# PureTouch® Low Channel Capacitance Touch IC Family

## FEATURES

**Ultra-low touch sensor power consumption***

- Full power operating mode (typical): <100 μW (VDD=1.8V)
- Low power operating mode (typical): <40 μW (VDD=1.8V, 100ms sleep cycle)
- Shutdown mode (typical): <1 μW

**Versatile, accurate CDC**

- Up to 8 capacitive sensors
- Dynamically configurable touch threshold sensitivity settings

**Fully configurable hysteresis and debounce**

**Automatic calibration algorithms**

- Auto environmental compensation
- Integrated noise immunity algorithms for high-EMI applications

**Integrated touch preference modes**

- Strongest single touch / two touches
- Unrestricted (all) touches

**Built-in slider/scroll support**

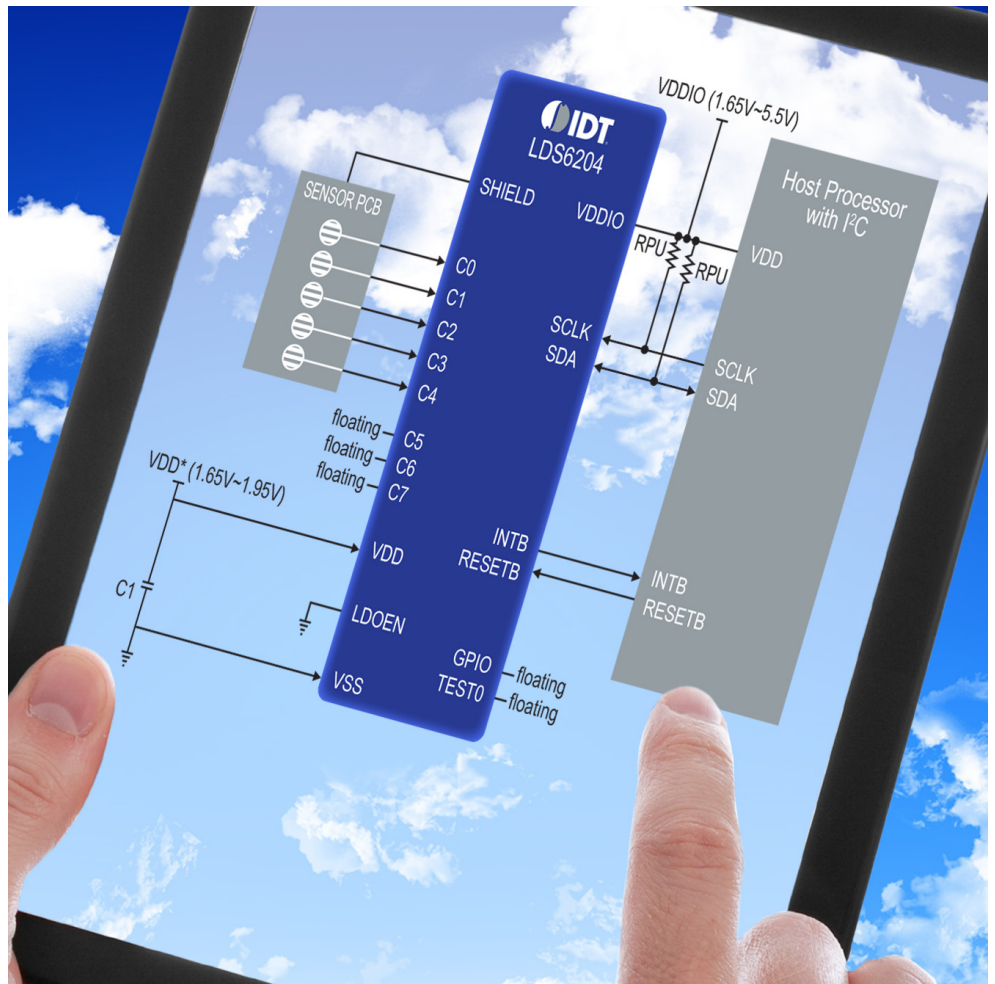- Location, scroll direction, and 2x interpolation supported natively

**Advanced Proximity Sense**

- Detect approaching object before touch event to enhance wake up time and optimize user experience

**Power-On Touch Detection**

- Detect touch event upon power up without worry of sensors calibrating out fingers



## Description

The LDS6200 family of capacitance touch controllers from Integrated Device Technology is optimized for the easy implementation of touch-based input controls including buttons, sliders, scroll wheels, and proximity sensors. A low power programmable capacitance-to-digital converter (CDC) supports up to 8 touch sensor inputs.

The touch inputs are directed through an integrated switch matrix to a sigma-delta CDC which senses changes in the external sensor array. When a change in capacitance occurs that is larger than the user defined threshold, a touch event is recognized and the host processor is notified via an interrupt pin.

On-chip calibration logic continuously monitors the environment and automatically adjusts touch sensitivity to ensure robust performance. Proprietary noise-filtering algorithms may also be activated to prevent false sensor activation in noisy system environments. The LDS6200 family offers an I²C compatible interface. A general-purpose input/output (GPIO) and an interrupt output are also provided for additional communication with the host processor.

* I²C with no active reads

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## BENEFITS

- Ease-of-use and flexible configurability with optimized, state machine architecture
- Longer battery life enabled with ultra-low power consumption
- Low BOM cost and minimized solution footprint using bare minimum of external components
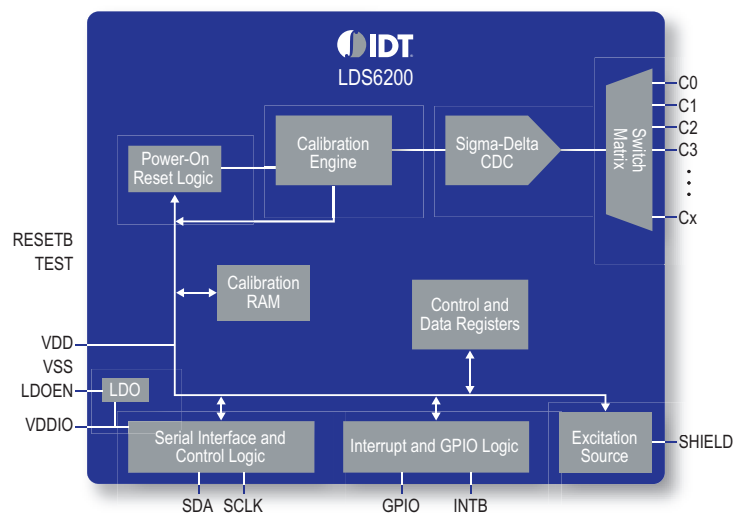- Robust touch performance via proprietary noise-filtering algorithms

## APPLICATIONS

- Mobile handsets and smartphones
- Personal media players (MP3/MP4)
- Gaming devices
- Remote controls
- Television, audio/video
- Set-top boxes, multi-function printers, enterprise telephony
- White goods
- Industrial and medical devices

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## LDS6200 Touch Family - Ideal Solution for Portable and "Green" Applications

The LDS6200 is optimized for ultra-low power consumption. In full power mode, sensor conversion and calibration occur continuously, minimizing the time between touch event and touch detection. With its ultra- low touch sensor current consumption of <55 µA (typical at 1.8V), the LDS6200 products may be operated continuously in full power mode, eliminating the need for introduced latencies that can cause noticeable delays and degrade the user experience. Where power consumption is of the utmost importance, low power modes with configurable latencies may be utilized to further reduce current below 20 µA (100ms sleep cycle). The LDS6200 family is optimized for a minimized solution footprint, with the functionality of multiple components consolidated into a single device and a bare minimum of required external passive components. A variety of package options are available including a 3mm x 3mm 16 lead and 20 lead TQFN package, and larger SOIC packages for applications requiring a wider lead pitch.

| Part Number | Number of Touch Sensors | Built-in Slider/ Scroll Functionality | Full Hystersis/ Debounce Configurability | Power On Touch Detection | Advanced Proximity Sense Capability | I/O Voltage and Touch Voltage | Interface | Package |
|---|---|---|---|---|---|---|---|---|
| LDS6204NTGI | Up to 8 | | | | | | | TQFN 20, 3mm x 3mm |
| LDS6204SOGI | Up to 8 | | | | | | | SOIC 20 7.5mm x 12.8mm |
| LDS6203NTGI | Up to 6 | | | | | | | TQFN 20 3mm x 3mm |
| LDS6203SOGI | Up to 6 | | | | | | | SOIC 20 7.5mm x 12.8mm |
| LDS6202NTGI | Up to 4 | ✔ | ✔ | ✔ | ✔ | 1.65V to 5.5V | I²C | TQFN 16 3mm x 3mm |
| LDS6202DCGI | Up to 4 | | | | | | | SOIC 16 3.9mm x 9.9mm |
| LDS6201NTGI | Up to 2 | | | | | | | TQFN 16 3mm x 3mm |
| LDS6201DCGI | Up to 2 | | | | | | | SOIC 16 3.9mm x 9.9mm |

OV_LDS6200FAMILY_REVB1110

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