

Feature and Specifications

Key product features

1. Interfaces for communicating with cards or connecting to a variety of devices
 - Smart card interface (ISO 7816-3 compliant) functionality
 - UART, SPI, and I²C serial interfaces
2. Low-voltage, low-current requirements that dramatically extend battery life
 - Guaranteed operating range: 1.8 V - 5.5 V
 - Power consumption in RUN mode: 145 μ A
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 1,280 dots
 - Oscillator circuit that can be set to 16 MHz, 12 MHz, 8 MHz, or 4 MHz
 - Supply voltage detector (SVD) circuit that does not require an external power supply supervisor
 - Circuitry that allows I/O port functions to be assigned with software

Product specifications

Product model number	S1C17M10
CPU core	16-bit RISC processor + multiply and accumulation unit, multiplier
Flash memory	64 KB
RAM	4 KB
Operating voltage	Guaranteed operating range: 1.8 V - 5.5 V Operating voltage when writing to Flash memory: 2.7 V - 3.6 V (when using internal V _{pp} ^{*1})
Current consumption	SLEEP mode RTC OFF: 0.16 μ A (typical) HALT mode RTC ON: 0.6 μ A (typical) RUN mode 145 μ A/MHz (typical)
Supply voltage detector	VDD: 28 levels (1.8 to 5.0 V) / external voltage: 32 levels (1.2 to 5.0 V)
Smart card interface	1 channel Baud rate generator
LCD driver	1,280 dots max. (80 SEG x 9-16 COM) 704 dots max. (88 SEG x 1-8 COM)
Real-time clock	128- 1 Hz counter. Second, minute, hour, day, day of the week, month, and year counters. Theoretical regulation function for 1-second correction ^{*2} Alarm and stopwatch functions
Serial interfaces	1-channel UART, 1-channel SPI, and 1-channel I ² C interfaces
I/O ports	32 max.
Package	TQFP15-128 pin (lead pitch: 0.4 mm) Bare die with 80 μ m (min.) pad pitch 80 μ m (min.)

^{*1}: When it turns on the V_{pp} for writing to Flash memory

^{*2}: A function to correct clock error due to frequency tolerance with no external parts required.