

16-bit Single Chip Microcontroller

- Low Power MCU(operating voltage 1.8V, 0.75uA/SLEEP, 2.5uA/HALT)
- Flash memory(32KByte), 8.2MHz high speed operating at 1.8V power voltage
- LCD driver: max 12 segment, 8seg x 8com or 12seg x 4com
- Analog I/F: A/D converter(INL/DNL Max. 1.5LSB), R/F converter
- RISC CPU core S1C17: the compact code optimized for C, and high throughput of an instruction / clock, supports serial ICE

■ DESCRIPTIONS

The S1C17611 is a 16-bit MCU featuring high-speed low-power operations, compact dimensions, wide address space and on-chip ICE. A/D converter and R/F converter are built in and sensor of various analog I/F can be connected. It is suitable for the application of health care product, sports watch and meter module etc. with sensor that is required a small size and micro display in the battery driven.

■ FEATURES

- CPU
Epson original 16-bit RISC CPU core S1C17
Multiplier/divider (COPRO)
 - 16 bit x 16 bit multiplier/16 bit ÷ 16 bit divider
 - 16 bit x 16 bit + 32 bit product-sum operation
- IOSC oscillator circuit
2.7 MHz (typ.)
Oscillating start up 5 μs (max.)
Boot Clock (External components not required.)
- OSC3 oscillator circuit
Crystal oscillator circuit or ceramic oscillator circuit, 8.2 MHz (max.)
or external clock input
- OSC1 oscillator circuit
Crystal oscillator circuit 32.768 kHz (typ.)
- Internal Flash memory
32 Kbytes (for both instructions and data)
Allows 1,000 rewrites (min.)
Read/write protection function
Allows onboard rewriting with the ICD Mini (S5U1C17001H) debug tool and self-rewriting via software.
2 Kbytes
12 bytes
10 bit resolution 4ch
DC oscillation/AC oscillation/External input 1ch.
Max. 19-bit general purpose input/output
(shared with peripheral circuit input/output pins)
- Internal RAM
●Internal Display RAM
●A/D Converter
●R/F Converter
●Input/output port
- Serial interface
SPI (master/slave) 1ch.
I2C (master) 1ch.
I2C (slave) 1ch.
UART (460,800 bps, IrDA1.0 compatible) 1ch.
8-bit timer (T8F) 1ch.
16-bit timer (T16) 3ch.
PWM timer (T16E) 2ch.
Clock timer (CT) 1ch.
Stopwatch timer (SWT) 1ch.
Watchdog timer (WDT) 1ch.
8-bit OSC1 PWM timer (T8OSC1) 1ch.
- Timer
8 SEG x 8 COM or 12 SEG x 4 COM (1/3 bias)
Internal booster power supply circuit (16-value programmable ontrast)
15-value programmable (1.8 V to 3.2 V)
NMI, P Port Input interrupt 3ch.
Serial Interface interrupt 4ch.
Timer interrupt 9ch.
LCD, SVD, ADC, RFC interrupt
- LCD driver
8 SEG x 8 COM or 12 SEG x 4 COM (1/3 bias)
Internal booster power supply circuit (16-value programmable ontrast)
15-value programmable (1.8 V to 3.2 V)
NMI, P Port Input interrupt 3ch.
Serial Interface interrupt 4ch.
Timer interrupt 9ch.
LCD, SVD, ADC, RFC interrupt
- Power supply voltage detection (SVD) circuit
●Interrupt
1.8 V to 3.6 V (for normal operations)
2.7 V to 3.6 V (for flash deletion/programing)
Including voltage regulator circuit (with binary programmable operating voltage)
- Power supply voltage
-25°C to 70°C
SLEEP mode: 0.6 μA typ. (OSC1=OFF, IOSC=OFF, OSC3=OFF)
- Operating temperatures
●Current consumption

S1C17611

HALT mode: 2.0 μ A typ. (OSC1=32 kHz, IOSC=OFF, OSC3=OFF, PCKEN=0x0, LCD OFF)

3.0 μ A typ. (OSC1=32 kHz, IOSC=OFF, OSC3=OFF, PCKEN=0x0, LCD ON (All LCD On, maximum contrast, Vc2 standard))

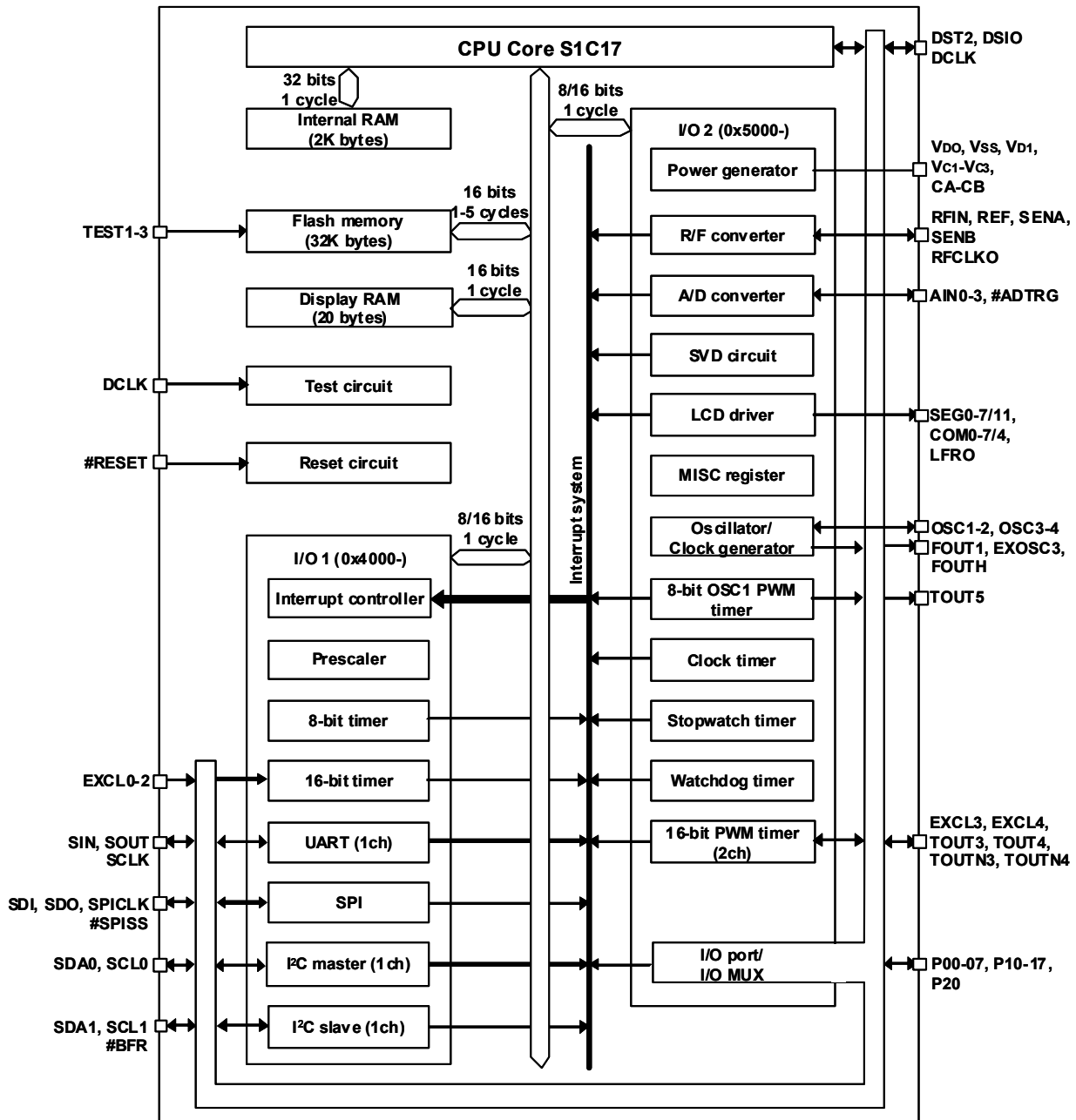
When operating: 12 μ A typ. (OSC1= 32kHz, IOSC=OFF, OSC3=OFF, LCD OFF)

400 μ A typ. (OSC1=OFF, IOSC=OFF, OSC3=1 MHz ceramic oscillator)

•Configuration as shipped

QFP12-48 7 mm x 7 mm body, 0.5 mm pitch
Bare chip 100 μ m pitch

■ BLOCK DIAGRAM



NOTICE:

No part of this material may be reproduced or duplicated in any form or by any means without the written permission of Seiko Epson. Seiko Epson reserves the right to make changes to this material without notice. Seiko Epson does not assume any liability of any kind arising out of any inaccuracies contained in this material or due to its application or use in any product or circuit and, further, there is no representation that this material is applicable to products requiring high level reliability, such as, medical products. Moreover, no license to any intellectual property rights is granted by implication or otherwise, and there is no representation or warranty that anything made in accordance with this material will be free from any patent or copyright infringement of a third party. This material or portions thereof may contain technology or the subject relating to strategic products under the control of the Foreign Exchange and Foreign Trade Law of Japan and may require an export license from the Ministry of Economy, Trade and Industry or other approval from another government agency.

All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective companies.

©Seiko Epson Corporation 2010, All rights reserved

SEIKO EPSON CORPORATION

SEMICONDUCTOR OPERATIONS DIVISION

IC Sales Department
IC International Sales Group
421-8 Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: +81-42-587-5814 FAX: +81-42-587-5117

EPSON semiconductor website

http://www.epson.jp/device/semicon_e/

Document code: 411827700
First issue Jan, 2010 in Japan