

## DA8901 Smartwave™ Multi-Touch IC

**DA8901 Smartwave™ Multi-Touch Integrated Circuit; MTIC™ is designed to work in FlatFrog's Planar Scatter Detection (PSD) Touch systems providing InGlass™ Touch technology.**

Using in-lens infrared light, the system can detect and track multiple touches, gestures and pressures from gloved hands, stylus and other objects providing a more natural true-touch user experience.

DA8901 is optimized for any display type between 11 and 110 inches using FlatFrog PSD Touch and is suitable for both Microsoft Windows 8 and Intel Ultrabook PCs including All-in-One's, monitors, Video Conferencing, Medical, Signage & Hospitality, Video wall and Education applications.

FlatFrog PSD Touch works with glass or plastic cover lenses, eliminating the need for expensive ITO layers. It uses standard low-cost electrical components and high-yielding assembly processes to provide a superior multi-touch experience.

DA8901 drives a number of infrared Light Emitting Diode (LEDs) in a controlled sequence, injecting light into the cover lens of the display. Using FlatFrog's patented PSD Touch technology, as users touch the surface, scattered light is detected by multiple infrared receivers connected to DA8901's detector front end. This phenomenon is called "Frustrated Total Internal Reflection (FTIR). The resulting signals are amplified and dynamically filtered to remove ambient light before being converted into the digital domain using a high linearity ADC. The data is then subjected to FlatFrog's PSD Touch algorithms using MTIC's 3 custom ALUs and ARM micro controller before being communicated via SDIO to a standard external touch controller IC which provides the touch coordinates to the main PC processor.

Each MTIC can drive 12 LEDs or be configured to control 100s of LEDs in external drive mode. Signals from 12 receivers can be processed in a single chip. Up to 16 MTICs can be used in a single system using a master / slave arrangement enabling a wide range of screen sizes up to 110 inches.



With no conducting layers to block light from the display, FlatFrog PCD Touch provides perfect optical clarity at reduced display power consumption.



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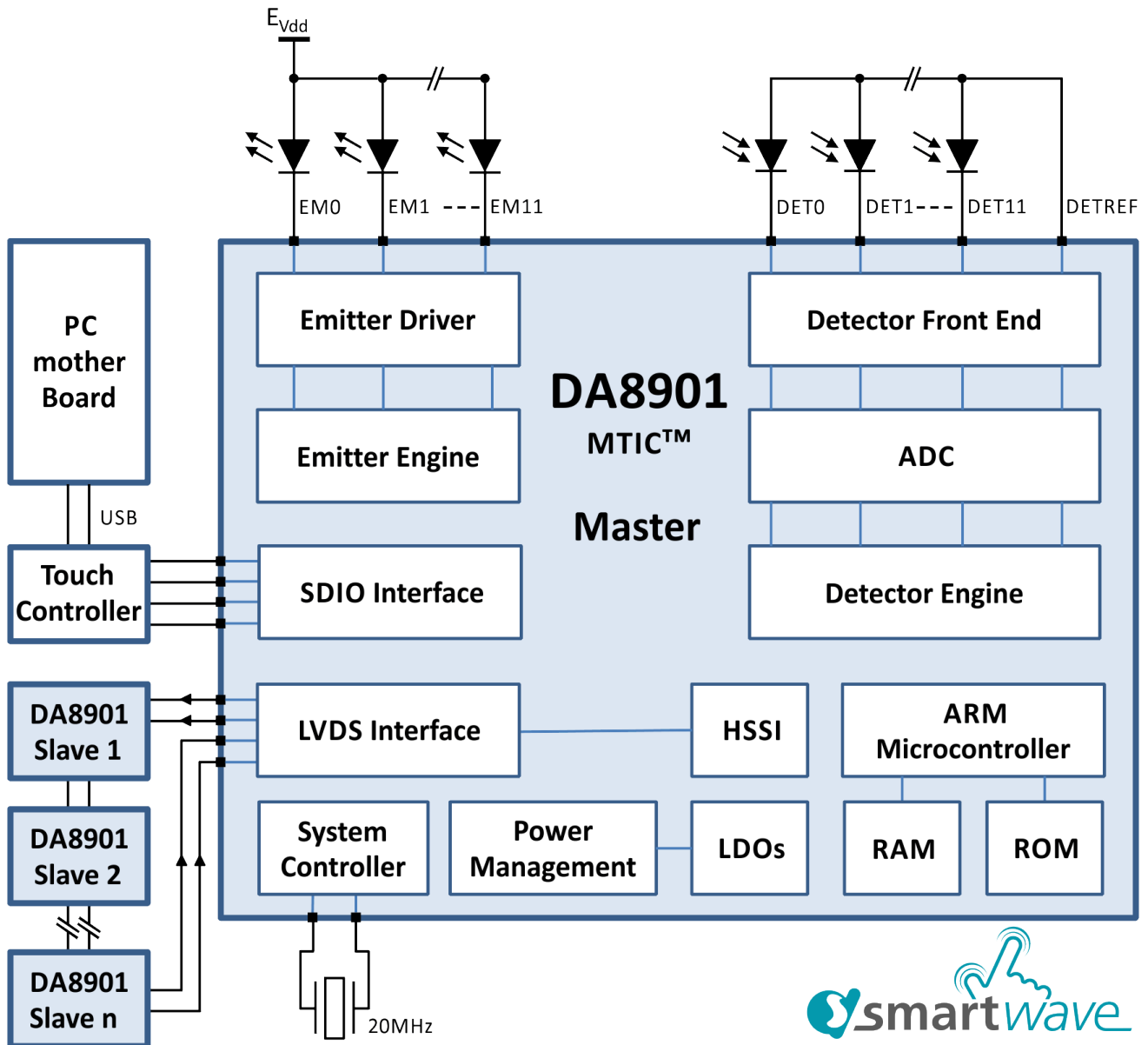
## Features

- Highly integrated Smartwave™ Multi-Touch IC; MTIC™
- Supporting FlatFrog Planar Scatter Detection Touch
- Designed to meet Microsoft Windows 8 touch requirement
- Designed to meet Intel Ultrabook™ touch requirements
- Supports screen sizes up to 110 inches
- Supports edge-to-edge, bezel-free top cover lens
- 400 DPI touch resolution
- 1000 point smooth pressure sensing
- Scalable master / slave operation supporting up to 15 slaves
- Configurable emitter engine
  - 12x fully integrated emitter drivers (internal mode)
  - Provides control for 100's of emitters (external mode)
- 12 channel detector
  - High dynamic range for flexible screen sizes
  - Dynamic ambient light cancelation for robust operation
  - High linearity ADC for stable operation
  - 3 full custom ALUs for optimized processing efficiency
- Power Management with fast start up for optimal power saving
- Integrated ARM® Cortex™ M0 processor and memory system
- 5.7x5.0mm 59 pin aQFN package for ultra narrow PCB design
- Provides control for 100's of emitters (external mode)

## Target Applications

- Tablets, Monitors, All-in-One Monitors
- Video Conferencing
- Medical
- Signage & Hospitality
- Video Wall
- Education

## Block Diagram



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