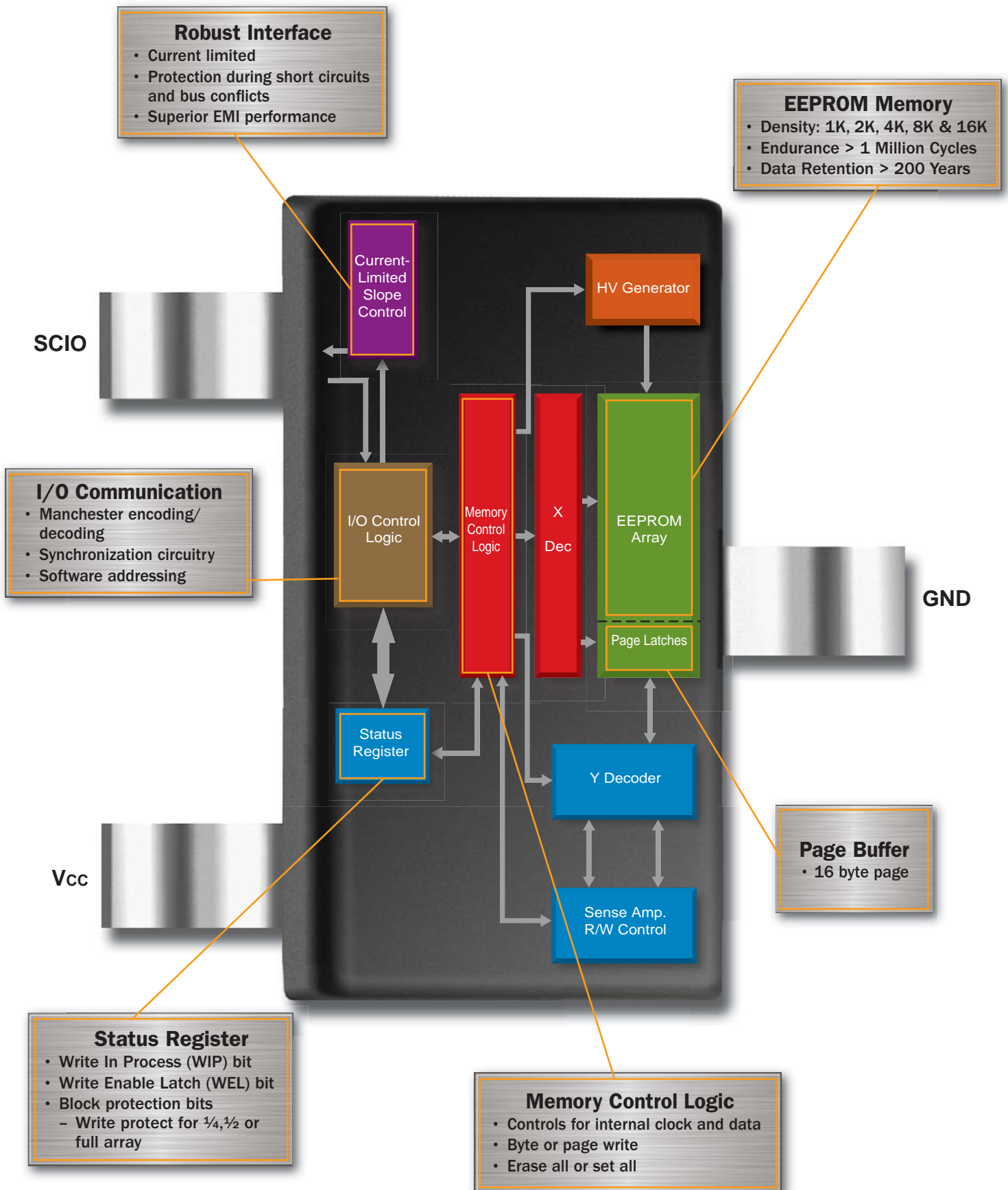
### Use Microchip's software drivers

- UNI/O software drivers available for many popular microcontrollers
- New drivers coming

## Current EEPROM 8-lead Pin Outs



# Inside the UNI/O EEPROM



# Designing with the UNI/O Serial EEPROM

## Resources to help you get started quickly ...

### MPLAB® Starter Kit for Serial Memory Products (Part Number DV243003)



Increase productivity, reduce time to market and create a rock-solid design using this sophisticated development system. The MPLAB Starter Kit includes everything necessary to quickly program and develop a robust and reliable Serial EEPROM design, and reduce the time required for system integration and hardware/software debug.

- Windows® 2000, XP and Vista™ operating systems
- Total Endurance™ software model
- MPLAB Starter Kit board and user interface software
- Quick start guide
- Serial EEPROM sample pack

### Additional Resources

Microchip Advanced Part Selector (MAPS): [www.microchip.com/maps](http://www.microchip.com/maps)

Getting Started with UNI/O™ Webinar: <http://techtrain.microchip.com/webseminars>

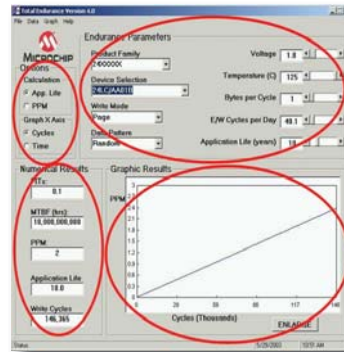
Over 50 different application notes, many with source code options can be found at: [www.microchip.com/appnotes](http://www.microchip.com/appnotes)

Get started with Microchip's Serial EEPROMs in four easy steps: [www.microchip.com/EEPROM](http://www.microchip.com/EEPROM)

### UNI/O Bus Software Drivers

MCU Family	Device	Architecture		Language	Timer Resources
		Data Bus	Instruction Word		
PIC® MCU	PIC10F202 PIC12F508 PIC16F505	8-bit	12-bit	Assembly	Firmware
PIC MCU	PIC12F609 PIC16F610	8-bit	14-bit	Assembly	Firmware
PIC MCU	PIC12F683 PIC16F616	8-bit	14-bit	Assembly	HW Peripheral
PIC MCU	PIC12F683 PIC16F616	8-bit	14-bit	C	HW Peripheral
PIC MCU	PIC18F1220	8-bit	16-bit	Assembly	Firmware
PIC MCU	PIC18F24J10	8-bit	16-bit	Assembly	HW Peripheral
PIC MCU	PIC18F24J10	8-bit	16-bit	C	HW Peripheral
PIC MCU	PIC24FJ128GA010	16-bit	24-bit	C	HW Peripheral
dsPIC® DSC	dsPIC33F256GP710	16-bit	24-bit	C	HW Peripheral
PIC MCU	PIC32XXX	32-bit	32-bit	C	HW Peripheral
ARM7 Core	AT91SAM7S256	32-bit	32-bit	C	HW Peripheral
8051	89LPC952	8-bit	8-bit	Assembly	HW Peripheral
8051	89LPC952	8-bit	8-bit	C	HW Peripheral
MSP430	MSP430F1232	16-bit	16-bit	C	HW Peripheral

### FREE Total Endurance™ Software



Microchip's Total Endurance Software provides you with unprecedented visibility into Serial EEPROM based applications. Describe your system to an advanced

mathematical model (with a friendly human interface), and it will predict the performance and reliability of the Serial EEPROM within that environment. Design trade-off analysis that formerly consumed days or weeks can now be accomplished in minutes with a level of accuracy that delivers a truly robust design.

# UNI/O Serial EEPROM Product Specifications

## UNI/O Product Family

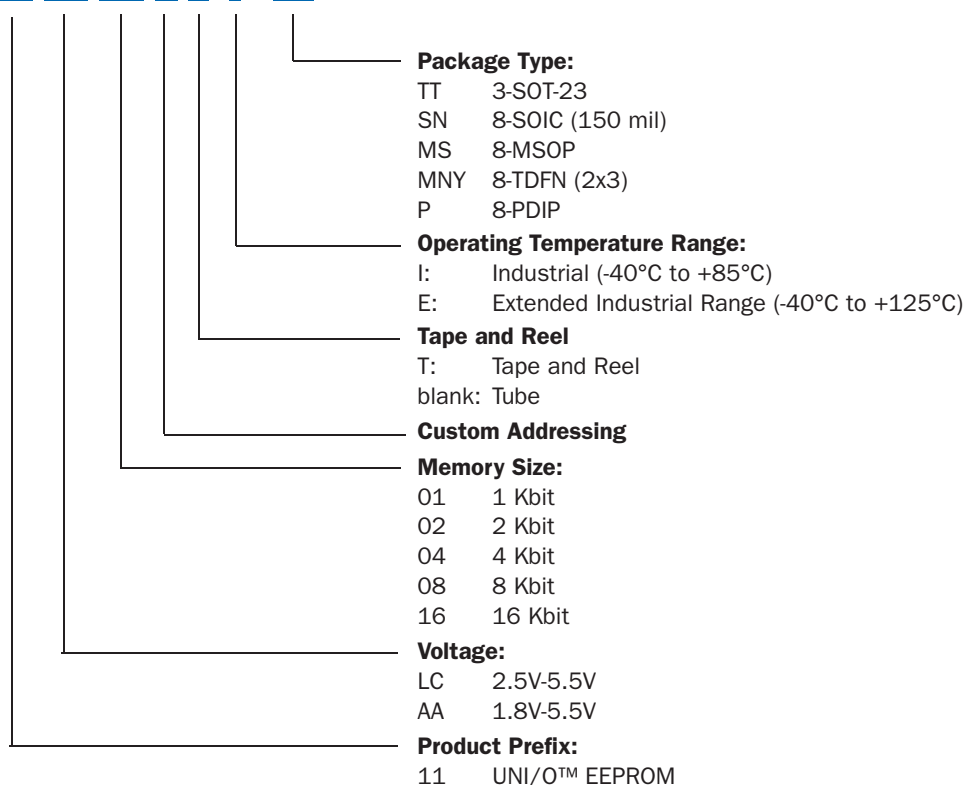
Device	Density (bits)	Organization	Page Size (bytes)	Operating Voltage	Temperature Range	Packages
11AA010	1K	128 x 8	16	1.8-5.5V	I	TT, SN, MNY, MS, P
11LC010	1K	128 x 8	16	2.5-5.5V	I, E	TT, SN, MNY, MS, P
11AA020	2K	256 x 8	16	1.8-5.5V	I	TT, SN, MNY, MS, P
11LC020	2K	256 x 8	16	2.5-5.5V	I, E	TT, SN, MNY, MS, P
11AA040	4K	512 x 8	16	1.8-5.5V	I	TT, SN, MNY, MS, P
11LC040	4K	512 x 8	16	2.5-5.5V	I, E	TT, SN, MNY, MS, P
11AA080	8K	1024 x 8	16	1.8-5.5V	I	TT, SN, MNY, MS, P
11LC080	8K	1024 x 8	16	2.5-5.5V	I, E	TT, SN, MNY, MS, P
11AA160	16K	2048 x 8	16	1.8-5.5V	I	TT, SN, MNY, MS, P
11LC160	16K	2048 x 8	16	2.5-5.5V	I, E	TT, SN, MNY, MS, P

Note: All devices are Pb-Free and RoHS compliant.

## Part Number Suffix Designations

Ordering information for Microchip UNI/O Memory products.

### 11 LC 01 0 T -I / TT



## Packages Available for UNI/O EEPROM Memory



Shown approximate size.

For the most up-to-date information visit: [www.microchip.com/UNIO](http://www.microchip.com/UNIO)

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