

Semtech Easy-to-Use Proximity Capacitive Touch Sensor Platform is Optimized for TV Applications

Semtech Corp. today announced a new platform of easy-to-use capacitive sensing ICs optimized for the next-generation of energy-efficient, touch button television applications. The 8-channel SX8660 / 61 touch sensor platform features integrated LED drivers and an extended, 10cm range of proximity sensing. It is designed to easily replace legacy mechanical button controllers with an analog output interface (AOI) that supports the use of a buzzer for audible feedback making the platform fully compatible with a wide range of television designs.

The capacitive analog interface on the SX8660/61 ICs is designed with a highly accurate analog-to-digital converter (ADC) that provides superior sensitivity to work with thick overlay materials (up to 5mm) for extremely robust ESD immunity and to support a long, 10cm range of proximity detection. With current consumption as low as 70 μ A at operation, these ICs help designers meet the latest energy-efficiency eco-regulations for televisions.

The SX8660/61 platform also integrates eight, 256-step LED drivers with individual intensity (linear or logarithmic) fading control that is optimized for human vision. This allows design of buttons that automatically fade on when touched and fade off when released, with interval speed and initial and final light intensity levels set by the designer. Special single and continuous breathing modes are also available to enhance visual feedback to the user.

The SX8660/61 platform further simplifies capacitive touch control design and reduces time-to-market with integrated, multi-time programmable firmware that enables users to customize various parameters such as scan time, slave address, channel gain and sensitivity thresholds in their applications, without the need for new firmware development. Additionally, dedicated capacitive sense inputs eliminate the need for external resistors and capacitors, reducing design footprint, bill of materials (BOM) and complexity.

“Unlike competitive alternatives, the SX8660/61 family integrates all the functional blocks necessary for touch sensing and proximity sensing in a tiny footprint that requires zero external components. This simplifies the PCB design and reduces the overall solution BOM cost,” said Sam Massih, Director, Consumer Analog Products for Semtech. “The integrated, advanced features of the SX8660/61 platform, coupled with their low power consumption and AOI makes these ICs ideal for a wide range of energy-efficient TV applications.”

The SX8661 offers a preconfigured quick-start mode for applications requiring proximity sensing and seven buttons, with one AOI and seven LED drivers with PWM fading. The SX8660 is preconfigured with a quick-start mode for applications with

eight buttons, two AOIs, one buzzer output and five LED drivers with PWM fading. The GPIOs can also be individually configured for specific application requirements. Both devices feature a smart automatic offset compensation function that eliminates false triggers due to environmental factors such as temperature, humidity and dust. They are offered in a tiny, 4mm x 4mm 28-QFN package and are guaranteed to operate over an extended (-40°C to +85°C) temperature range.

Key Features of the SX8660/61 Platform

- Capacitive touch sensor platform includes eight independent, 256-step LED drivers with auto-lightening mode and individual intensity and fading control
- Optimized for TV applications with up to two analog output interfaces (AOI-A, AOI-B)
- Proximity sensing up to 10cm (SX8661)
- High-resolution capacitive sensing (able to sense thru overlay materials up to 5mm thick)
- Ultra-low power optimized for energy-efficient applications: 200µA (typ) in active mode; 70µA (typ) in doze mode and 8µA (typ) in sleep mode
- Automatic offset compensation eliminates false triggers due to environmental factors
- Zero external components required for sensor input
- Multi-time, in-field programmable firmware parameters for ultimate flexibility

Applications

HDTV: [Control Buttons \[1\]](#)

White Goods: [Control Buttons \[2\]](#)

Pricing and Availability

The eight-channel SX8660 (order code: SX8660I06AULTRT) and SX8661 (order code: SX8661I07AULTRT) are available in production quantities and are priced at \$0.98 and \$1.37 respectively in 3,000-piece lots. Semtech offers comprehensive design assistance, including field- and factory-based support. Data sheets, volume pricing, and delivery quotes, as well as evaluation kits and samples, are available at <http://www.semtech.com/info> [3].

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Links:

[1] <http://www.semtech.com/applications/hdtv/control-buttons/>

[2] <http://www.semtech.com/applications/white-goods/control-buttons/>

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