

S1C63003

CMOS 4-bit Single Chip Microcontroller

- High Performance 4-bit Core CPU S1C63000
- Segment LCD Driver (Max:22SEG x 5COM)
- R/F Converter to Measure Temperature and Humidity
- Low Current Consumption
- Low Voltage Operation

■ DESCRIPTIONS

The S1C63003 is a microcontroller features low voltage operations and low current consumption. It consists of a 4-bit core CPU S1C63000 as the core CPU, ROM (4K words x 13 bits), RAM (256 words x 4 bits), timers, and sound generator. It also incorporates a segment LCD controller/driver that can drive a maximum 22-segment x 5-common LCD panel, and an R/F converter that can measure temperature and humidity using sensors such as a thermistor.

The S1C63003 is suitable for battery driven clocks and watches with temperature and humidity measurement functions.

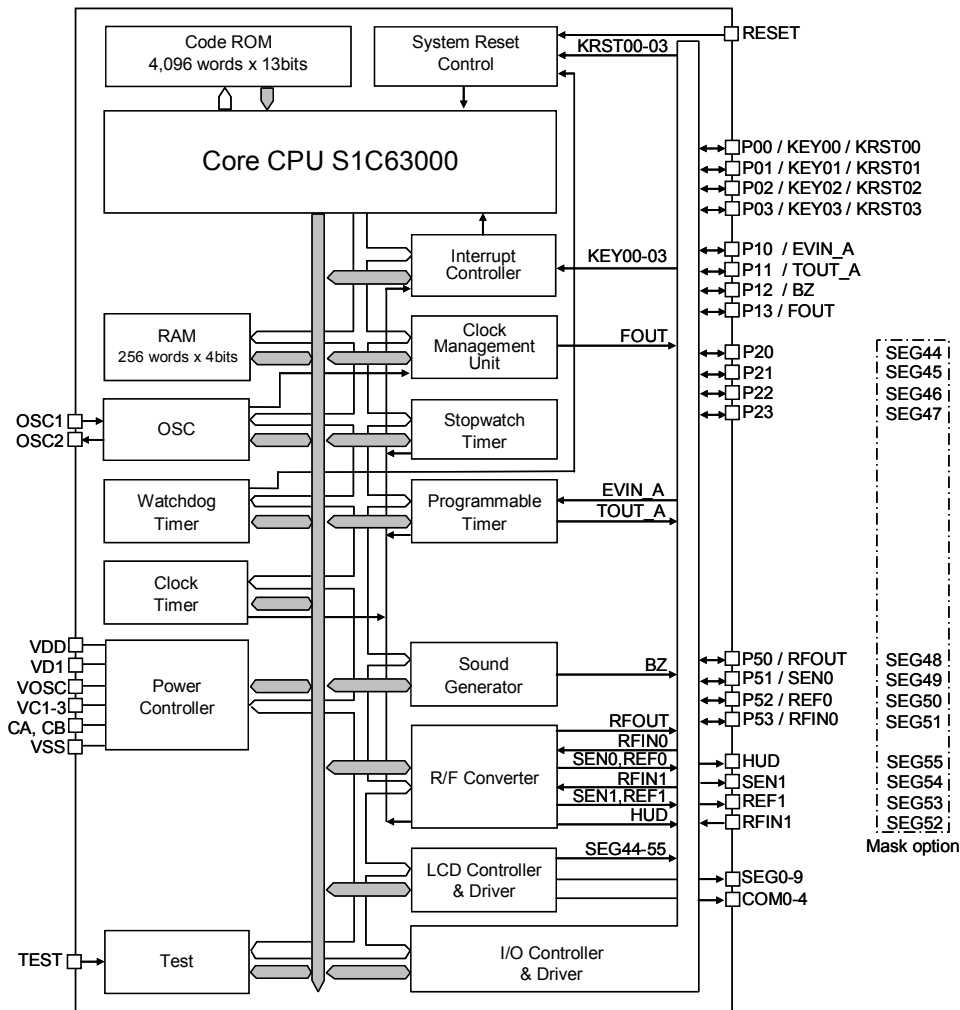
■ FEATURES

Core	4-bit core CPU S1C63000	
OSC1 oscillation circuit	32.768 kHz (Typ.) crystal oscillation circuit	
OSC3 oscillation circuit	550 kHz (Typ., 3 V model) /550 kHz (Typ., 1.5 V model) CR oscillation circuit (built-in R)	
Instruction set	47 types of basic instructions (411 instructions with all), 8 types of addressing modes	
Instruction execution time	During operation at 32.768 kHz: 61 μ sec 122 μ sec 183 μ sec During operation at 4 MHz: 0.5 μ sec 1 μ sec 1.5 μ sec	
ROM capacity	Code ROM	4,096 words \times 13 bits
	Data ROM	Not available
RAM capacity	Data memory	256 words \times 4 bits
	Display memory	110 bits
I/O ports	16 bits Pull-down resistors can be included. (*1) The pins can be switched for peripheral circuit inputs/outputs. (*2)	
Serial interface	Not available	
LCD driver	22 segments (Max., *1) \times 3 to 5 commons (*2)	
Time base counters	Clock timer 1/1000-second stopwatch timer (without direct key input function)	
Programmable timer	8-bit timer \times 1 channel	
Watchdog timer	Built-in	
Sound generator	With envelope and 1-shot output functions	
R/F converter	2 channels CR oscillation type R/F converter with 20-bit counters, supports resistive humidity sensors.	
Integer multiplier	Not available	
Supply voltage detection (SVD) circuit	Not available	
External interrupt	Key input: 4 systems	
Internal interrupt	Watchdog timer 1 system (NMI) Clock timer 4 systems Stopwatch timer 2 systems Programmable timer 1 system Serial interface - R/F converter 3 systems	
Power supply voltage	1.8 to 5.5 V (3 V normal type) or 1.1 to 1.7 V (1.5 V low-voltage type) (*1)	
Operating temperature range	-40 to 85°C	
Current consumption (Typ.)	SLEEP (32 kHz)	0.1 μ A (3 V model)/0.1 μ A (1.5 V model)
	HALT (32 kHz)	0.5 μ A (3 V model)/0.5 μ A (1.5 V model)
	RUN (32 kHz)	2.3 μ A (3 V model)/2.0 μ A (1.5 V model)
	RUN (4 M/1 MHz)	40 μ A (550 kHz, 3 V model) /30 μ A (550 kHz, 1.5 V model)
Shipment form	QFP12-48pin or die form	

*1: Can be selected with mask option. *2: Can be selected with software.

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■ BLOCK DIAGRAM



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Document code: 412028201
Revised Feb, 2012 in Japan