



AVR® LA Family

1.62V Entry-Level Microcontroller for Capacitive Touch Interface Applications

The AVR® LA microcontroller (MCU) family is designed with small, low-voltage capacitive touch interface applications in mind.

Introduction

The AVR LA MCU family delivers robust performance and flexibility for a wide range of applications. These microcontrollers support a supply voltage range of 1.62V to 5.5V and are suitable for both low-power and standard voltage environments. The key feature of the AVR LA MCUs is the Peripheral Touch Controller (PTC) that offers enhanced noise suppression capabilities for reliable touch sensing even in challenging conditions. Additionally, the family boasts a high pin-to-touch channel ratio with touch capabilities on almost every pin, which enables efficient utilization of available pins to maximize design versatility.

Key Features

- AVR CPU running up to 20 MHz
- 16/32 KB Flash, 2 KB SRAM and 512B EEPROM
- Supply voltage range of 1.62V to 5.5V
- Pin counts of 14, 20, 28 and 32
- PTC with Driven Shield+ and Boost Mode technologies for capacitive touch buttons, sliders, wheels and 2D surface
- Supports up to 27 self-capacitance touch channels
- Program and Debug Interface Disable (PDID)

- 10-bit Analog-to-Digital Converter (ADC) and analog comparator
- Three 16-bit timer/counters
- USART, SPI, I²C serial communication interfaces
- Four-channel event system
- Configurable Custom Logic (CCL) with four Look Up Tables (LUTs)
- AEC-Q100 Grade 1 and functional safety ready

Target Applications

The AVR LA MCU family is fully operational from 1.62V to 5.5V, small footprint, robust touch and high number of touch channels and is well-suited for a wide range of applications, such as:

- Wearable devices: Smart watches, fitness bands and health monitors
- Consumer electronics: Remote controls, headphones and earbuds
- Home automation: Touch panels and smart appliances
- Industrial and medical devices: Touch interface for equipment control on diagnostic devices
- Battery-powered sensors: IoT devices and key fobs

The AVR LA MCU family provides a robust, reliable and flexible platform for implementing modern touch-based user interfaces and controls to meet stringent automotive standards and support the trend toward more intuitive and aesthetically pleasing vehicle interiors.

Get Started

The Curiosity Nano Evaluation Kit makes it remarkably easy to get started. The combination of plug-and-play hardware, powerful development tools, touch library and robust support resources enables you to move from evaluation to concept and prototype in no time.

The AVR LA MCUs are supported by our MPLAB® X IDE and MPLAB Extensions for Microsoft® Visual Studio® Code (VS Code®) as well as IAR Embedded Workbench Integrated Development Environment (IDE).

Products

Products	Flash (KB)	SRAM (KB)	EEPROM (B)	Frequency (MHz)	I/O Pins	16-bit Timer/Counter type B (TCB)	16-bit Timer/Counter type E (TCE)	Real-Time Counter (RTC)	USART	SPI	TWI/I ² C	10-bit ADC (Channel)	Analog Comparator	Peripheral Touch Controller (Self-Cap Channel)	Watchdog Timer (WDT)	Event System Channel	External Interrupts	CRCSCAN	Unified Program and Debug Interface (UPDI)	Package Types
AVR32LA32	32	2	512	20	28/27	2	1	1	1	1	1	1(20)	1	1(27)	1	4	28	1	1	VQFN, TQFP
AVR32LA28	32	2	512	20	24/23	2	1	1	1	1	1	1(16)	1	1(23)	1	4	24	1	1	VQFN, SSOP, SPDIP
AVR32LA20	32	2	512	20	18/17	2	1	1	1	1	1	1(10)	1	1(17)	1	4	18	1	1	VQFN, SSOP
AVR32LA14	32	2	512	20	12/11	2	1	1	1	1	1	1(4)	1	1(11)	1	4	12	1	1	TSSOP, SOIC
AVR16LA32	16	2	512	20	28/27	2	1	1	1	1	1	1(20)	1	1(27)	1	4	28	1	1	VQFN, TQFP
AVR16LA28	16	2	512	20	24/23	2	1	1	1	1	1	1(16)	1	1(23)	1	4	24	1	1	VQFN, SSOP, SPDIP
AVR16LA20	16	2	512	20	18/17	2	1	1	1	1	1	1(10)	1	1(17)	1	4	18	1	1	VQFN, SSOP
AVR16LA14	16	2	512	20	12/11	2	1	1	1	1	1	1(4)	1	1(11)	1	4	12	1	1	TSSOP, SOIC