

Renesas RA Family

FPB-RA0E1 Fast Prototyping Board

1. Introduction

The FPB-RA0E1 Fast Prototyping Board provides an entry point for evaluation, prototyping and development with the RA0E1 MCU. Moreover, since this board incorporates an emulator circuit, you can use it for designing your own applications without the need to make further investments in tools. This product includes through-holes for pin headers that allow access to all MCU signal pins, allowing easy prototyping with the use of a breadboard.

2. Package Contents

- FPB-RA0E1 Fast Prototyping Board (RTK7FPA0E1S00001BJ)
- Quick Start Guide (this document)
- USB cable (type-A male to type-C male)
- Information on China RoHS

3. Board Specifications

Item	Specification
Evaluation MCU	Part No: R7FA0E1073CFJ; package: 32-pin LQFP
	On-chip memory: 64-KB ROM, 12-KB SRAM, 1-KB data flash memory
Board size	Size: 53 mm × 85 mm; thickness: 11.5 mm
Power-supply voltage	Board supply: 5 V, VCC: 3.3 V, MCU operating-voltage range: 1.6 V to 5.5 V
Power-supply circuit	USB connector: VBUS (5-V input); VBUS is converted to 3.3 V by LDO
	2-pin external power-supply header*1
Push switches	Reset switch x 1; user switch x 1
LEDs	Power indicator: green x 1, user: green x 2, on-board debugger ACT LED: yellow x 1
USB connector	Connector: USB Type-C
Pmod™ connectors	Connectors: angle type, 12 pins x 2
Arduino™ connectors	Connectors: 6 pins x 1, 8 pins x 2, 10 pins x 1 The interfaces are compatible with Arduino™ UNO R3.
MCU headers*1	Headers: 16 pins x 2
Emulator	J-Link on-board programmer/debugger

*1 This part is not mounted.

4. Board Layout

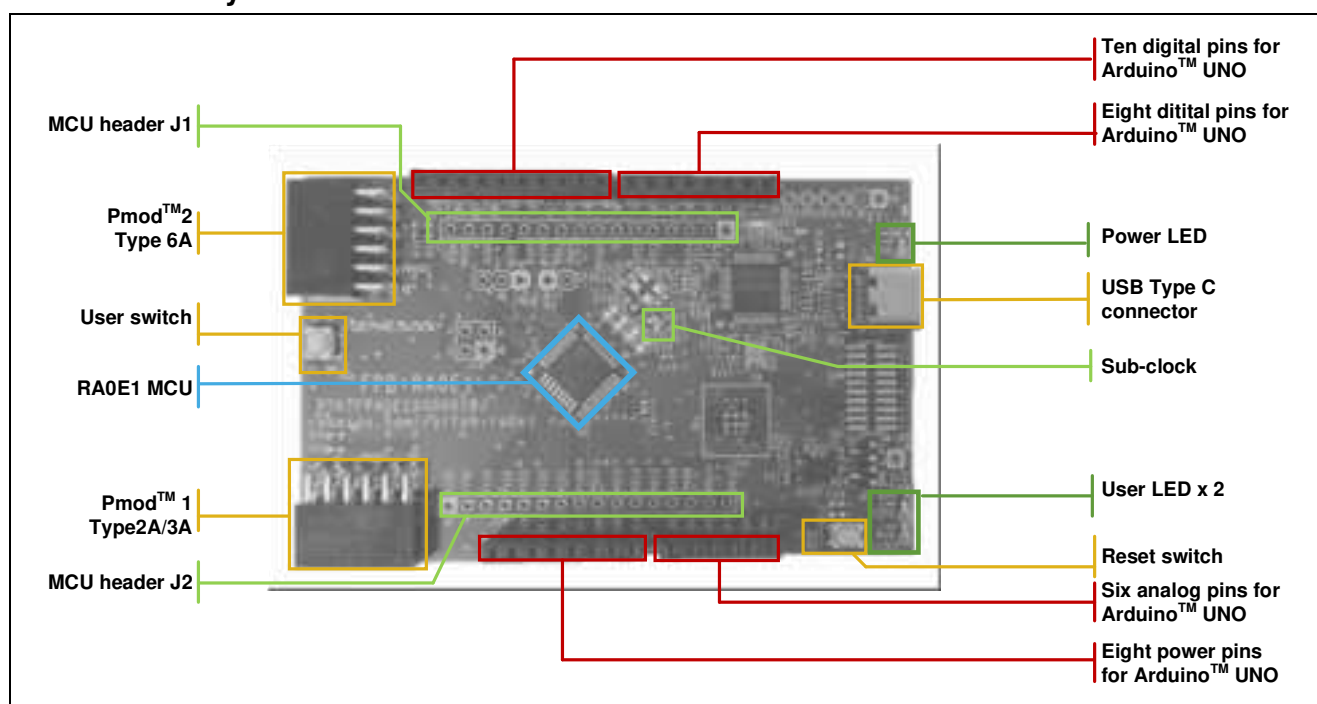


Figure 1. FPB-RA0E1 Board Layout

The diagram illustrates the internal wiring of the Arduino Uno R3. The central ATmega328P microcontroller is connected to the various pins and components. The pin headers are color-coded: green for Analog (AN001-AN006), blue for Port (P007-P014), yellow for Pin Name (VCC, GND, etc.), and orange for PWM (TO01-TO07). The diagram shows the connection of the ATmega328P to the various pins and components.

Pin Header	Label	Function
AN001	P011	Port 0 Pin 11
AN002	P008	Port 0 Pin 8
AN003	P009	Port 0 Pin 9
AN004	P012	Port 0 Pin 12
AN005	P013	Port 0 Pin 13
AN006	P014	Port 0 Pin 14
VCC	VCC	Power Supply
GND	GND	Ground
RESET	RESET	Reset Button
3V3	3V3	3.3V Power Supply
5V	5V	5V Power Supply
GND	GND	Ground
VIN	VIN	Voltage Input
SCL	P914	I2C Serial Clock
SDA	P913	I2C Serial Data
AREF	P910	Analog Reference Voltage
GND	GND	Ground
13	P407	Digital Pin 13
12	P212	Digital Pin 12
~11	P213	Digital Pin 11
~10	P112	Digital Pin 10
~9	P110	Digital Pin 9
8	P109	Digital Pin 8
7	P103	Digital Pin 7
~6	P102	Digital Pin 6
~5	P101	Digital Pin 5
4	P100	Digital Pin 4
~3	P201	Digital Pin 3
2	P200/IRQ0	Digital Pin 2
1	P208	Digital Pin 1
0	P207	Digital Pin 0
SCK11	P407	Serial Clock
SI11	P407	Serial Input
SO11	P407	Serial Output
TO02	P407	Pulse Width Modulation
TO03	P407	Pulse Width Modulation
TO01	P407	Pulse Width Modulation
TO06	P407	Pulse Width Modulation
TO07	P407	Pulse Width Modulation
TO05	P407	Pulse Width Modulation
TXDA	P208	Transmit Data
RXDA	P207	Receive Data

The FPB-RA0E1 Fast Prototyping Board has two Pmod connectors. Pmod1 supports Type 2A or 3A and can also be configured for Type 6A interfaces. Pmod2 supports Type 6A and can also be configured for Type 2A or 3A.

