

16-bit Single Chip Microcontroller

- 16KB ROM / 2KB RAM
 - * **S1C17653 is useful as for program development.**
- Generates the operating clocks with the built-in oscillators.
 - OSC3B oscillator circuit: 2 MHz/1 MHz/500 kHz (typ.) internal oscillator circuit
 - OSC1A oscillator circuit: 32.768 kHz (typ.) crystal oscillator circuit
- LCD driver Number of driver outputs: 32Seg. x 4Com.
- Shipping form: Die
- RISC CPU core S1C17: the compact code optimized for C, and high throughput of an instruction/clock

■ DESCRIPTIONS

The S1C17153 is a 16-bit MCU featuring ultra-low-power operations and compact dimensions in die form. The S1C17153 is ideal for battery-driven electronic equipment, such as OTP cards, eTokens, and remote control units with a simple display.

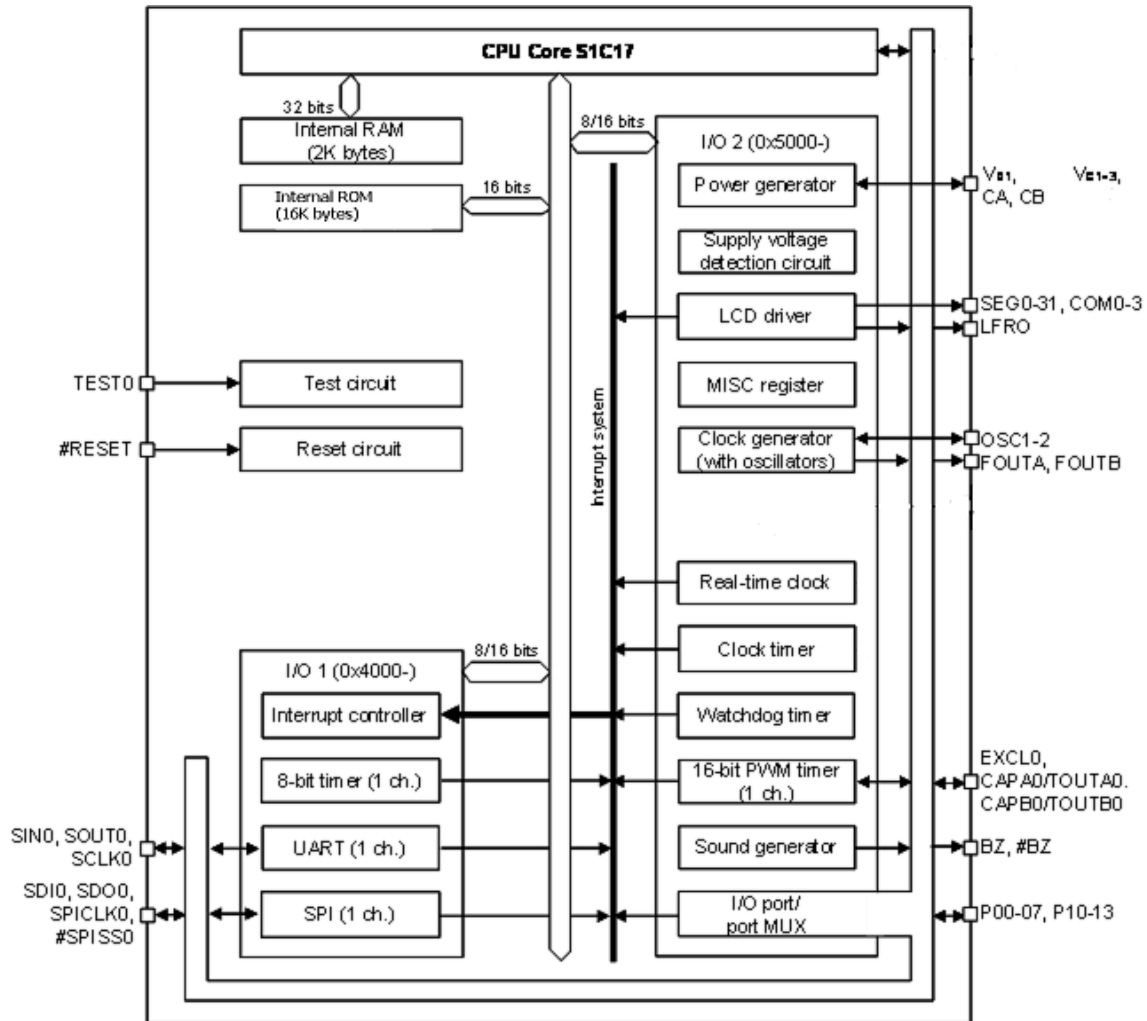
■ FEATURES

CPU	
CPU core	Seiko Epson original 16-bit RISC CPU core S1C17
Multiplier/Divider (COPRO)	<ul style="list-style-type: none"> · 16-bit × 16-bit multiplier · 16-bit × 16-bit + 32-bit multiply and accumulation unit · 16-bit ÷ 16-bit divider
Embedded ROM	
Capacity	16K bytes (for both instructions and data)
Embedded RaM	
Capacity	2K bytes
Clock generator	
System clock source	2 sources (OSC3B/OSC1A)
OSC3B oscillator circuit	2M/1M/500k Hz (typ.) internal oscillator circuit
OSC1A oscillator circuit	32.768 kHz (typ.) crystal oscillator circuit
Other	<ul style="list-style-type: none"> · Core clock frequency control · Peripheral module clock supply control
LCD driver	
Number of driver outputs	Segment output: 32 pins Common output: 4 pins
Other	<ul style="list-style-type: none"> · Includes a power supply voltage booster/reducer. · Includes a display data memory.
I/O ports	
Number of general-purpose I/O ports	Max. 12 bits (Pins are shared with the peripheral I/O.)
Other	<ul style="list-style-type: none"> · Schmitt input · Pull-up control function · Port input interrupt: 8 bits
Serial interfaces	
SPI	1 channel
UART	1 channel (IrDA1.0 supported)
Timers/Counters	
8-bit timer (T8)	1 channel (Generates the SPI clock.)
16-bit PWM timer (T16A2)	1 channel (PWM output, event counter, and count capture functions)
Watchdog timer (WDT)	1 channel (Generates NMI/reset.)
Clock functions	
Real-time clock (RTC)	1 channel (Hour, minute, and second counters)
Clock timer (CT)	1 channel (128 Hz to 1 Hz counters)
Sound generator	
Buzzer frequency	8 frequencies selectable
Volume control	8 steps adjustable
Other	<ul style="list-style-type: none"> · One-shot buzzer · Auto envelope function
Analog circuits	
Supply voltage detection circuit (SVD)	1 channel (Detection voltage: 13 levels (TBD))
Interrupts	
Reset interrupt	#RESET pin/watchdog timer

S1C17153

NMI	Watchdog timer
Programmable interrupts	8 systems (8 levels)
Power supply voltage	
Operating voltage (VDD)	2.0 V to 3.6 V
Operating temperature	
Operating temperature range	-40°C to 85°C
Current consumption (Typ value, VDD = 2.0 V to 3.6 V)	
SLEEP state	130nA (OSC1A = Off, RTC = Off, OSC3B = Off)
HALT state	0.42uA (OSC1A = 32kHz, RTC = Off, OSC3B = Off)
	0.42uA (OSC1A = 32kHz, RTC = On, OSC3B = Off)
Run state	4uA (OSC1A = 32kHz, RTC = Off, OSC3B = Off)
	240uA (OSC1A = 32kHz, RTC = Off, OSC3B = 2MHz)
Shipping form	
	Aluminum pad chip

■ 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. When exporting the products or technology described in this material, you should comply with the applicable export control laws and regulations and follow the procedures required by such laws and regulations. You are requested not to use, to resell, to export and/or to otherwise dispose of the products (and any technical information furnished, if any) for the development and/or manufacture of weapon of mass destruction or for other military purposes.

All brands or product names mentioned herein are trademarks and/or registered trademarks of their respective companies.
©Seiko Epson Corporation 2013, All rights reserved

SEIKO EPSON CORPORATION

EPSON semiconductor website

MICRODEVICES OPERATIONS DIVISION

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

IC Sales & Marketing Department

421-8 Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: +81-42-587-5814 FAX: +81-42-587-5117

Document code: 412503900
First issue Mar., 2013 in Japan