S1C63654

4-bit Single Chip Microcomputer

- ● Original Architecture Core CPU
- ● Low Current Consumption
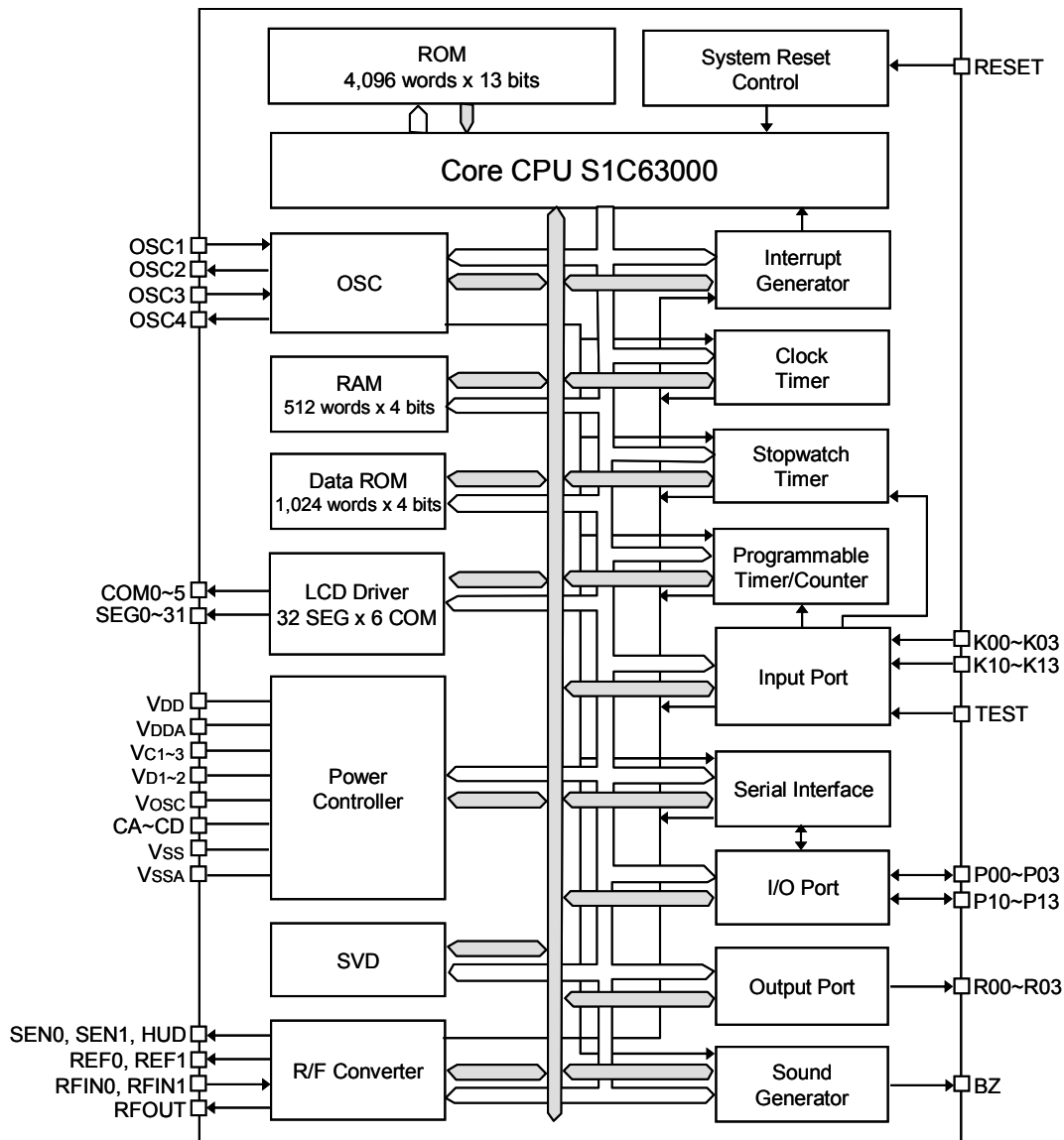- ● High Speed Operation in Low Voltage

■ DESCRIPTION

The S1C63654 is a microcomputer which has a high-performance 4-bit CPU S1C63000 as the core CPU, ROM (4,096 words × 13 bits), RAM (512 words × 4 bits), serial interface, watchdog timer, programmable timer, time base counters (2 systems), an LCD driver that can drive a maximum 32 segments × 6 commons, sound generator and R/f converter built-in. The S1C63654 features low current consumption, this makes it suitable for battery driven portable equipment with R/f converter.

■ FEATURES

OSC1 oscillation circuit	32.768 kHz (Typ.) crystal oscillation circuit
OSC3 oscillation circuit	4 MHz (Max.) ceramic
	(2 MHz Max. when OSC3 is used as the R/f converter operating clock)
	or 1.1 MHz (Typ.) CR oscillation circuit (*1)
Instruction set	Basic instruction: 46 types (411 instructions with all)
	Addressing mode: 8 types
Instruction execution time	During operation at 32.768 kHz:61 µsec 122 µsec 183 µsec
	During operation at 4 MHz: 0.5 µsec 1 µsec 1.5 µsec
ROM capacity	Code ROM: 4,096 words × 13 bits
	Data ROM: 1,024 words × 4 bits
RAM capacity	Data memory: 512 words × 4 bits
	Display memory: 48 words × 4 bits
Input port	8 bits (Pull-down resistors may be supplemented *1)
Output port	4 bits (It is possible to switch the 2 bits to special output *2)
I/O port	8 bits (It is possible to switch the 4 bits to serial I/F input/output *2)
Serial interface	1 port (8-bit clock synchronous system)
LCD driver	32 segments × 6, 5, 4 or 3 commons (*2)
Time base counter	Clock timer
	Stopwatch timer (1/1000 sec, with direct key input function)
Programmable timer	8-bit PWM × 2 ch. or 16-bit PWM × 1 ch. (*2)
Watchdog timer	Built-in
Sound generator	With envelope and 1-shot output functions
R/f converter	2 ch., CR oscillation type, 20-bit counter
	Supports resistive humidity sensors
Supply voltage detection (SVD) circuit	Criteria voltage is selectable from 8 types (1.85 to 2.90 V *2)
External interrupt	Input port interrupt: 2 systems
Internal interrupt	Clock timer interrupt: 4 systems
	Stopwatch timer interrupt: 4 systems
	Programmable timer interrupt: 4 systems
	Serial interface interrupt: 1 system
	R/f converter interrupt: 2 systems
Power supply voltage	2.4 to 3.6 V: Max. 4 MHz operation in normal mode
	2.4 to 3.6 V: 32 kHz operation in halver mode
	1.8 to 3.6 V: 32 kHz operation in normal mode
Operating temperature range	-20 to 70°C
Current consumption (Typ.)	Low-speed operation (OSC1 = 32 kHz crystal oscillation):
	During HALT 3.0 V (LCD ON, halver mode) 0.65 µA
	During operation 3.0 V (LCD ON, halver mode) 2.5 µA
	High-speed operation (OSC3 = 4 MHz ceramic oscillation):
	During operation 3.0 V (LCD ON) 800 µA
Shipment form	QFP15-100pin (plastic) or chip
	*1: Can be selected with mask option *2: Can be selected with software

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■ BLOCK DIAGRAM

NOTICE: