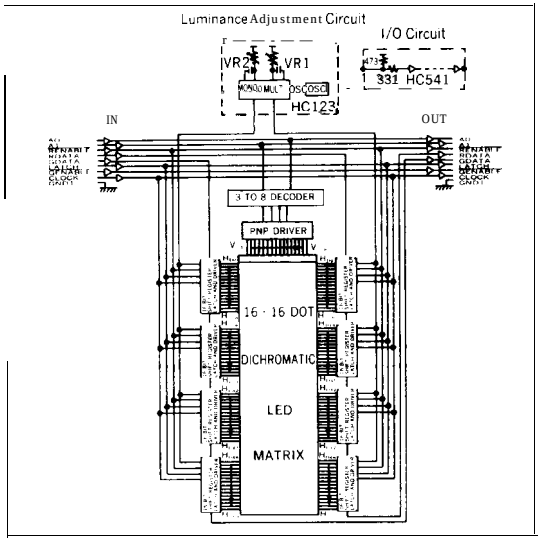
LT1446M

1 6X 16 Dot Matrix LED Unit for Outdoor Use

■ Features

1. 16×16dot matrix LED unit (Waterproof type)
2. Active display size: 159.0mm square
3. Three color emission by use of dichromatic LED
4. Radiation color: Red, yellow-green and orange (mixed color)
5. Wide viewing angle
6. Built-in shift registers, latch circuits, LED driver ICs, scanning line select circuits and luminance adjusting circuits
7. Clock frequency: 3MHz
8. Dynamic drive (Duty ratio: 1/4)

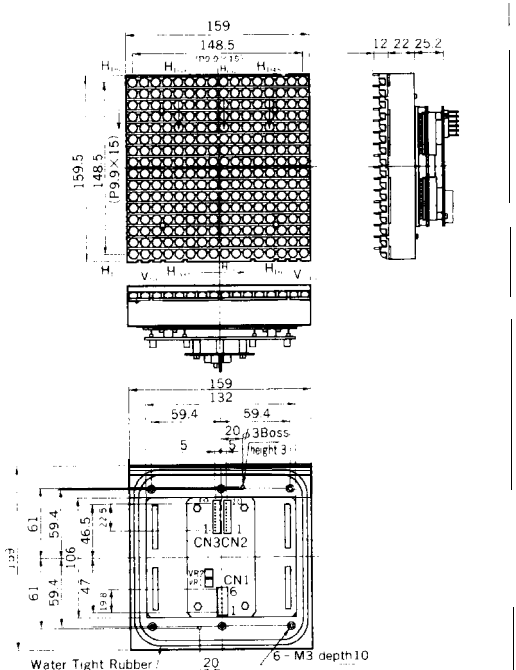
■ Block Diagram



■ Terminal Functions

Connector	Pin No	Name	Function
CN1 (Power supply)	1	V_{LED}	Power supply for LED
	2	V_{DD}	Power supply for IC
	3	GND1	Ground for IC
	4	GND2	Ground for LED
CN2 (Input signal)	1, 2	A_0, A_1	Address specification signal for row driver
	3	GND1	Ground for IC
	4	RENABLE	"L" Each dot can be driven in accordance with red data
	5	RDATA	Serial data input for red (H: lit, L: no lit)
	6	GDATA	Serial data input for Yellow-green (H: lit, L: no lit)
	7	LATCH	"L→H" The contents are latched
	8	$\overline{GENABLE}$	"L": Each dot can be driven in accordance with Yellow-green data
	9	CLOCK	Clock signal for data transmission in the shift-register. (L→H: The data are shifted)
	10	GND1	Ground for IC
CN3 (Output signal)	1, 2	A_0, A_1	Buffered the input signals A_0, A_1
	3	GND1	Ground for IC
	4	$\overline{RENABLE}$	Buffered the input signal $\overline{RENABLE}$
	5	RDATA	Input signal is generated through 64-bit shift register in the unit.
	6	GDATA	
	7	LATCH	Buffered the input signal LATCH.
	8	$\overline{GENABLE}$	Buffered the input signal $\overline{GENABLE}$
	9	CLOCK	Buffered the input signal CLOCK.
	10	GND1	Ground for IC

■ Outline Dimensions (Unit: mm)



Connectors
CN1: B6P-VH(JST Corp.)
CN2: B10P-XH-A(JST Corp.)
CN3: B10P-XH-A(JST Corp.)

Pin connections

CN1 Power supply		CN2 Input signal		CN3 Output signal	
1	VLED	1	A0	1	A0
2	VLED	2	A1	2	A1
3	VDD	3	GND1	3	GND1
4	GND1	4	RENABLE	4	RENABLE
5	GND2	5	RDATA	5	RDATA
6	GND2	6	GDATA	6	GDATA
		7	LATCH	7	LATCH
		8	GENABLE	8	GENABLE
		9	CLK	9	CLK
		10	GND1	10	GND

■ Absolute Maximum Ratings

(Ta = 25°C)

Parameter	Symbol	Rating	Unit
IC supply voltage	V_{DD}	5.5	V
LED supply voltage	V_{LED}	5.0	v
Input voltage	V_I	※1 −0.3 to V_{DD} +0.3	v
LED current dissipation	I_{LED}	※2 7.5	A
Operating temperature range	Topr 1	※3 −10 to +45	°C
	Topr 2	※4 −10 to +65	°C
	Topr 3	※5 −10 to +75	°C
Storage temperature range	Tstg	−20 to +100	°C

※1 $V_I < V_{DD}$ at $V_{CC} \leqq 5.5$
※2, ※3 When all dots are lit, Duty ratio: 1/4
※4 When half rate of lighting
※5 When quarter rate of lighting

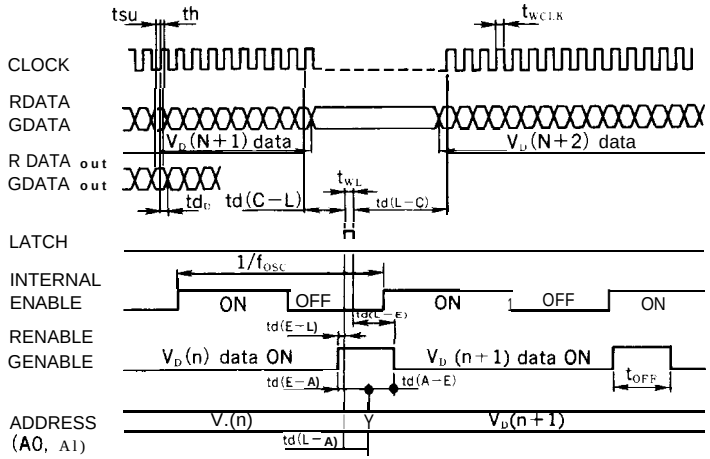
■ Electro-optical Characteristics

(Ta = 25°C, V_{CC} = 5V, V_{LED} = 5V)

Parameter		Symbol	MIN	TYP	MAX	Unit
Operating IC supply voltage		V_{DD}	4.75	5.0	5.25	v
Operating LED supply voltage		V_{LED}	4.25	4.5	4.75	v
IC current dissipation		I_{DD}		0.4		mA
LED current dissipation		I_{LED} 1		※6 4.6	5.5	A
		I_{LED} 2		※7 1.8	3.0	A
		I_{LED} 3		※8 6.0	7.0	A
Input voltage		V_{IL}			1.5	v
		V_{IH}	3.5			v
Input current		I_{IL}			0.12	mA
		I_{IH}			0.1	μA
Output voltage		V_{OL}			0.1	v
		V_{OH}	4.4			V
Clock frequency		f_{CLK}			3.0	MHz
Frame frequency		f_{FR}	250	400		Hz
※9 Luminance	Red	L_v		1300		cd/m²
	Yellow-green			800		
Peak emission wavelength	Red	λp		660		nm
	Yellow-green			565		
Spectrum radiation bandwidth	Red	Δλ		20	—	nm
	Yellow-green			30		

※6 When all yellow-green dots are lit
※7 When all red dots are lit
※8, ※9 When all dots are lit, Duty ratio: 1/4, f_{FR} = 400Hz

■ Interface Signals



■ Connections Method