

4-bit Single Chip Microcomputer

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

■ DESCRIPTION

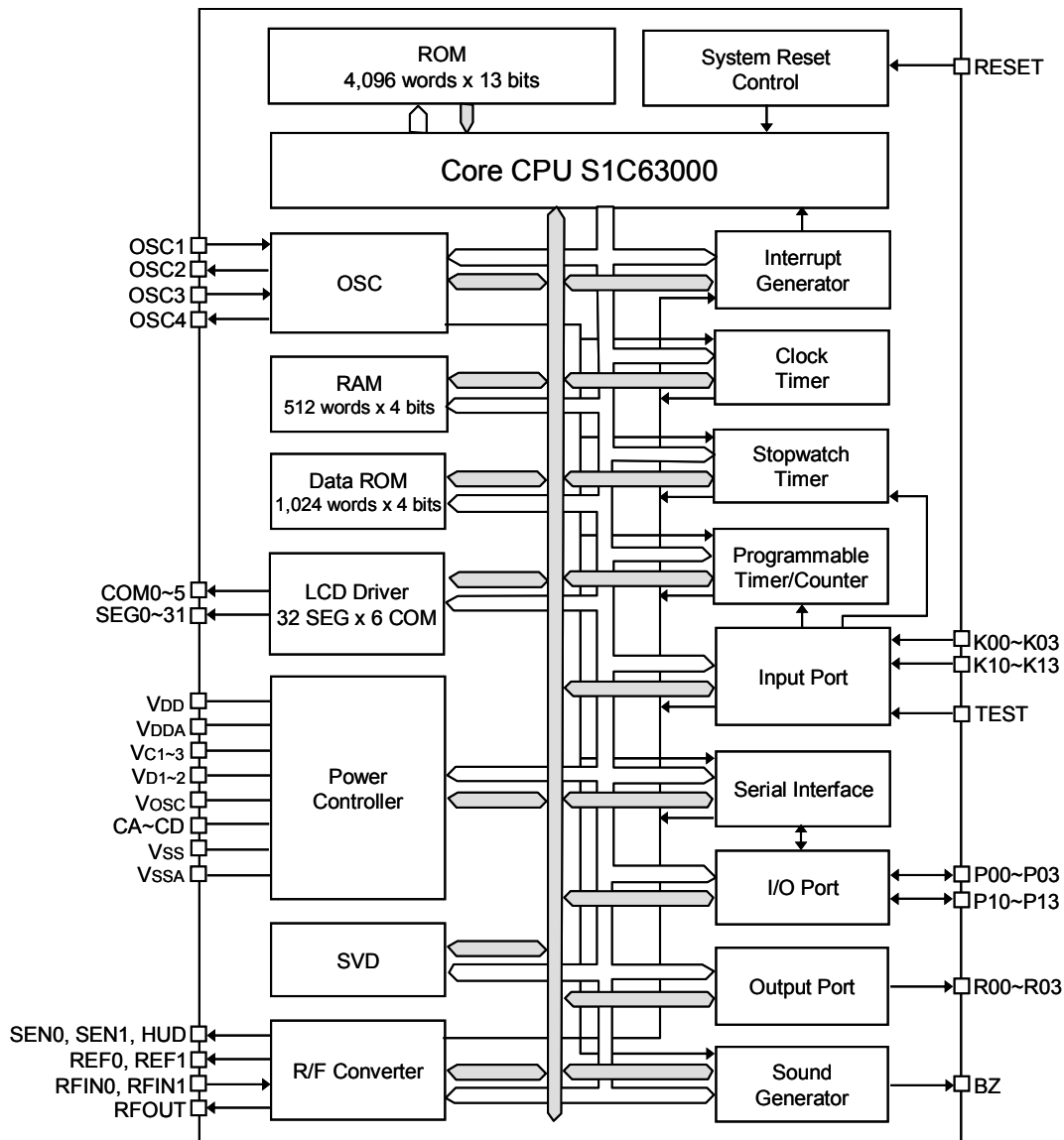
The S1C63654 is a microcomputer which has a high-performance 4-bit CPU S1C63000 as the core CPU, ROM (4,096 words × 13 bits), RAM (512 words × 4 bits), serial interface, watchdog timer, programmable timer, time base counters (2 systems), an LCD driver that can drive a maximum 32 segments × 6 commons, 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

S1C63654

■ 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 2012, All rights reserved

SEIKO EPSON CORPORATION

EPSON semiconductor website

MICRODEVICES OPERATIONS DIVISION

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

Device Sales & Marketing Department
421-8 Hino, Hino-shi, Tokyo 191-8501, JAPAN
Phone: +81-42-587-5814 FAX: +81-42-587-5117

Document code: 412300000
First issue Feb, 2012 in Japan