

EPSON 8-bit MCU S1C88409 SPEC

Model	S1C88409
Supply Voltage	1.8 ~ 5.5V (Operating frequency Max. 1.1MHz) 2.6 ~ 5.5V (Operating frequency Max. 4.4MHz) 3.5 ~ 5.5V (Operating frequency Max. 6.6MHz) 4.5 ~ 5.5V (Operating frequency Max. 8.8MHz)
Core CPU	S1C88 (MODEL3) CMOS 8-bit core CPU
OSC1 Oscillation circuit	Crystal oscillation circuit/ CR oscillation circuit/ external clock input 32.768 kHz (Typ.)
OSC3 Oscillation circuit	Crystal oscillation circuit/ ceramic oscillation circuit/ CR oscillation circuit 8 MHz (Max.)
Instruction set	Basic instruction: 54 types, Total: 608 types (multiplication/ division instructions are usable) Addressing mode: 12 types
Min. Instruction execution time	0.25µsec/ 8MHz (2 clocks)
Internal ROM capacity	8K bytes
Internal RAM capacity	3.75K bytes (display memory is included; data/ display memory size can be set by mask option)
Bus line	Address bus: 22 bits Data bus: 8 bits CE signal: 3 bits WR signal: 1 bit RD signal: 1 bit (usable as general output port or I/O port when it is not used as a bus signal)
Input port	12 bits -2 bits are usable for event counter input)
Output port	30 bits -They are used as address bus and bus control signals when external bus is set -Usable for clock output and buzzer output
I/O port	28 bits -8 bits are used as data bus when external bus is set -Usable for serial interface input/ output
Serial interface	1 channel -Clock synchronous mode/ asynchronous mode selectable -Usable as IrDA interface
16-bit programmable timer	1 channel -Usable for 16 bits x 1 channel or 8 bits x 2 channel -Usable as event counter
8-bit programmable timer	1 channel -Usable as baud rate generator for serial interface
Clock timer	1 channel -Generating 1 sec signal with 32 kHz oscillation -60S counter available
LCD controller	Dot matrix type -B&W or 4 gray scale display -A 240 x 100 dot LCD panel can be driven with external drivers (S1D16305 or S1D16700, S1D16006 or S1D15700) -Scroll function available
Touch panel controller	Supports pressure sensitive and resistive membrane type analog touch panels
A/D converter	Resolution 10 bits (input: 8 channels)
D/A converter	Resolution 8 bits (output: 2 channels)
Sound generator	Equipped with envelope and volume control functions.
Supply voltage detection (SVD)	Possible to detect 3 voltage levels

Watchdog timer		Possible to generate NMI	
Interrupt		External interrupt: Input interrupt	2 systems (5 types)
		Internal interrupt: 16-bit programmable timer interrupt	2 systems (4 types)
		8-bit programmable timer interrupt	1 system (1 type)
		Clock timer interrupt	1 system (5 type)
		Watchdog timer interrupt	1 system (1 type)
		Serial interface interrupt	1 system (3 types)
		LCD controller interrupt	1 system (1 type)
		Touch panel interrupt	1 system (2 types)
		A/D converter interrupt	1 system (1 type)
Current consumption (Typ.)	SLEEP	0.6 μ A Typ. (at 3.0V) (Normal mode)	
	HALT (32kHz)	3.0 μ A Typ. (at 3.0V) (Normal mode)	
	Run (32kHz)	15 μ A Typ. (at 3.0V) (Normal mode)	
	Run (4MHz)	2mA Typ. (at 3.0V) (Normal mode)	
	Run (8MHz)	9mA Typ. (at 5.0V) (High speed mode)	
Package form		QFP15-100pin or chip	