# LT1447M

# 1 6X 16 Dot Matrix LED Unit for Outdoor Use

■ Features

1. **16x** 16 dot matrix LED unit
2. Active display size: 144. Omm square
3. Three color emission by use of dichromatic LEDs
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: 1/8)

■ Outline Dimensions   (Unit: mm)
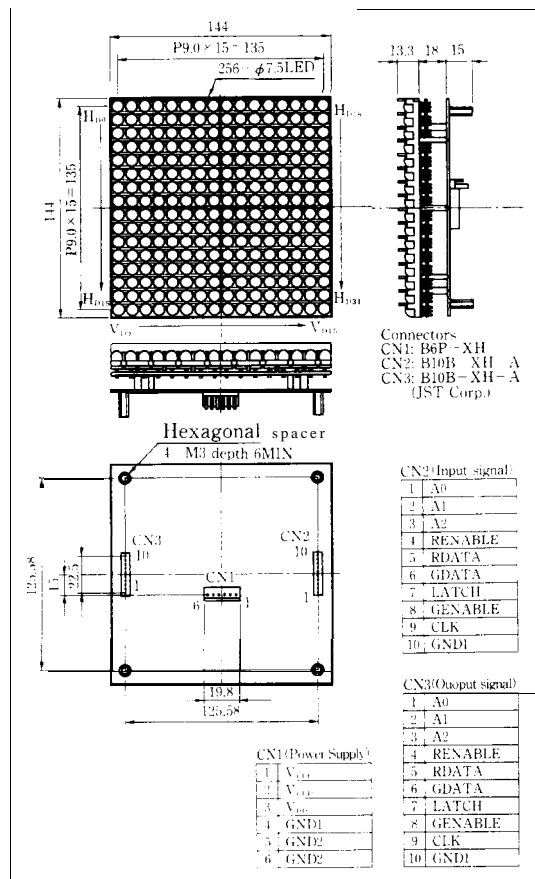
■ Block Diagram
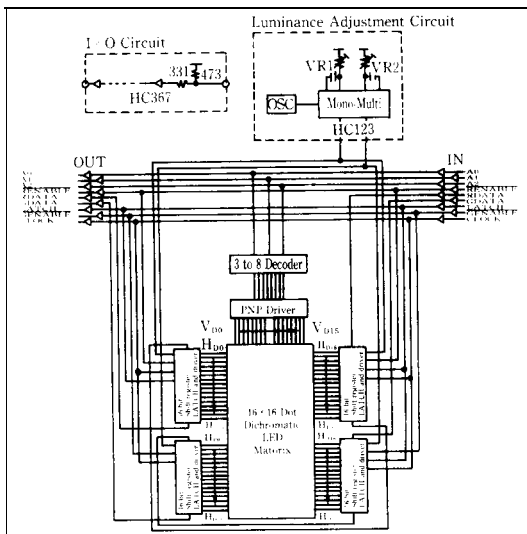
■ Terminal Functions

Connector	Pin No	Name	Function
CN1 (Power supply)	1, 2	V_{LED}	Power supply for LED
	3	V_{DD}	Power supply for IC
	4	GND1	Ground for IC
	5, 6	GND2	Ground for LED
CN2 (Input signal)	1 to 3	A_0 to A_2	Address specification signal for column driver
	4	RENABLE	"L": Each dot can be driven in accordance with data for red
	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: The contents are latched
	8	GENABLE	"L": Each dot can be driven in accordance with data for yellow-green
	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 to 3	A_0 to A_2	Buffered the input signals A_0 to A_2
	4	RENABLE	Buffered the input signal RENABLE
	5	RDATA	Input signal is generated through 32 bit shift register in the unit
	6	GDATA	
	7	LATCH	Buffered the input signal LATCH
	8	GENABLE	Buffered the input signal GENABLE
	9	CLOCK	Buffered the input signal CLOCK.
	10	GND1	Ground for IC

6

■ Absolute Maximum Ratings   (Ta = 25°C)

Parameter	Symbol	Rating	Unit
IC supply voltage	V_{DD}	$0.3 \text{ to} + 6.0$	V
LED supply voltage	v LED	$0.3 \text{ to} + 5.5$	v
Input voltage	v,	$0.3 \text{ to } V_{CC} + 0.3$	v
LED current dissipation	I_{LED}	※1 6,5	A
Operating temperature range	Toprl	※2 −20 to +45	'c
	Topr2	※3 −20 to +55	'c
Storage temperature range	Tstg	−25 to +85	°C

※1, ※2 When all dots are lit, Duty ratio: 1/8
※3 When half rate of lighting

■ Electro-optical Characteristics   (Ta = 25°C, V_{CC} = 5V, V_{LED} = 5V)

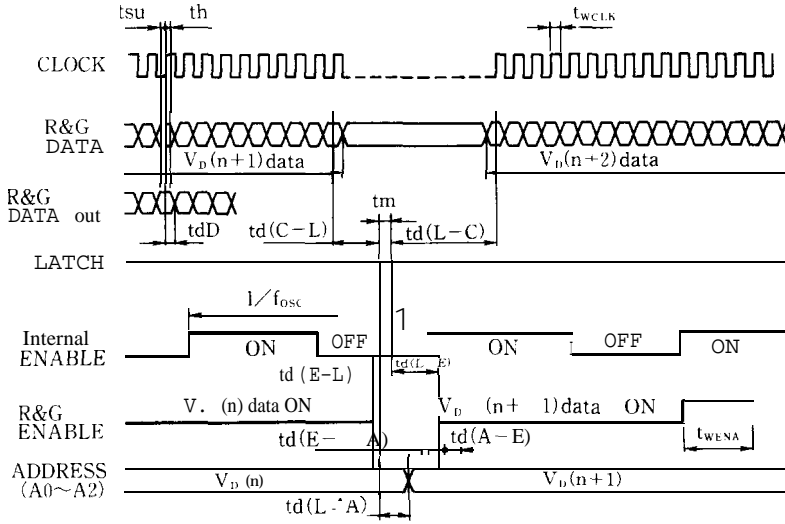| Parameter		Symbol	MIN	TYP	MAX	Unit
Operating IC supply voltage		V_{DD}	4.75	5.0	5.25	v
Operating LED supply voltage		v LED	4.5	5,0	5.25	v
IC current dissipation		I_{DD}		270	350	mA
LED current dissipation		$I_{LED}1$		※4 3.0	3.5	A
		$I_{LED}2$		※5 3.0	3.5	A
		$I_{LED}3$		※6 5.0	6.0	A
Input voltage		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}	125	200		Hz
※7, ※3 Luminance	Red	L_v		800		cd/m²
	Yellow-green			1,000		
Peak emission wavelength	Red	λp		660		nm
	Yellow-green			565		
Spectrum radiation bandwidth	Red	$\Delta \lambda$		20	—	nm
	Yellow-green			30		

※3 Duty ratio: 1/8, When all dots are lit, f_{FR} = 200Hz
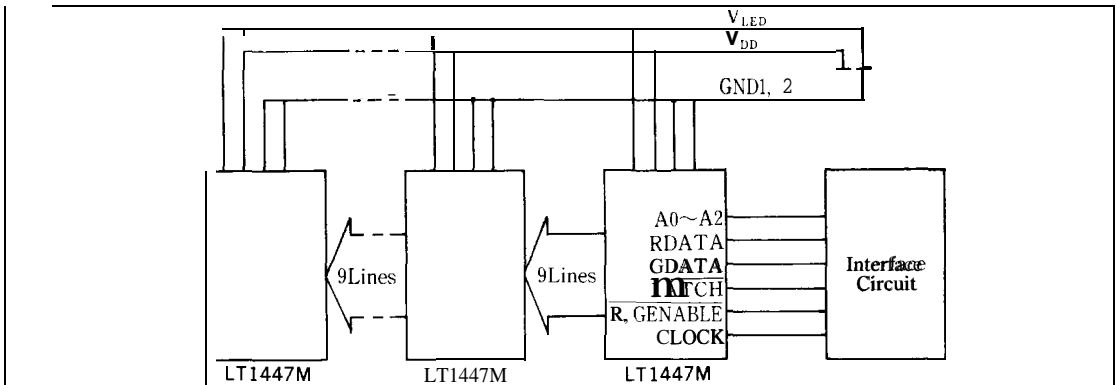※4 When all yellow-green dots are lit,
※5 When all red dots are lit,
※6, ※7 When all dots are lit, Duty ratio: 1/8, f_{FR} = 200Hz

■ Interface Signals

■ Connections Method

6