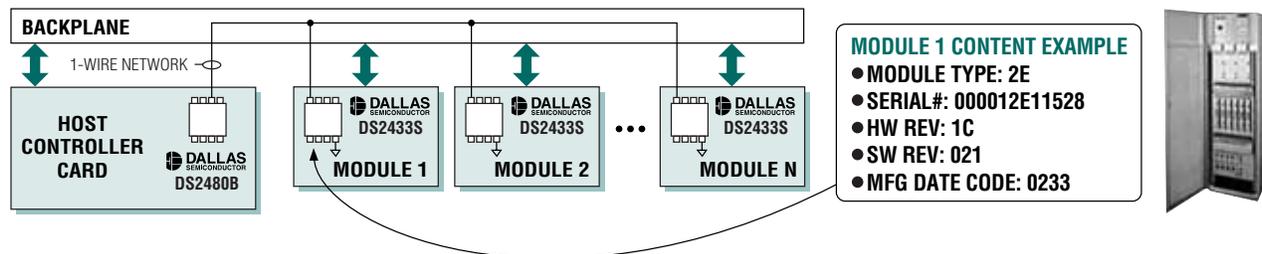


## Configure Modular Systems with Versatile 1-Wire Memory Products

Modular-based rack or chassis system controllers need to identify what cards are installed and monitor hot-swapped units. 1-Wire® memory and I/O products do this by providing a unique identity for every module in the system and by enabling all devices to be interrogated over a common 1-Wire connection. Some 1-Wire devices contain memory to store module configuration, manufacturing data, or revision history. Programmable I/O pins in some versions can drive LEDs to indicate physical location of a specific module.



### Common 1-Wire Device Features:

- Operating Power Derived Entirely from the 1-Wire Line
- Designed for Hot/Live System Insertion
- Wide Operating Range: 2.8V to 5.25V, -40°C to +85°C
- Each Part Uniquely Identified by a Factory-Lasered 64-Bit ROM ID

### Common Applications:

- Identification of Plug-In Cards/Modules
- Self-Configuration of:
  - Central Office Switches
  - Wireless Base Stations
  - PBXs
  - Rack-Based Servers

Part	Memory Type	Memory Size (Bit)	Additional Features	Surface-Mount Packages
DS2430A	EEPROM	256		6-TSOC, Flip Chip
DS2431*	EEPROM	1k		6-TSOC, Flip Chip
DS2432	EEPROM	1k	SHA-1 Security	6-TSOC, Flip Chip
DS2433	EEPROM	4k		8-SO, Flip Chip
DS250x	EPROM	1k, 16k, 64k		6-TSOC, 8-SO, CSP
DS2406	EPROM	1k	2 GPIO Pins	6-TSOC, Flip Chip
DS2480B	N/A	N/A	Serial Line Driver	8-SO

Download our application note on using 1-Wire devices for system configuration.

[www.maxim-ic.com/app212.pdf](http://www.maxim-ic.com/app212.pdf)

\*Future product—contact factory for availability.

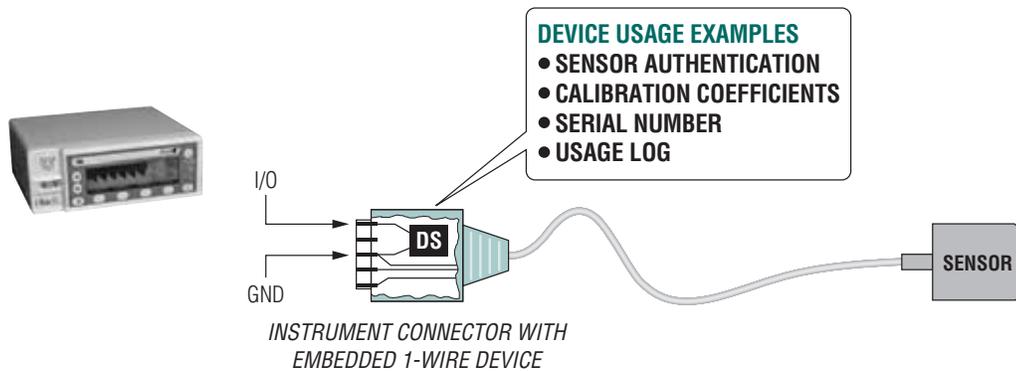
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# Industry's Most Efficient Solution for Embedding Calibration Data with Analog Sensors

## 1-Wire Interface Reduces Calibration Memory Device Interconnect to Only Two Contacts

Embed calibration data in the sensor. That is the most expeditious way to achieve high-accuracy measurements with replaceable or disposable analog sensors. When the sensor is attached to the measuring instrument, the data is automatically read and used by the instrument's signal processing software/hardware. Since 1-Wire EEPROM and EPROM devices require only two contacts for the connection, they provide the most efficient solution to these sensor calibration challenges.



### Common 1-Wire Device Features:

- Only Two Contacts Required for Device Operation
- Operating Power Derived Entirely from the 1-Wire Line
- Exceptional ESD Performance (DS2430A: IEC 1000-4-2 Level 4)
- Designed for Hot/Live System Insertion
- Wide Operating Range: 2.8V to 5.25V, -40°C to +85°C
- Each Part Uniquely Identified by a Factory-Lasered 64-Bit ROM ID

### Typical Analog Sensor Applications:

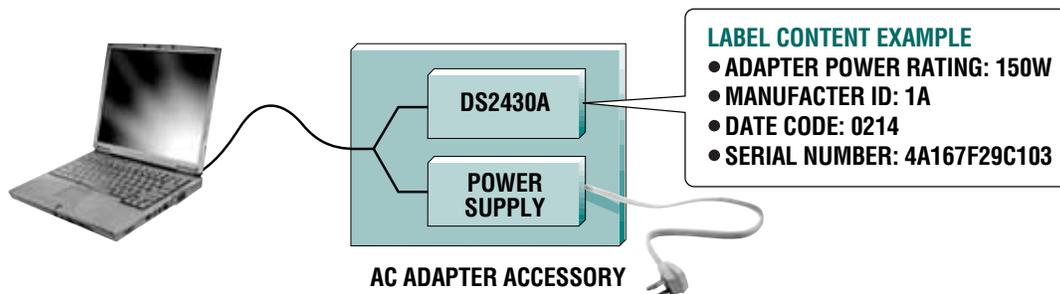
- Medical Sensors
- Temperature, Humidity, Pressure Sensors
- IEEE-P1451.4 Smart Sensors

Part	Memory Type	Memory Size (Bit)	Additional Features	Surface-Mount Packages
DS2430A	EEPROM	256		6-TSOC, Flip Chip
DS2431*	EEPROM	1k		6-TSOC, Flip Chip
DS2432	EEPROM	1k	SHA-1 Security	6-TSOC, Flip Chip
DS2433	EEPROM	4k		8-SO, Flip Chip
DS250x	EPROM	1k, 16k, 64k		TSOC, 8-SO, CSP
DS2480B	N/A	N/A	Serial Line Driver	8-SO

\*Future product—contact factory for availability.

# The Most Comprehensive Silicon Label for Electronic Identification

Proper configuration of a base system requires identification of a PC board's hardware/software configuration, attached accessories, or peripherals. The optimal configuration also minimizes the number of contacts required for the base system to communicate with the label embedded in the accessory. With EEPROM and EPROM memory combined with factory administered 64-bit serialization, 1-Wire memory products provide ideal solutions for electronic labeling requirements.



## Common 1-Wire Device Features:

- Operating Power Derived Entirely from the 1-Wire Line
- Exceptional ESD Performance (DS2430A: IEC 1000-4-2 Level 4)
- Designed for Hot/Live System Insertion
- Wide Operating Range: 2.8V to 5.25V, -40°C to +85°C
- Each Part Uniquely Identified by a Factory-Lasered 64-Bit ROM ID

## Typical 1-Wire Silicon Label Applications:

- Desktop/Laptop PC Accessory and Peripheral Identification
- Printer Ink/Toner Cartridge Configuration and Monitoring
- PCB Serialization and Hardware/Software Revision Identification
- System Intellectual Property Protection
- Network Node Address Assignment (MAC-48, EUI-48, and EUI-64)

Part	Memory Type	Memory Size (Bit)	Additional Features	Surface-Mount Packages
DS2430A	EEPROM	256		6-TSOC, Flip Chip
DS2431*	EEPROM	1k		6-TSOC, Flip Chip
DS2432	EEPROM	1k	SHA-1 Security	6-TSOC, Flip Chip
DS2433	EEPROM	4k		8-SO, Flip Chip
DS250x	EEPROM	1k, 16k, 64k		6-TSOC, 8-SO, CSP
DS2480B	N/A	N/A	Serial Line Driver	8-SO

\*Future product—contact factory for availability.

Download our application note on using 1-Wire devices to create global identifiers.

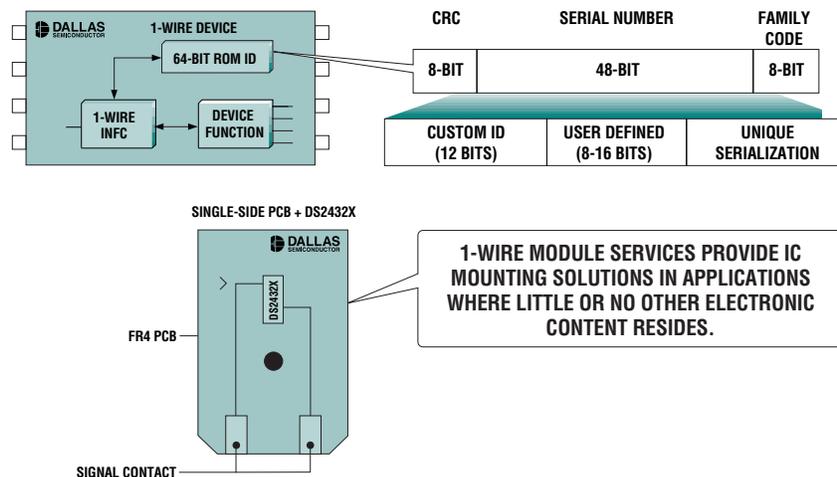
[www.maxim-ic.com/app186.pdf](http://www.maxim-ic.com/app186.pdf)

# Customized Data and Modules are Ideal for After-Market Management, Disposable Product Identification, and Calibration

## For Added Security, Factory-Administered Services are Available Only to Registered Users

Factory customization of the data fields within 1-Wire products is offered through two services: custom ROM and UniqueWare™. The custom-ROM service customizes the 64-bit ROM value that is factory-lasered into each 1-Wire device; this service is available on all 1-Wire products. UniqueWare is offered with DS250x EPROM devices where customer-defined data is factory-programmed and write-protected into EPROM memory space. Both of these services give procurement access only to the registered or authorized customer of each device. The custom device with restricted access can be used effectively in applications such as after-market management, intellectual property protection, and licensing.

Maxim/Dallas Semiconductor also offers custom 1-Wire device-module capabilities where a device is combined with standard mounting substrates such as FR4 or polyamide (flex circuit). This is ideal for applications such as print cartridge identification or medical instrument calibrators where there is little or no electronic content other than the 1-Wire device.



## Typical Custom ROM, UniqueWare, and Custom Module Applications:

- After-Market Management of High-Volume Consumables
- IP Protection and Technology Licensing Management
- Preprogrammed Network Addresses Such as MAC-48, EUI-48, and EUI-64

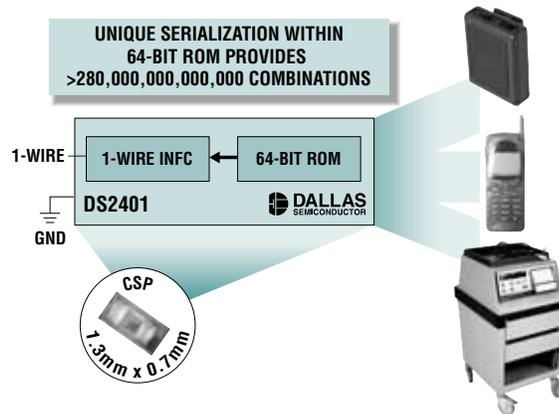
Contact your local Maxim/Dallas Semiconductor sales office or the factory for additional details and requirements for data customization and module services. Minimum order quantities and setup fees may apply.

UniqueWare is a trademark of Dallas Semiconductor.

# World's Smallest Globally Unique Electronic Serial Number

Use the DS2401 to bind unique electronic identification to the device, PCB, or system to which it is attached. Each device is factory-lasered with a unique, unalterable 64-bit serial number and is powered and communicated with over the single-contact 1-Wire interface. The 1-Wire protocol is simple to implement and can be easily accomplished with a spare processor port pin. 1-Wire commands and protocol also enable multiple DS2401s and/or other 1-Wire devices to coexist on a common 1-Wire network.

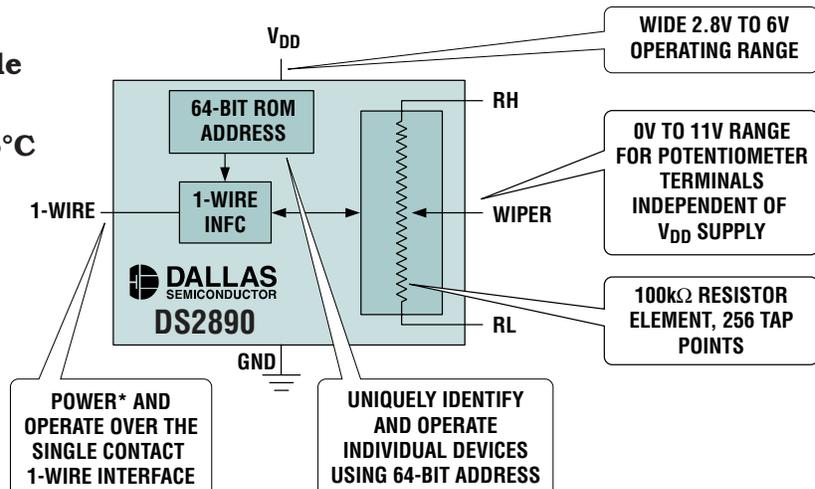
- **1-Wire Network Compatible**
- **Exceptional ESD Performance:**  
 $>\pm 8\text{kV}$  Human Body Model
- **Wide Operating Range:**  
 $2.8\text{V}$  to  $6.0\text{V}$ ,  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$
- **$5\mu\text{A}$  max Idle Current**
- **Available in TO-92, 6-Pin TSOC, and CSP**



# 1-Wire Digital Potentiometer Supports 11V Terminal Voltages While Operating from a 2.8V Supply

## DS2890 Features:

- **1-Wire Network Compatible**
- **Wide Operating Range:**  
 $2.8\text{V}$  to  $6.0\text{V}$ ,  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$
- **Available in 6-Pin TSOC and TO-92**

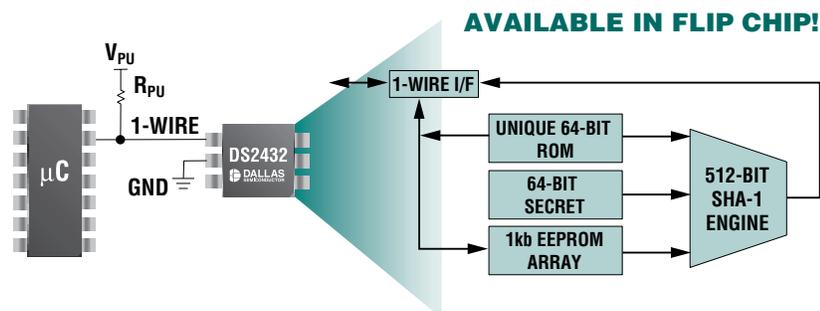


\*Modified device characteristics in 1-Wire power mode only.

# World-Class Security in a Low-Cost EEPROM

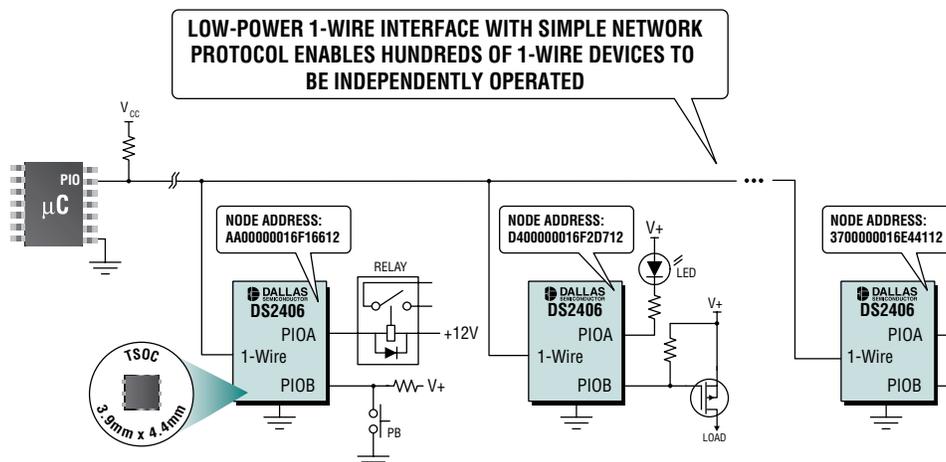
## Computes 160-Bit SHA-1 Results in 1ms

The DS2432 1-Wire 1kb EEPROM provides world-class security by using challenge/response protection of stored data utilizing the ISO/IEC 10118-3 Secure Hash Algorithm (SHA-1). The DS2432's features and SHA-1's security provide a low-cost method to electronically protect intellectual property, enable after-market control for high-volume consumables, implement small electronic pay systems, or create tamper-proof data carriers. The DS2432 can also enable two remote, independent systems to authenticate themselves to each other and safely exchange data across public networks.



# Control and Monitor Hundreds of Nodes with a Single Port Pin

Greatly simplify the design of remote system control and monitoring functions with 1-Wire programmable I/O devices like the DS2406. Bidirectional data flow enables both open- and closed-loop control. Embedded memory describes a physical location, identifies the controlled equipment, calibrates a sensor, or facilitates system autoconfiguration.



- 1-Wire Network Compatible
- Dual Open-Drain PIO Channels
- PIO-A: 13V/50mA; PIO-B: 6.5V/8mA
- Input Latches to Capture External Asynchronous Events
- 1024 Bits of OTP EPROM

# 1-Wire Devices

MEMORY DEVICES		
Part	Memory Type	Pin-Package
DS2401	ROM	6-TSOC, CSP, TO-92
DS2411*	ROM	SOT-23, 6-TSOC, flip chip
DS2430A	EEPROM	6-TSOC, flip chip, TO-92
DS2431*	EEPROM	6-TSOC, flip chip, TO-92
DS2432	EEPROM	6-TSOC, flip chip
DS2433	EEPROM	8-SO, flip chip, PR35
DS2502	EPROM	6-TSOC, CSP, TO-92
DS2505	EPROM	6-TSOC, TO-92
DS2506	EPROM	8-SO, PR35
GENERAL-PURPOSE I/O DEVICES		
Part	GPIO Pins	Pin-Package
DS2405	1	6-TSOC, TO-92
DS2406	2	6-TSOC, TO-92, flip chip
SENSOR DEVICES		
Part	Description	Pin-Package
DS1822	2°C accurate digital thermometer	8-SO, TO-92
DS18B20	0.5°C accurate digital thermometer	8-SO, TO-92
DS2423	Dual-input event counter, 4kb SRAM	6-TSOC
DS2450	Quad input, 8-bit ADC	8-SO
DS2720	One-cell Li+ battery protector with overtemperature protection	8-µMAX
DS2751	Local temperature sensor with single-channel voltage and current ADCs	8-TSSOP
DS2760	Local temperature sensor with single-channel voltage and current ADCs and one-cell Li+ battery protector	16-TSSOP, flip chip
DS2770	Local temperature sensor with single-channel voltage and current ADCs and Li+ or Ni+ battery charge controller	16-TSSOP
DS2890	Single-channel, 256-tap, digital potentiometer	6-TSOC, TO-92
RTC DEVICES		
Part	Description	Pin-Package
DS2404	RTC and event counters, alarms	16-SSOP, 16-SO
DS2417	RTC counter with periodic interrupt	6-TSOC
INTERFACE DEVICES		
Part	Description	Pin-Package
DS1WM	1-Wire master synthesizable core	VHDL, Verilog
DS1481	Parallel to 1-Wire conversion	14-SO
DS2409	1-Wire network partitioning (main/aux branches)	6-TSOC
DS2480B	UART serial (RS-232) to 1-Wire conversion	8-SO
DS2490	USB to 1-Wire conversion	24-SO, flip chip
DS9502	ESD protection diode	6-TSOC, flip chip
DS9503	ESD protection diode with resistors	6-TSOC, flip chip

\* Future product—contact factory for availability.