

Features.

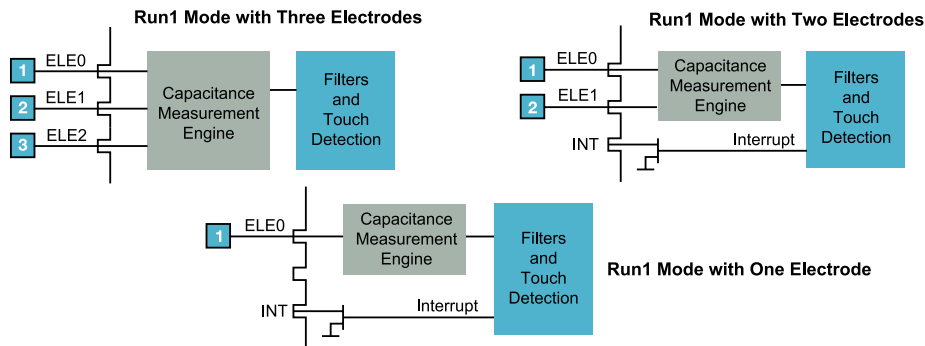
- 1.71V to 2.75V operation
- 8 μ A supply current with two electrodes being monitored with 64 ms response time and IRQ enabled
- 4 μ A maximum shutdown current
- Two electrodes plus IRQ
- Three electrodes and no IRQ
- Continuous independent auto-calibration for each electrode input
- Separate touch and release trip thresholds for each electrode, providing hysteresis and electrode independence
- I²C interface, with optional IRQ output to advise electrode status changes
- 2 x 2 x 0.65 mm 8-lead uDFN package
- -40°C to +85°C operating temperature range

Benefits

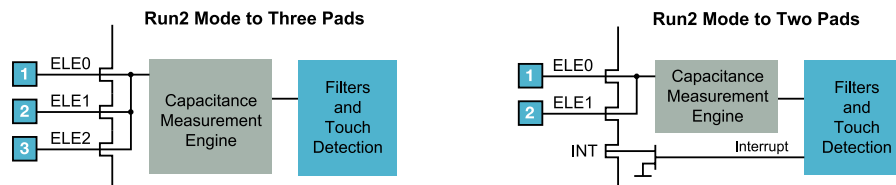
- Elimination of mechanical buttons
- Enhances reliability by eliminating mechanical wear and tear
- Electrode multiplexing
- User interface controllers that manage multiple configurations
- Gives greater flexibility to product designers
- Reduces overall system cost

Freescale is a leading provider of pressure, inertial and proximity sensors and has offered MEMS-based sensors for more than 25 years. The sensor ICs complement Freescale's broad portfolio of ZigBee® technology, microcontrollers, microprocessors, digital signal processors, analog ICs and development tools to offer system solutions to customers.

Electrode/Pad Connections in Run Mode



Electrode/Pad Connections in Detection Mode Area



Selector Guide

Part Number	Bus	Sounder	Touch Pad Array	Main Attributes
MPR031	I ² C with $\overline{\text{IRQ}}$	Yes	Three pads if IRQ is not being used	Controls two electrodes with IRQ Extremely small package
MPR032	I ² C with $\overline{\text{IRQ}}$	Yes	Three pads if IRQ is not being used	Ability to be the second address on the I ² C bus Extremely small package

Development Tools

Part Number	Description
KITMPR031EVM	Evaluation board to demonstrate key proximity sensor features
DEMOMPR031EVM	Small, self-contained board to demonstrate key proximity sensor features

Documentation

Document Number	Title	Description
MPR031/2	MPR031/2 Data Sheet	This data sheet presents the specifications for these products

Application Notes

Document Number	Title	Description
AN3747	Pad Layout Application Note	Explains design for conductive pads
AN3583	Using Low Power Mode on the MPR083 and MPR084	Describes how to dynamically run with low power modes
AN3579	Enabling an MCU for Touch Sensing Application Note	Describes how to enable an MCU for touch sensing with a properly designed layout and a simple software module
AN3516	E-Field Keyboard Designs Application Note	This application note provides the fundamentals for designing keyboards with electric field (E-Field) devices

Learn More: For more information about Freescale products, please visit www.freescale.com/proximity.