IQS7211E

The IQS7211E ProxFusion® IC is a capacitive touch and proximity trackpad/touchscreen controller implementation. The IQS7211E features best in class sensitivity, signal-to-noise ratio and automatic tuning of electrodes. Low power proximity detection allows extreme low power operation.

OVERVIEW

PRODUCT INFORMATION NOTICE

Main Features

- Highly flexible ProxFusion® device
- 13 (QFN20) / 11 (WLCSP18) external sensor pad connections
- Self-/Mutual-capacitive sensors configuration for display wake-up
- ULP wake-up on touch
  - Dedicated Ultra Low Power wake-up touch sensor or
  - Wake-up on screen/trackpad
- Sensor flexibility
  - Automatic sensor tuning for optimum sensitivity
  - Internal voltage regulator
  - Reference capacitor
  - On-chip noise filtering
  - Detection debounce and hysteresis
  - Wide range of capacitance detection
- Trackpad/Touchscreen
  - Up to 2 fingers tracking
  - High resolution coordinate outputs
  - Fast response: Coordinate report rate up to 100Hz
  - Individual sensor touch
  - Integrated touch size output (area and strength) for touch integrity
  - Single finger gesture recognition engine
  - Electrode mapping for optimal PCB layout\
  - Configurable coordinate resolution and orientation
  - Compatible with wide range of overlay materials and thicknesses
  - Compatible with multiple 1-and 2-layer sensor patterns
  - Adjustable sensing frequency offset for limiting potential display interference
  - No calibration required - systems automatically compensated for mechanical & temperature changes

    - Water immunity features
- Design and manufacturing support
    - Touch pattern layout drawing
    - Full FPC layout package (example & customised)
    - Test guide for touch pattern
    - RFI immunity design support
- Design simplicity
    - PC Software for debugging and obtaining optimal performance
    - One-time settings programming (during MP) or pre-programmed devices
    - Auto-run from programmed settings for simplified integration
    - No production line calibration required
- Display cover lens thickness
    - Minimum thickness: 0.5mm
    - Maximum thickness: 2-4mm depending on design parameters
- Minimize display noise
    - Advanced DSP for touch performance
    - Display and charger interference avoidance
    - Auto adjusting digital filters
- Supports different display touch panel types
    - On-cell
    - Add-on touch panel
- Supporting up to 2.5" panels
- Screen resolution
    - 256 per channel
    - Example: 2048x768 (9x4 channels), 1536x1280 (7x6 channels)
- Automated system power modes for optimal response vs consumption
- I2C communication interface with IRQ/RDY(up to fast plus -1MHz)
- Event and streaming modes
- Customisable user interface due to programmable memory
- Supply voltage
    - 1.8V(-5%) to 3.5V @ 14MHz
    - Minimum 2.2V @ 18MHz
- Small packages
    - WLCSP18 (1.62x 1.62x0.5 mm) - interleaved 0.4mm x 0.6mm ball pitch
    - QFN20 (3 x 3 x 0.5 mm) - 0.4mm pitch

Gestures

- Single tap
- Double tap
- Triple tap
- Press-and-hold
- Swipe X+ (with continuous swipe configurable)
- Swipe X- (with continuous swipe configurable)
- Swipe Y+ (with continuous swipe configurable)
- Swipe Y- (with continuous swipe configurable)
- Swipe and hold X+
- Swipe and hold X-
- Swipe and hold Y+

- Swipe and hold Y-
- Palm (Flat hand)

Applications

- Fitness bands
- True Wireless Stereo (TWS) earbuds
- Game controller touch pads
- Headphones