

32-bit general-purpose RISC-V microcontroller IRL1217FI

General description

General-purpose microcontroller with 32-bit RISC-V core @72 MHz clock, fast interrupt controller and 256Kbyte FLASH program memory and 32Kbyte RAM. The peripherals include USB controller with embedded analog transceiver of 12Mbit/s (Full Speed) and 1.5 Mbit/s (Low Speed), standard UART, SPI and CAN/CAN-FD interfaces, 8-channel 12-bit SAR ADC (1 MSPS)

Features

- Clock rate* up to 72 MHz
- Hardware-supported CAN / CAN-FD interface
- USB 2.0 full-speed
- 8-channel 12-bit ADC
- Supply voltage range 1.8÷3.6V
- Operating temperature range - 40...85°C
- ESD protection class 2A

General description

Core:

- 32-bit RISC-V core with RV32IMC commands set

Memory:

- Embedded FLASH program memory of 256Kbyte
- Embedded 32Kbyte RAM

Clock and power supply:

- External power supply 1.8 to 3.6V
- 1.2V embedded voltage regulator for core power supply
- Internal power control
- Internal battery-powered domain
- HSI RC oscillator 8 MHz
- LSI RC oscillator 40 kHz
- HSE oscillator 2 to 16 MHz
- LSE oscillator 32 kHz
- Embedded PLL clock multiplier for core
- Embedded PLL clock multiplier for USB controller

Low-power mode:

- Battery domain with RTC and backup registers

Analog modules:

- 12-bit SAR ADC (up to 8 channels, 1 MSPS) with amplitude of measured signals 0 to 3.6V
- USB 2.0 full-speed transceiver
- Temperature sensor

Peripherals:

- DMA controller (Peripheral-Memory, Memory-Memory)
- 2 CAN/CAN-FD controllers
- 4 x 32-bit timer/counters with PWM and event logging functions
- USB controller with Device and Host functions
- 2xUART, 3xSPI controllers
- Fast 5V-tolerant GPIOs

Debug mode:

- JTAG