

Key Product Features

1. Ideal specifications for LED display applications
 - Five pins capable of up to 56 mA* output.
 - Integrated hardware controller that supports dynamic lighting control
2. Embedded circuits that help customers reduce total product part counts, save board space, and shrink software development times
 - Oscillator circuit that is switchable between 16, 12, 8, and 4 MHz and 700 kHz
 - 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 (universal port multiplexers)
 - UART, SPI, and I²C serial interface circuits
3. Low-voltage and low-current consumption that extend battery life
 - Guaranteed operating range: 1.8 V - 5.5 V
 - Sleep mode current consumption: 0.5 μ A

Product Specifications

Product model number	S1C17M13
CPU core	16-bit RISC processor with multiply and accumulation unit and multiplier/divider
Flash memory	16 Kbytes
RAM	2 Kbytes
Operating voltage	Guaranteed operating range: 1.8 V - 5.5 V
Current consumption	SLEEP mode: 0.5 μ A (typical) RUN mode: 1.7 mA/16 MHz (typical)
Supply voltage detector	VDD: 28 levels (1.8 to 5.0 V) / external voltage: 32 levels (1.2 to 5.0 V)
LED controller	Up to 5-digit, 7-segment LED output (8 segments x 1 to 5 common pins) Dynamic drive control Anode common mode, cathode common mode, and pin status when OFF are selectable with software. 4-level brightness adjustment
Infrared remote controller	1 channel (can be used to generate EL lamp driving waveforms)
Analog-digital converter	Successive approximation ADC, 12-bit resolution, 8 input channels
Timer	16-bit PWM timer, 1 channel 16-bit timer, 4 channels Watchdog timer
Serial interfaces	UART (1 ch.), SPI (2 ch.), and I ² C (1 ch.) interfaces
I/O ports	38 max. 21 universal support multiplexers
Package	48-pin TQFP12-48 (lead pitch: 0.5 mm)

* Maximum output current per pin at an operating voltage of 5 V. Not capable of multiple simultaneous outputs.