General Specifications

Model	S1C33L26
Core CPU	S1C33000 RISC PE core
Main clock/Sub clock	60MHz (Max.) / 32.768 KHz (typ.) CPU (36MHz) / SDRAM (72MHz) possible depending on settings
Built-in ROM	-
Built-in RAM	12 KB
Built-in VRAM	20 KB (Can be used as built-in RAM)
IDMA RAM	512 bytes
Graphics engine (GE)	- Word (32-bit) boundary command interface Variable-length size draw command, command list function - Object rendering function Rendering of points, lines, triangles, rectangles, squares and circles Font rendering (can be set to recognize user fonts) Lossless decompression of image data (using original run length decoding) - Image data block transfer Copy rectangle within image, image memory data copy - Rendering effects Clipping draw Line width settings Transparent color support settings Pixel logical operators (Fill, Mesh, Rewrite, XOR) Palette-based color depth, extended color Resizing (enlarge/reduce), repeating, rotation (font and image data)
LCD controller	STN/TFT Interface (supports up to 24 bpp) Picture in Picture function Sample resolutions: 640 x 480, 24 bpp (requires external VRAM) 320 x 240, 2 bpp (using built-in VRAM only)
USB function controller	Supports USB 2.0 full speed mode (12 Mbps) FIFO 1 KB (4 general-purpose endpoints + control)
SDRAM controller	Supports SDRAM clock up to max. 72MHz
Analog-digital converter (ADC)	Successive approximation: 10 bit accuracy x 6 ch
Timer	16 bit: 3 ch (PWM output included) Watchdog timer (WDT): 1 ch RTC: 1 ch
External interface	SIO with FIFO: 2 ch USI*: 1 ch I^2S: 1 ch output (mono), * USI: One Universal Serial Interface function selection (UART, SPI, or I2C)
DMA controller (DMAC)	Table DMA: 8 ch
External bus controller	Address bus: 26 bit Data bus: 8 or 16 bit (selectable)

I/O ports	71 ports (in 144-pin package)
Bootable devices	8/16-bit external ROM SPI external Serial Flash ROM RS-232C (SIO)
Supply voltage	Core: 1.8V (typ.) I/O: 3.3V (typ.)
Current consumption*	SLEEP mode: 2.6 µA (typ.) when RTC on 1.6 µA (typ.) when RTC off HALT mode: 4.2 mA (typ.) in 48 MHz OSC mode, all peripheral clocks off Operation: 22 mA (typ.), 48 MHz OSC mode, standard CPU operation, all peripheral clocks off 40mA (typ.), 48 MHz OSC mode, standard CPU operation, GE idle *Does not include I/O current
Shipping configuration	Bare chip (100 µm pitch) TQFP15-128 (0.4 mm pitch) TQFP24-144 (0.4 mm pitch) PFBGA12U-180 (0.8 mm pitch)