■ Terminal Function

Table 1 Functional Description of Terminals

Signal name	No. of lines	Input/ output	Connected to	Function
RS	1	Input	MPU	Signal to select registers "0": Instruction register (for write) Busy flag; address counter (for read) "1": Data register (for read and write)
R/W	1	Input	MPU	Signal to select read (R) and write (1 "0": Write "1": Read
E	1	Input	MPU	Operation start signal for data read/ write
$DB_4 \sim DB_7$	4	Input/ output	MPU	Higher order 4 lines data bus with bidirectional three-state. Used for data transfer between the MPU and the HD44780. DB7 can be used as a BUSY flag.
$DB_0 \sim DB_3$	4	Input/ Output	MPU	Lower order 4 lines data bus with bidirectional three-state. Used for data transfer between the MPU and the HD44780. These four are not used during 4-bit operation.
CL_1	1	Output	HD44100H	Clock to latch serial data D sent to the driver LSI HD44100H.
CL_2	1	Output	HD44100H	Clock to shift serial data D.
4	1	Output	HD44100H	Switch signal to convert liquid crystal drive waveform to AC.
	1	Output	HD44100H	Character pattern data corresponding to each common signal is serially sent. "0": Non selection "1": Selection
$COM_1 \sim COM_{16}$	16	output	Liquid crystal display	Common signals that are not used are charged to non-selection waveforms. That is, $COM_9 \sim COM_{16}$ are in non-selection waveform at 1/8 duty factor and $COM_{12} \sim COM_{16}$ are in non-selection waveform at 1/11 duty factor.
$SEG_1 \sim SEG_{40}$	40	Output	Liquid crystal display	Segment signal
$V_1 \sim V_5$	5		Power supply	Power supply for liquid crystal display drive
V_{CC}, GND	2		Power supply	V_{CC}; +5V, GND; 0V
OSC_1, OSC_2	2			Terminals connected to resister or ceramic filter for internal clock osillation. For external clock operation, the clock is input to OSC_1.