

## Key product features

1. Low-voltage, low-current operation that dramatically extends battery life
  - Guaranteed operating range: 1.8 V - 3.6 V
  - Power consumption in RUN mode: 150  $\mu$ A/MHz
2. Interfaces for connecting a variety of sensors
  - An R/F converter<sup>\*1</sup> for temperature and humidity measurement and UART, SPI, and I<sup>2</sup>C serial interfaces
  - Universal port multiplexers<sup>\*2</sup> that increase board layout design flexibility
3. Embedded circuits that help customers reduce total product part counts, save board space, and shrink software development times
  - LCD driver that can directly drive an LCD with up to 2,304 dots
  - Oscillator circuit that is switchable between 20, 16, 12, 8, 2, and 1 MHz
  - Supply voltage detector (SVD) circuit that does not require an external power supply supervisor
  - QSPI that enables high-speed communications with external serial Flash memories
  - Sound generator that supports three octaves, seven notes, and seven rests
  - IR remote controller<sup>\*3</sup> that is capable of infrared remote control output

## Product specifications

Product model number	S1C31W74
CPU core	ARM <sup>®</sup> Cortex <sup>®</sup> -M0+ 32-bit RISC processor with multiplier
Flash memory	512 kilobytes
RAM	128 kilobytes
Instruction cache memory	512 bytes
Operating voltage	Guaranteed operating range: 1.8 V - 3.6 V Operating voltage during Flash memory rewrite operations: 2.7 V - 3.6 V Operating voltage during LCD driver use: 2.5 V - 3.6 V
Current consumption	SLEEP mode RTC OFF: 0.4 $\mu$ A (typical) SLEEP mode RTC ON: 0.9 $\mu$ A (typical) <sup>*4</sup> RUN mode: 150 $\mu$ A/MHz (typical)
LCD driver	2,304 dots max. (72 SEG x 25-32 COM) 1,920 dots max. (80 SEG x 17-24 COM) 1,408 dots max. (88 SEG x 1-16 COM)
I/O ports	71 max.
R/F converter	1 input channels (CR oscillator with 24-bit counters)
Supply voltage detector	1.7 V to 4.3 V, 32 levels
USB	2.0 FS device controller, 1 channel
Serial interfaces	2-channel UART, 1-channel SPI, and 2-channel I <sup>2</sup> C interfaces QSPI: 1 channel
Package	VFBGA8HX-181 (8 mm x 8 mm with a ball pitch of 0.5 mm) Bare chip with 80 $\mu$ m (min.) pad pitch

<sup>\*1</sup> A circuit that converts resistance changes into frequency

<sup>\*2</sup> A circuit that allows users to flexibly assign I/O functions of peripheral circuits to I/O ports

<sup>\*3</sup> A control circuit for infrared remote control

<sup>\*4</sup> A state in which the CPU is in Stop mode and only the RTC calendar circuit is running