



MICROCHIP

AR1000 Series Resistive
Touch Screen Controller
Data Sheet

APLIX EXHIBIT 2024
SCEA v. APLIX
IPR2015-00476

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AR1000 SERIES RESISTIVE TOUCH SCREEN CONTROLLER

AR1000 Series Resistive Touch Screen Controller

Special Features:

- RoHS Compliant
- Power-Saving Sleep mode
- Industrial Temperature Range
- Built-in Drift Compensation Algorithm
- 128 Bytes of User EEPROM

Power Requirements:

- Operating Voltage: 2.5-5.0V \pm 5%
- Standby Current:
 - 5V: 85 μ A, typical; 125 μ A (maximum)
 - 2.5V: 40 μ A, typical; 60 μ A (maximum)
- Operating "No touch" Current:
 - 3.0 mA (typical)
- Operating "Touch" Current:
 - 17 mA, typical, with a touch sensor having 200 Ω layers.
 - Actual current is dependent on the touch sensor used
- AR1011/AR1021 Brown-Out Detection (BOR) set to 2.2V.

Touch Modes:

- Off, Stream, Down, Up and more.

Touch Sensor Support:

- 4-Wire, 5-Wire and 8-Wire Analog Resistive
- Lead-to-Lead Resistance: 50-2,000 Ω (typical)
- Layer-to-Layer Capacitance: 0-0.5 μ F
- Touch Sensor Time Constant: 500 μ s (maximum)

Touch Resolution:

- 10-bit Resolution (maximum)

Touch Coordinate Report Rate:

- 140 Reports Per Second (typical) with a Touch Sensor of 0.02 μ F with 200 Ω Layers
- Actual Report Rate is dependent on the Touch Sensor used.

Communications:

- SPI, Slave mode, p/n AR1021
- I²CTM, Slave mode, p/n, AR1021
- UART, 9600 Baud Rate, p/n AR1011

AR1000 SERIES RESISTIVE TOUCH SCREEN CONTROLLER

Table of Contents

1.0	Device Overview	5
2.0	Basics of Resistive Sensors	7
3.0	Hardware	11
4.0	I ² C Communications	17
5.0	SPI Communications	21
6.0	UART Communications	25
7.0	Touch Reporting Protocol	27
8.0	Configuration Registers	29
9.0	Commands	35
10.0	Application Notes	45
11.0	Electrical Specifications	51
12.0	Packaging Information	53
Appendix A:	Revision History	63
Appendix B:	Device Differences	64
Index		65
The Microchip Web Site		67
Customer Change Notification Service		67
Customer Support		67
Reader Response		68

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AR1000 SERIES RESISTIVE TOUCH SCREEN CONTROLLER

1.0 DEVICE OVERVIEW

The Microchip mTouch™ AR1000 Series Resistive Touch Screen Controller is a complete, easy to integrate, cost-effective and universal touch screen controller chip.

The AR1000 Series has sophisticated proprietary touch screen decoding algorithms to process all touch data, saving the host from the processing overhead. Providing filtering capabilities beyond that of other low-cost devices, the AR1000 delivers reliable, validated, and calibrated touch coordinates.

Using the on-board EEPROM, the AR1000 can store and independently apply the calibration to the touch coordinates before sending them to the host. This unique combination of features makes the AR1000 the most resource-efficient touch screen controller for system designs, including embedded system integrations.

1.1 Applications

The AR1000 Series is designed for high volume, small form factor touch solutions with quick time to market requirements – including, but not limited to:

- Mobile communication devices
- Personal Digital Assistants (PDA)
- Global Positioning Systems (GPS)
- Touch Screen Monitors
- KIOSK
- Media Players
- Portable Instruments
- Point of Sale Terminals

FIGURE 1-1: BLOCK DIAGRAM

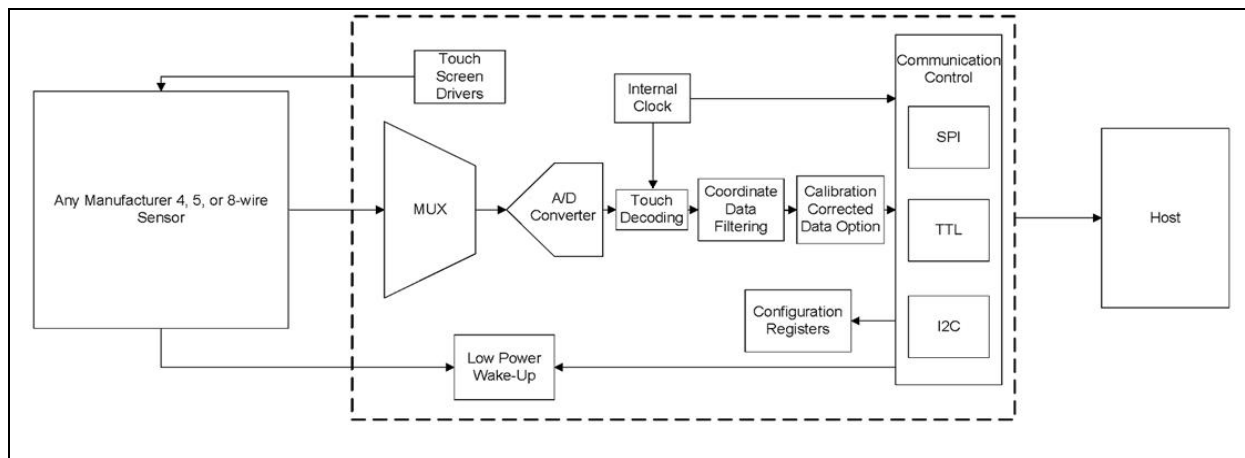
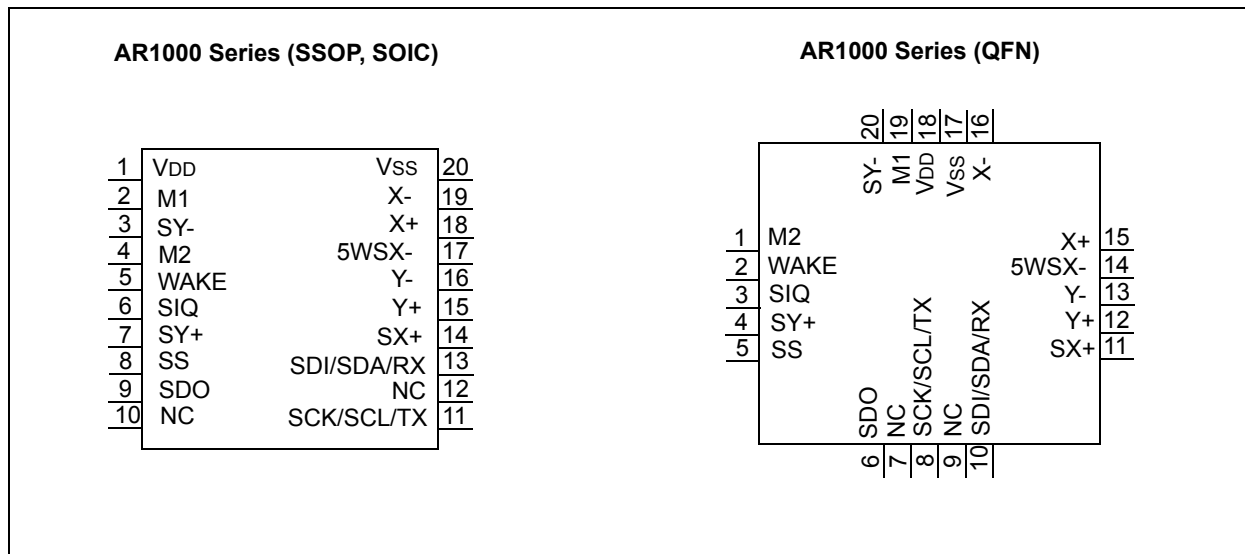


FIGURE 1-2: PIN DIAGRAM



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