Product specifications
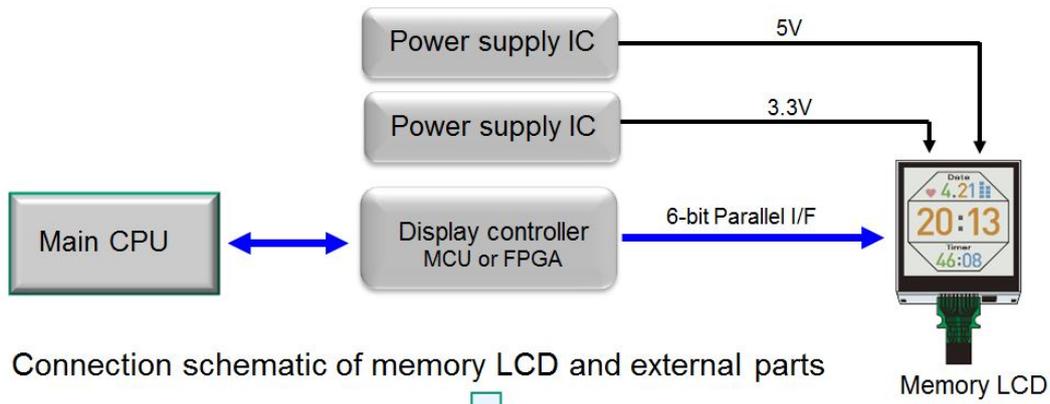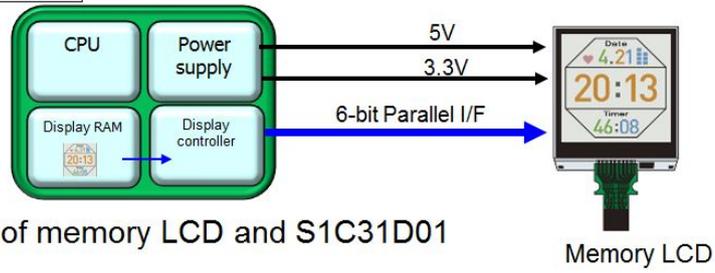
Product model number	S1C31D01
CPU core	ARM® Cortex®-M0+ 32-bit RISC processor
Flash memory	256 kilobytes
RAM	96 kilobytes
Instruction cache memory	512 bytes
Operating voltage	Guaranteed operating range: 1.8 V - 5.5 V
Current consumption	SLEEP mode RTC ON: 0.9 µA (typical) RUN mode: 250 µA/MHz (typical)
Supply voltage detector	VDD: 28 levels (1.8 to 5.0 V) / external voltage: 32 levels (1.2 to 5.0 V)

Memory LCD controller	Panel interface
	  - 6-bit color, parallel interface
	  - 1-bit monochrome SPI interface + COM signal
	  - 3-bit color SPI interface + COM signal
	Image rotation function: Rotates frame buffer images 0, 90, 180, or 270 degrees and sends them to the panel
	Memory LCD power generation
	  - VMDL pin: 2.7 V to 3.4 V output (select any voltage with software)
	  - VMDH pin: 4.4 V to 5.05 V output (select any voltage with software)
	Graphics acceleration
	  - Image and bitmap copying
	Enlarges/reduces images, and rotates and copies them 6-bit color enables Alpha blending
	  - Drawing functions
	Functions for drawing lines of a specified thickness and applying shading, etc.

Infrared remote controller	1 channel (can be used to generate EL lamp driving waveforms)
A/D converter	Successive approximation ADC, 12-bit resolution, 7 input channels
Timers	16-bit PWM timer: 2 channel 16-bit timer: 8 channels Watchdog timer
Serial interfaces	UART (3 ch.), SPI (2 ch.), and I²C (2 ch.) interfaces QSPI: 1 channel
USB	USB 2.0 full-speed device controller: 1 channel
I/O ports	57 max. 30 universal support multiplexers
Packages	81-ball VFBGA5HX (5 mm x 5 mm, with a ball pitch of 0.5 mm) 100-ball WCSP (4.45 mm x 4.45 mm, with a ball pitch of 0.4 mm) 14- to 80-pin TQFP (14 mm x 14 mm, with a pin pitch of 0.5 mm) Bare die

Sample connection of memory LCD

Connection schematic of memory LCD and external parts

Number of components and development time are reduced.

Connection schematic of memory LCD and S1C31D01