**Key product features**

**1. Built-in circuits that will reduce the number of components in customers' products, save board space, and shrink software development times**

- The built-in oscillator circuit is user selectable. In addition to 12 MHz and 16 MHz, customers can choose a 20 MHz circuit, the fastest in the S1C17 family.
- 16 kB of self-programmable Flash memory and 2 kB of RAM
- A universal port multiplexer (UPMUX) enables I/O pin assignments to be changed with software.
- Fault tolerant/failsafe I/Os[*] prevent circuit failures and increases in current consumption from occurring when unnecessary current is flowing from another connected device with a higher supply voltage.
- Analog-digital converter
- Three types of serial interface
- Infrared remote control output signal generator

**2. Low-voltage and low-current consumption that extend battery life**

- The S1C17M20 consumes a mere 0.5 µA of current in Sleep mode and supports supply voltages from 1.8 V to 5.5 V. It can be used for a wide range of applications in industrial products as well as in battery-operated consumer electronics and IoT devices.

**Product specifications**

| Model No. | S1C17M20 |
|---|---|
| CPU core | 16-bit RISC processor with multiply and accumulation unit and multiplier/divider |
| Flash memory | 16 kB |
| RAM | 2 kB |
| Built-in oscillator circuit accuracy | ±1% (when operating at 12 MHz in a temperature between 10℃ and 40℃) |
| Operating voltage | Guaranteed operating range: 1.8 V - 5.5 V |
| Current consumption | Sleep mode: 0.5 µA (typical)<br>Run mode: 145 µA/MHz (typical) |
| Supply voltage detector | VDD: 28 levels (1.8 V to 5.0 V) / external voltage: 32 levels (1.2 V to 5.0 V) |
| Infrared remote controller | 1 channel (can be used to generate EL lamp driving waveforms) |
| Analog-digital converter | 4 inputs (12-bit successive-approximation ADC) |
| Timers | 16-bit PWM timer: 2 channels |

|  | 16-bit timer: 4 channels |
| --- | --- |
|  | Watchdog timer |
|  | Real-time clock |
| Serial interfaces | UART (2 ch.), SPI (2 ch.), and $I^2C$ (1 ch.) interfaces |
| I/O ports | 17 max. |
|  | Of which 15 are universal support multiplexers (UPMUX) |
| Packages | 24-pin SQFN4-24 (lead pitch: 0.5 mm) |
|  | 32-pin SQFN5-32 (lead pitch: 0.5 mm) |

[*] Unneeded current is provided when a device that has a higher supply voltage is connected to an I/O pin. The fault tolerant/failsafe functions prevent increases in current consumption and circuit failures.