



Two-Touch, Capacitive Touch-Screen Controllers with TacTouch™ Haptic Trigger Output

General Description

The MAX11850/MAX11851 is a low-power, projected capacitive touch-screen controller for use in power-sensitive applications such as handheld devices. Maxim's TacTouch™ technology allows haptic feedback to be easily added to the devices.

The parts return up to two sets of X, Y, and pressure data to support two-finger multitouch. The devices can be used stand-alone or in conjunction with Maxim's haptic controllers for a low-latency touch and haptics solution.

The digital supply range (DVDD) is 1.7 to 1.9V. The analog supply range (AVDD) includes 2.7V to 3.6V, and the digital IO supply range (DVDDIO) is 1.7V to 3.6V. For systems using 1.8V digital supply, DVDD can be connected to DVDDIO, thus reducing board routing and bypass capacitors.

The devices contain a multiplexer to interface with the capacitive sensors, analog front-end, ADC, and a serial interface for command and control communications. The 12-bit analog performance of the device provides superior sensitivity and dynamic range, allowing the devices to be mounted on flex or PCB. The devices are suitable for any two-layer or three-layer self-capacitance ITO touch screens. Background calibration allows for cancellation of environmental changes. The parts also contain a dedicated pin for suppression of high-noise events from cell-phone transmits bursts and LCD switching events.

The MAX11850 provides support for up to 31 capacitive sensor inputs and the MAX11851 provides support for up to 25 capacitive sensor inputs. The MAX11850 has a SPI™ interface and is available in a 48-pin TQFN. The MAX11851 has an I²C interface and is available in a 40-pin TQFN. The package types are specified over the -40°C to +85°C temperature range.

Applications

Mobile Communication Devices
PDAs, GPS, Media Players
Portable Instruments
POS Terminals
Handheld Games

Features

- ◆ Supports Self-Capacitance ITO Touch Screens Single and Two Touch
- ◆ 31 Sensors (MAX11850) or 25 Sensors (MAX11851)
 - ITO Touch Screens Up to 4.3in with 4.5mm ITO Grid Spacing
 - ITO Touch Screens Up to 8.1in with 9.0mm ITO Grid Spacing
- ◆ 12-Bit Analog Front-End Performance
 - Superior Sensitivity and Dynamic Range Allows Mounting on Flex or PCB
 - Compatible with Any Two-Layer or Three-Layer Self-Capacitance ITO Touch Screen
- ◆ Scan Disable Pin
 - Reject EMI Events Such as PA Burst and LCD Switching
- ◆ Self-Calibration, Autodrift Compensation
- ◆ User-Programmable Modes
 - Scan Rate, Sampling Time, and Number of Samples
 - Adjustable Low-Power Mode Response Time
- ◆ TacTouch Trigger Output to Haptic Actuator Controller
- ◆ Comprehensive Postprocessing
 - Data Output Format (X, Y, Z, or Raw Data)
 - User-Defined Touch-Detect Thresholds
 - Region- and Pressure-Dependent Haptics Generation
- ◆ Low-Power Operation at 3.0V
- ◆ Available with Industry-Standard, 400kHz I²C Interface or 25MHz Slave-Mode SPI Interface with Active-Low Select
- ◆ ESD Protection: ±4kV HBM, ±1kV CDM, ±200VMM

Ordering Information

PART	TEMP RANGE	PIN-PACKAGE	INTERFACE
MAX11850ETM+*	-40°C to +85°C	48 TQFN	SPI
MAX11851ETL+*	-40°C to +85°C	40 TQFN	I²C

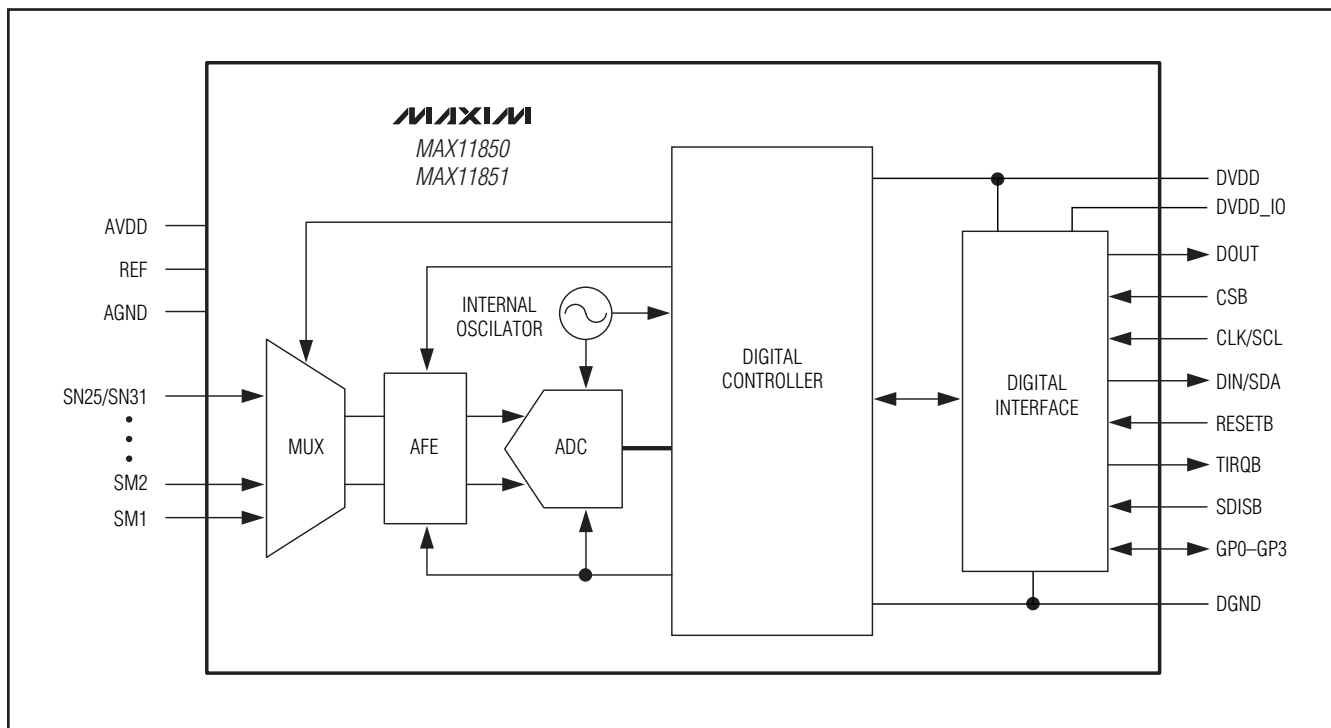
+Denotes lead (Pb)-free/RoHS-compliant package.
*Future product—contact factory for availability.

TacTouch is a trademark of Maxim Integrated Products, Inc.
SPI is a trademark of Motorola, Inc.



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Block Diagram



MAX11850/MAX11851

Maxim cannot assume responsibility for use of any circuitry other than circuitry entirely embodied in a Maxim product. No circuit patent licenses are implied. Maxim reserves the right to change the circuitry and specifications without notice at any time.

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