S1C17153

EPSON
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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

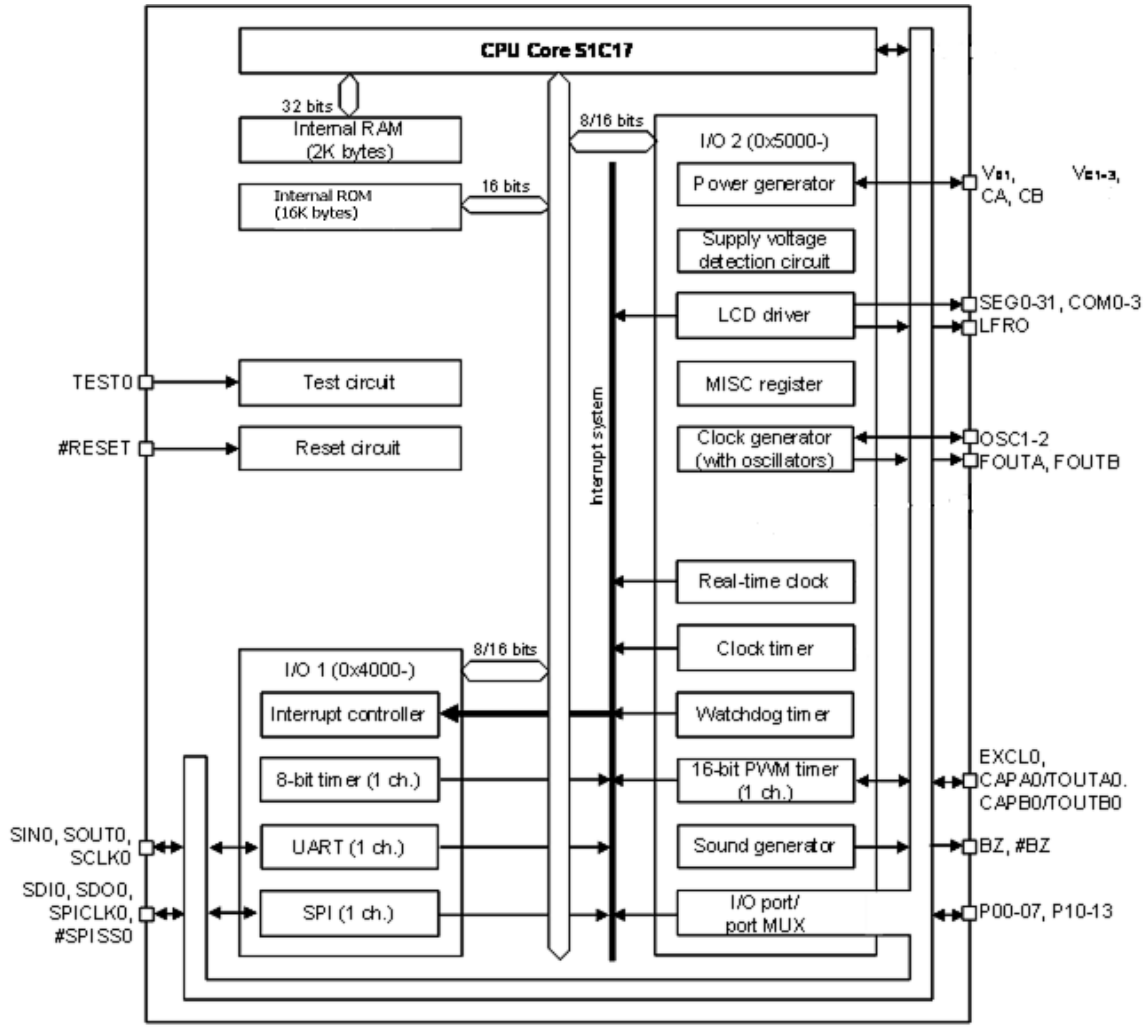
The S1C17153 is a 16-bit MCU featuring ultra-low-power operations and compact dimensions in die form. The S1C17153 is ideal for battery-driven electronic equipment, such as OTP cards, eTokens, and remote control units with a simple display.

■ FEATURES

CPU	
CPU core	Seiko Epson original 16-bit RISC CPU core S1C17
Multiplier/Divider (COPRO)	・ 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	・ Core clock frequency control ・ Peripheral module clock supply control
LCD driver	
Number of driver outputs	Segment output: 32 pins Common output: 4 pins
Other	・ 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	・ 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	・ 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

NMI	Watchdog timer
Programmable interrupts	8 systems (8 levels)
Power supply voltage	
Operating voltage (V_{DD})	2.0 V to 3.6 V
Operating temperature	
Operating temperature range	-40°C to 85°C
Current consumption (Typ value, V_{DD} = 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



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