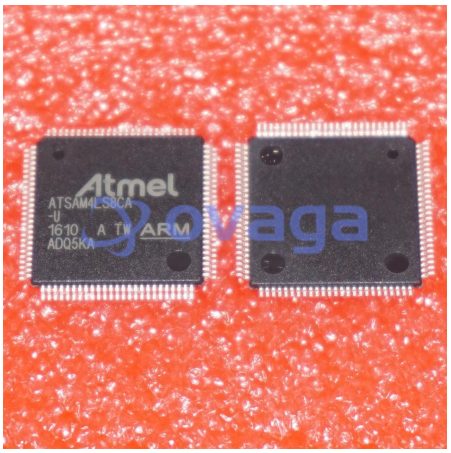
ATSAM4LS8CA-AU

Data Sheet

MCU 32Bit SAM4L ARM Cortex M4 RISC 512KB Flash 3.3V 100Pin TQFP Tray

Manufacturers	Microchip Technology, Inc
Package/Case	TQFP-100
Product Type	Embedded Processors & Controllers
RoHS	Green
Lifecycle	



Images are for reference only

Please submit RFQ for ATSAM4LS8CA-AU or Email to us: sales@ovaga.com We will contact you in 12 hours. RFQ

General Description

A member of the Microchip'sSAM4L family of Flash microcontrollers based on the ARM® Cortex®-M4 processor, the ATSAM4LS8C delivers the lowest power in active mode (90uA/MHz) as well as sleep mode (1.5uA) and the shortest wake-up time (down to 1.5us) in a Cortex-M4 device. Along with 512KB of embedded Flash, the device features a USB device, peripheral event system and SleepWalking intelligent peripherals. Integrated Microchip QTouch technology makes it easy to bring capacitive touch functionality to your hardware.

Features

Microcontroller Features

Core

ARM Cortex-M4 running at up to 48 MHz

Memory Protection Unit (MPU)

DSP Instructions, Thumb®-2 instruction set

Memories

512 Kbytes embedded Flash, 0 wait-state capability up to 24MHz

64 Kbytes embedded SRAM

System

Embedded voltage regulator for single-supply operation

Two Power-on-Reset and Two Brown-out Detectors (BOD)

Quartz or ceramic resonator oscillators: 0.6 to 30MHz main power with Failure Detection and low power 32.768 kHz for RTC or device clock

High-precision 8/12 MHz factory-trimmed internal RC oscillator

Slow clock internal RC oscillator as permanent low-power mode device clock

High speed 80MHz internal RC oscillator

Low power 32kHz internal RC oscillator

PLL up to 240MHz for device clock and for USB

Digital Frequency Locked Loop (DFLL) with wide input range

Up to 16 peripheral DMA (PDCA) channels

picoPower® Technology for Ultra-low Power Consumption

Active mode downto 90µA/MHz with configurable voltage scaling

High performance and efficiency: 28 coremark/mA

Wait mode downto 3µA with fast wake-up time (<1.5µs) supporting SleepWalking

Full RAM and Logic Retention mode downto 1.5µA with fast wake-up time (<1.5µs)

Ultra low power Backup mode with/without RTC downto 1,5/0.9µA

Package

100-lead LQFP, 14 x 14 mm, pitch 0.5 mm

100-lead VFBGA, 7x7 mm, pitch 0.65 mm

Temperature operating range

Industrial (-40° C to +85° C)

Peripheral Features

USB 2.0 Device: 12 Mbps, up to 8 bidirectional Endpoints and Multi-packet Ping-pong Mode. On-Chip Transceiver

One USART with ISO7816, IrDA®, RS-485, SPI, Manchester and LIN Mode

Three USART with SPI Mode

One PicoUART for extended UART wake-up capabilities in all sleep modes

Windowed Watchdog Timer (WDT)

Asynchronous Timer (AST) with Real-time Clock Capability, Counter or Calendar Mode Supported

Frequency Meter (FREQM) for Accurate Measuring of Clock Frequency

Six 16-bit Timer/Counter (TC) Channels with capture, waveform, compare and PWM mode

One Master/Slave Serial Peripheral Interface (SPI) with Chip Select Signals

Four Master and Two Slave Two-wire Interfaces (TWI), up to 3.4Mbit/s I2C-compatible

Capacitive Touch Module (CATB) supporting up to 32 buttons

Inter-IC Sound (IISC) Controller, Compliant with Inter-IC Sound (I2S) Specification

Peripheral Event System for Direct Peripheral to Peripheral Communication

Parallel Capture Module (PARC)

Glue Logic Controller (GLOC)

I/O

75 I/O lines with external interrupt capability (edge or level sensitivity), debouncing, glitch filtering and slew-rate control

Six High-drive I/O Pins

Analog Features

One 16-channel ADC 300Ksps (ADC) with up to 12 Bits Resolution

One DAC 500Ksps (DACC) with up to 10 Bits Resolution

Four Analog Comparators (ACIFC) with Optional Window Detection

Audio Bitstream DAC (ABDACB) Suitable for Stereo Audio

Debugger Development Support

Serial Wire/JTAG Debug Port(SWJ-DP)

Debug access to all memories and registers in the system, including Cortex-M4 register bank when the core is running, halted, or held in reset.

Serial Wire Debug Port (SW-DP) and Serial Wire JTAG Debug Port (SWJ-DP) debug access.

Flash Patch and Breakpoint (FPB) unit for implementing breakpoints and code patches.

Data Watchpoint and Trace (DWT) unit for implementing watchpoints, data tracing, and system profiling.

Instrumentation Trace Macrocell (ITM) for support of printf style debugging.

IEEE1149.1 JTAG Boundary-scan on all digital pins.

Integrated Software Libraries and Tools

ASF-Atmel software Framework – SAM software development framework

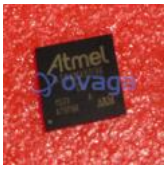
Integrated in the Atmel Studio IDE with a graphical user interface or available as standalone for GCC, IAR compilers.

DMA support, Interrupt handlers Driver support

USB, TCP/IP, Wi-Fi and Bluetooth, Numerous USB classes, DHCP and Wi-Fi encryption Stacks

RTOS integration, FreeRTOS is a core component

Related Products



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LFBGA-324

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