MAXIM

Advanced Touch Interface Solution with Haptic Controller Plus Driver and Proximity Sensing

MAX11811

General Description

The MAX11811 low-power touch interface solution operates from a 1.7V to 3.6V single supply, targeting power-sensitive applications such as handheld equipment. The MAX11811 includes a 4-wire resistive touch-screen controller, a haptic motor controller plus driver, and an IR proximity-sensing system.

The MAX11811 contains a 12-bit SAR ADC and a multiplexer to interface with a 4-wire resistive touch-screen panel. A digital serial interface provides communications.

The MAX11811 contains an advanced state machine, which performs digital preprocessing of the touch-screen measurements, reducing bus loading and application-processor resource requirements. The MAX11811 enters low-power modes automatically between conversions to save power, making it ideal for portable applications. Also included is a smart interrupt-generation engine, which enables servicing the part only when needed. The register map is compatible with that of the MAX11800/MAX11801.

In addition, the MAX11811 has a built-in haptic controller plus driver to either drive a vibration motor directly, or to interface with an external piezo driver. The built-in haptic waveform generator generates > 50,000 haptic patterns, and the user-programmable register eliminates the need for a dedicated interface on the applications processor/microcontroller end.

The MAX11811 also contains a general-purpose current DAC output for LED and a general-purpose input for connection to photo-detectors or ambient light sensor for applications such as proximity detectors. The device supports the I2C serial bus..

Applications

Mobile Communication Devices

PDA, GPS, Media Players, Portable Navigation Devices

POS Terminals and Financial Terminals

Automotive Center Consoles

Handheld Games

Features

♦ **4-Wire Resistive Touch-Screen Interface**

♦ **X and Y Coordinate and Touch Pressure Measurement**

♦ **Ratiometric Measurement**

♦ **12-Bit SAR ADC**

♦ **Independent TSC and Motor Supply Voltage (1.7V to 3.6V)**

♦ **Integrated Haptic Controller Driver for ERM and LRA Motors**

♦ **Integrated Proximity Sensing System**

♦ **General-Purpose Current DAC Output and General-Purpose Input**

♦ **PWM Output for Piezo Drivers**

♦ **Data Tagging Provides Measurement and Touch-Event Information**

♦ **Data Filtering Provides Noise Reduction**

♦ **Aperture Mode Provides Spatial Filtering**

♦ **Digital Preprocessing Reduces Serial Bus Activity and Interrupt Generation**

♦ **Programmable Touch-Detect Pullup Resistor**

♦ **Auto Power-Down Control for Ultra-Low-Power Operation**

♦ **400kHz I2C Interface**

♦ **4mm x 4mm, 20-Pin TQFN Package**

♦ **Low-Power Operation**
 246µW at V_{DD} = 1.8V, 34.4ksps
 698µW at V_{DD} = 3.6V, 34.4ksps

Ordering Information

PART	PIN-PACKAGE	SERIAL INTERFACE
MAX11811ETP+*	20 TQFN-EP**	I2C

Note: This device is specified over the -40°C to +85°C operating temperature range.

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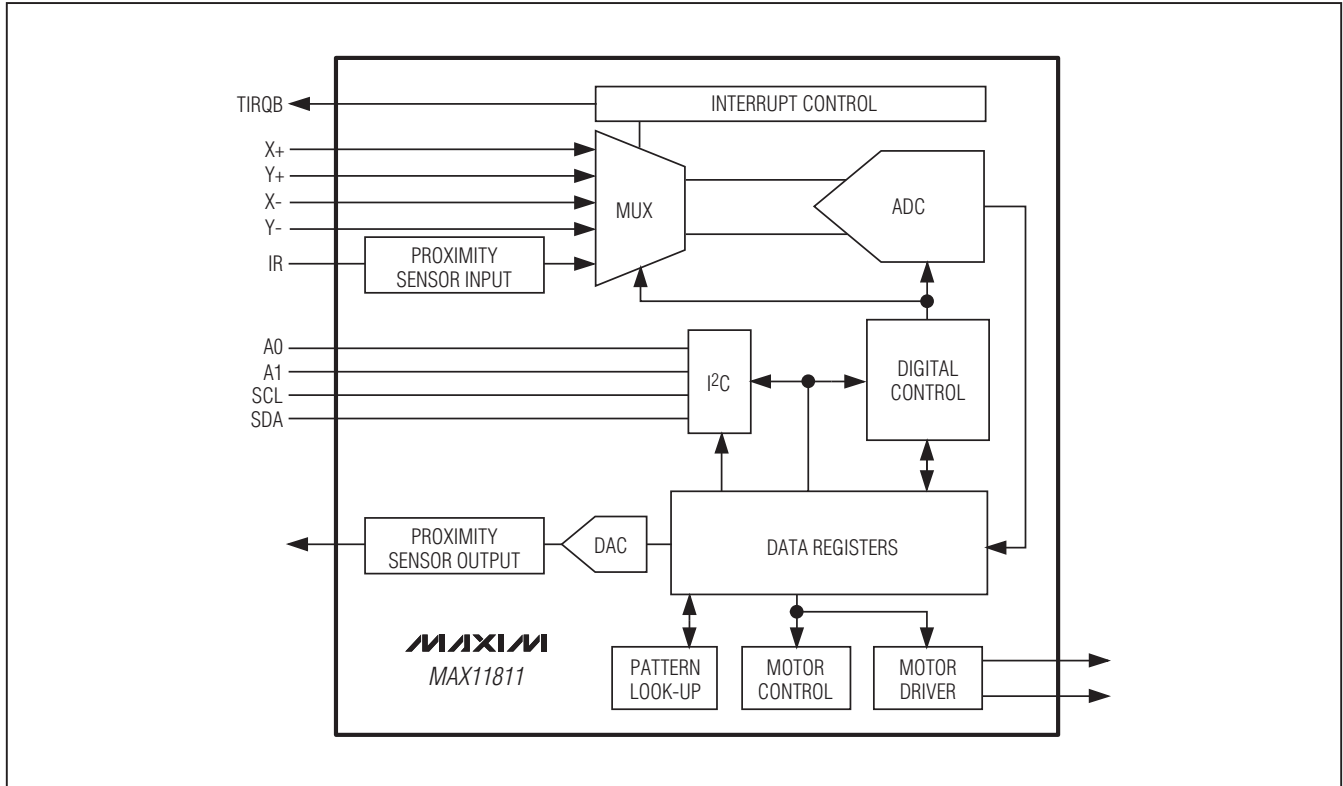
*Future product—contact factory for availability.

**EP = Exposed pad.

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For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

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Functional Diagram

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