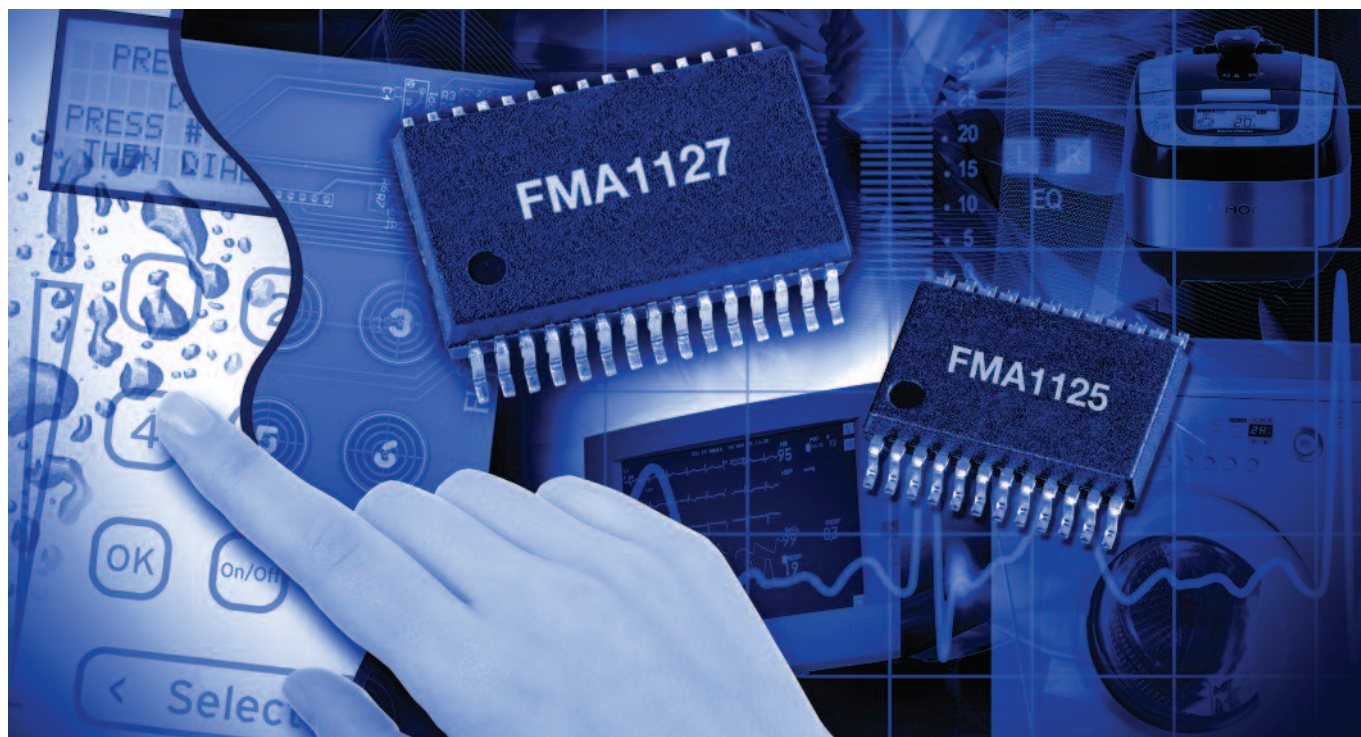


FMA1127/FMA1125

Touch Sensor Controller series



Fast – Low power – Robust – Easy implementation

Description

Fujitsu is offering the Touch Sensor Controller (TSC) families FMA1127/ FMA1125 from ATLab, Inc. of South Korea. This device represents a simple, reliable and aesthetic replacement for virtually all mechanical buttons and sliders across many markets, such as industrial, home appliance, mobile, consumer electronics and office equipment. The touch sensor controller converts the capacitance generated between a human body and a conductive touch pad into digital data, without any analogue signal processing. It detects a touch completely in the digital domain, by comparing the sensor input impedances with a built-in reference impedance. The device features small

package size, fast response time and lowest power consumption.

With the built-in reference circuit, the sensor eliminates the need for any external components for the touch channels in a wide range of applications. A single electrode is sufficient for each touch channel. Minimum software effort is required to implement the touch functionality. An additional filtering function called APIS™ further reduces software overhead by eliminating adjacent key or pattern interference.

The differential signal format enables the sensor to be resistant against outer signal disturbances and assures reliable operation. Furthermore, the

AIC™ (Automatic Impedance Calibration) of FMA1127/FMA1125 allows the sensor to maintain a consistent sensitivity even during environment changes (temperature, humidity). The unique sensing concept eliminating surrounding ground patterns allows the touch application to be water resistant.

The FMA1127/FMA1125 TSC families offer a high level of design flexibility through the host interface (I²C) as well as up to 12 programmable general-purpose digital I/Os, which can also be used as external interrupt pins. Moreover, the flexibility of touch pad designs is enhanced through individual channel sensitivity.

FACTSHEET

FMA1127/FMA1125

Touch Sensor Controllers

Specifications

Specifications		FMA1127	FMA1125
Recommended Operating Voltage		2.4V – 5V (2.3V – 5.5V max)	
Supply Current (Typical)	Active mode	140µA	100µA
	Idle mode	100µA	60µA
	Sleep mode		0.1µA
Response Time		0.2msec	
Recommended Operating Temperature		-40 to +90°C	
ESD Protection	Chip/Contact	8kV	
	System/Air	15kV	
RoHS		Compliant	

Main features

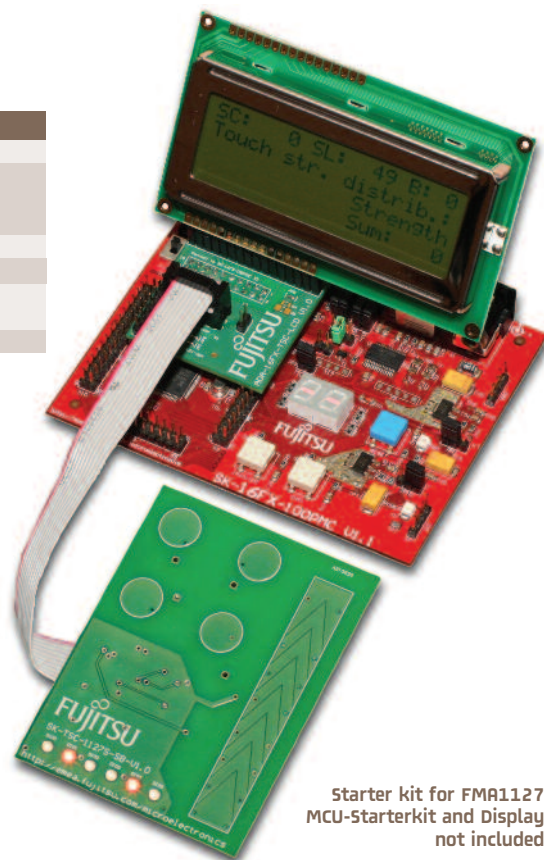
- Patented fully digital architecture
- 12 / 9 / 8 / 6 input channels available in QFN, SSOP and SOP packages
- Configurable touch input channels as extended DIOS (FMA1125)
- Configurable AIC™ (Automatic Impedance Calibration)
- Individual channel sensitivity
- Host interface via I²C
- 8-bit resolution of touch strength data
- 6-bit resolution of LED dimming control via DIO pins (FMA1125)
- APIS™ (Adjacent Pattern Interference Suppression)
- No external components required for touch pads
- Built-in clock generation and voltage regulator

Applications

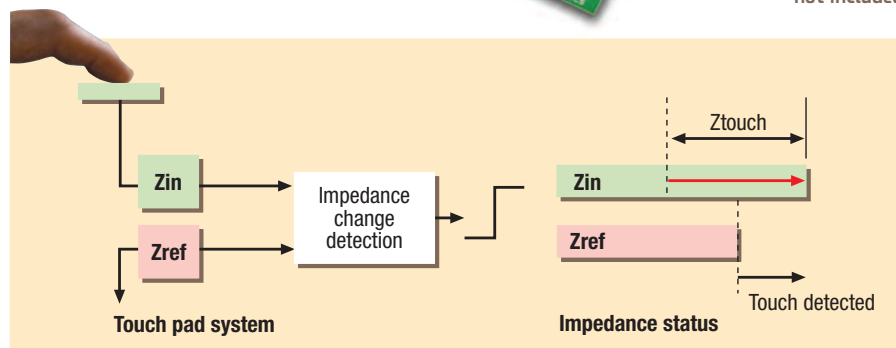
- Home appliances and consumer electronics products
- Industrial and medical equipment
- Portable devices such as PDAs, cellular phones, MP3 players, remote controllers and other integrated input devices
- Computer input devices such as mice and keyboards

Design Tool

In order to ensure a fast time-to-market for customers, a starter kit with a software tuning program is available for easy implementation start.



Starter kit for FMA1127 MCU-Starterkit and Display not included



Principle of touch detection

Ordering information

Product Code	Sample Part Number	Package Type	Package Dimensions	Pin Pitch	Sensor Inputs	Digital I/Os
FMA1127DC-40N	FMA1127DC-40N-CS	40QFN	5 x 5 x 0.85mm	0.4mm	12	12
FMA1127DC-32N		32QFN	4 x 4 x 0.85mm	0.4mm	9	8
FMA1127DC-30S	FMA1127DC-30S-CS	30SSOP	12.7 x 10.3 x 2.5mm	0.8mm	12	6
FMA1127DC-24S		24SSOP	8.2 x 7.8 x 2.0mm	0.65mm	9	3
SK-TSC-1127-SB	Starter-Kit for FMA1127					
FMA1125DC-24N		24QFN	4 x 4 x 0.55mm	0.5mm	4-8*	8-4*
FMA1125DC-16N		16QFN	3 x 3 x 0.575mm	0.5mm	0-6**	6-0**
FMA1125DC-24S	FMA1125DC-24S-CS	24SSOP	8.2 x 7.8 x 2mm	0.65mm	4-8*	8-4*
FMA1125DC-16P		16SOP	9.9 x 6 x 1.8mm	1.27mm	0-6**	6-0**
SK-TSC-1125S	Starter-Kit for FMA1125					

* 4 of the sensor channels can be configured to DIO
 **All of the 6 sensor channels can be configured to DIO
 The Touch Sensor Controller is developed and owned by ATLab, Inc. South Korea

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