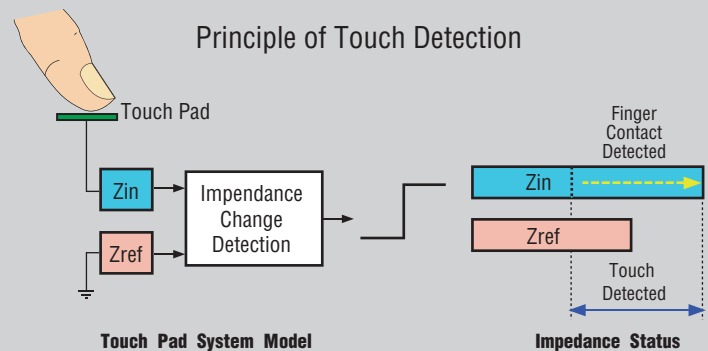


FMA1127

Touch Sensor Controller



► Description

The FMA1127 is a low-power, compact, flexible touch sensor controller that converts capacitance generated between the human body and a conductive touch pad to digital data without any analog signal processing. It includes touch sensor technology that compares reference and sensor input impedances to detect touch, all in digital domain.

Its programmability increases design flexibility and gives better performance and stability for a broad range of applications. The FMA1127's Automatic Impedance Calibration (AIC™) function can be easily configured to support different sensitivities for individual channels independently as well as to change values of parameters such as calibration intervals. AIC may also be temporarily paused and resumed by a host MCU.

► Features

- Patented full-digital architecture
- Supports 12 input channels (40QFN and 30SSOP) or 9 input channels (32QFN and 24SSOP) or 6 input channels (24QFN and 20SSOP)
- Programmable registers to characterize applications
- I²C interface with the host MCU
- Configurable Automatic Impedance Calibration (AIC™)
- Two types of interrupts (GINT for general purpose and TINT for touch detection)
- 8-bit resolution of touch strength data (256 steps)
- Three different modes for Adjacent Pattern Interference Suppression (APIS™)
- Configurable DIO pins as direct touch outputs, extended GPIOs, or external interrupt inputs.
- Beep generation for tactile feeling
- Idle and Sleep modes for power saving
- De-bounced touch outputs

Among the many features of the FMA1127 touch sensor controller, is the Adjacent Pattern Interference Suppression (APIS™) which acts as a filter to eliminate adjacent key or pattern interference. The FMA1127 also gives touch-strength output in addition to touch on/off output. There are a number of general-purpose DIOs depending on the package type that can be configured and programmed to meet customers' specific needs. This gives customers greater flexibility and value.

The FMA1127 comes in various package types to support different numbers of input channels and DIOs.

The FMA1127 touch sensor controller is developed and owned by ATLab Inc., South Korea, and is distributed by Fujitsu Microelectronics America, Inc.

Touch Sensor Controller

▶ Applications

- Portable devices such as PDAs, cellular phones, MP3 players, remote controllers, and other integrated input
- Home appliances and consumer electronic products
- Computer input devices such as mice and keyboards

▶ Specifications

- Wide voltage range of 2.5V to 5.5V
- Current < 0.15mA
- Response time as fast as 0.2msec
- Recommended operating temperature: -35°C to +85°C
- No ground is required for touch pad
- Water resistant
- I²C Interface
- Flexibility to choose digital I/O from 12/8/6/3/2 each and sensor inputs 12/9/6 each based on package
- Automatically adjusts sensor sensitivity to cope with various operating environments
- No external clock source is required
- Supports idle and sleep/suspension modes for power saving
- Extra ESD protection (8kV for chip/contact and 15kV for system/air)
- RoHS compliant (lead-free package)

▶ Ordering Information

| Product Code | Package Type | Package Dimensions | Pin Pitch | Number of Sensor Inputs | Number of Digital Outputs |
|---------------|--------------|-------------------------|-----------|-------------------------|---------------------------|
| FMA1127DA-40N | 40QFN | 5mm x 5mm x 0.85mm | 0.4mm | 12 | 12 |
| FMA1127DA-32N | 32QFN | 4mm x 4mm x 0.85mm | 0.4mm | 9 | 8 |
| FMA1127DA-24N | 24QFN | 4mm x 4mm x 0.85mm | 0.5mm | 6 | 3 |
| FMA1127DA-30S | 30SSOP | 12.7mm x 10.3mm x 2.5mm | 0.8mm | 12 | 6 |
| FMA1127DA-24S | 24SSOP | 8.2mm x 7.8mm x 2.0mm | 0.65mm | 9 | 3 |
| FMA1127DA-20S | 20SSOP | 6.5mm x 6.4mm x 1.85mm | 0.65mm | 6 | 2 |

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Printed in the U.S.A. TSC-FS-21348-02/2009