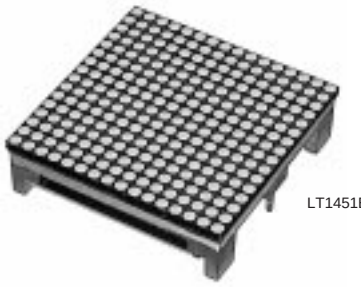
Dot Matrix LED Unit for Indoor Use LT1451ED(Chip On Board Type)

■ Features

- No. of dots : 16×16dots
- Outline dimensions : 96×96mm
- Dot size : ø5.0mm
- Dot pitch : 6.0mm
- Radiation color : Yellow-green+Red(dichromatic type)
- Driving method : 1/16 duty dynamic drive



LT1451ED

■ Absolute Maximum Ratings

(Ta=25˚C)

Parameter	Symbol	Rating	Unit
Supply voltage for IC	V_{CC}	-0.3 to +6.0	V
Supply voltage for LED	V_{LED}	-0.3 to +6.0	V
Input voltage	V_I	-0.3 to Vcc+0.3	V
LED current dissipation	I_{LED}		A
Turn-on time	t_{ON}	1	ms
Operating temperature	Topr	-10 to +45	˚C
Storage temperature	Tstg	-20 to +70	˚C
Power dissipation	P	13	W

■ Electrical Characteristics

(V_{CC}=5V,V_{LED}=5V,Ta=25˚C)

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
Supply voltage for IC	V_{CC}	4.75	5.0	5.25	V
Supply voltage for LED	V_{LED}	4.5	5.0	5.25	V
IC current dissipation*1	I_{CC}	—	25	50	mA
LED current dissipation*1	I_{LED}	—	2.0	2.3	A
Input voltage	V_{IH}	3.5	—	—	V
	V_{IL}	—	—	1.5	V
Input current	I_{IH}	—	—	0.1	µA
	I_{IL}	—	—	0.12	mA
Clock frequency	f_{CLK}	—	—	4	MHz
Frame frequency	f_{FR}	80	—	625	Hz

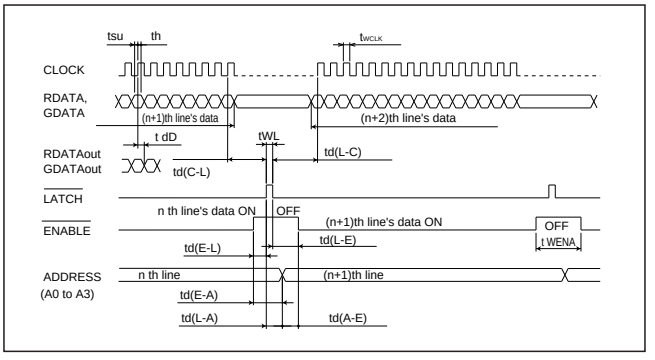
*1 Under the condition that dichromatic all dots are lit.

■ Optical Characteristics

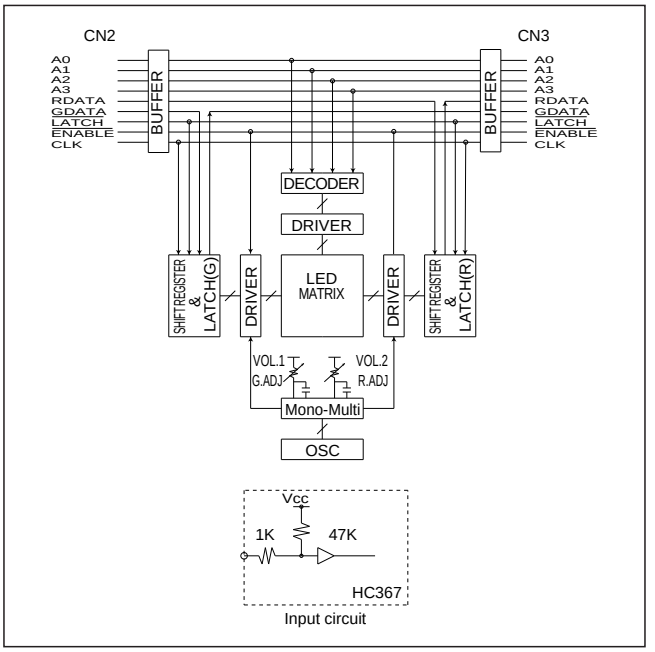
(V_{CC}=5V,V_{LED}=5V,Ta=25˚C)

Parameter		Symbol	TYP.	Unit
Luminance	Red	Lv	100	cd/m²
	Yellow-green		100	
Viewing angle		2θ1/2	70	°
Peak emission wavelength	Red	λp	635	nm
	Yellow-green		565	

■ Timing Chart



■ Block Diagram

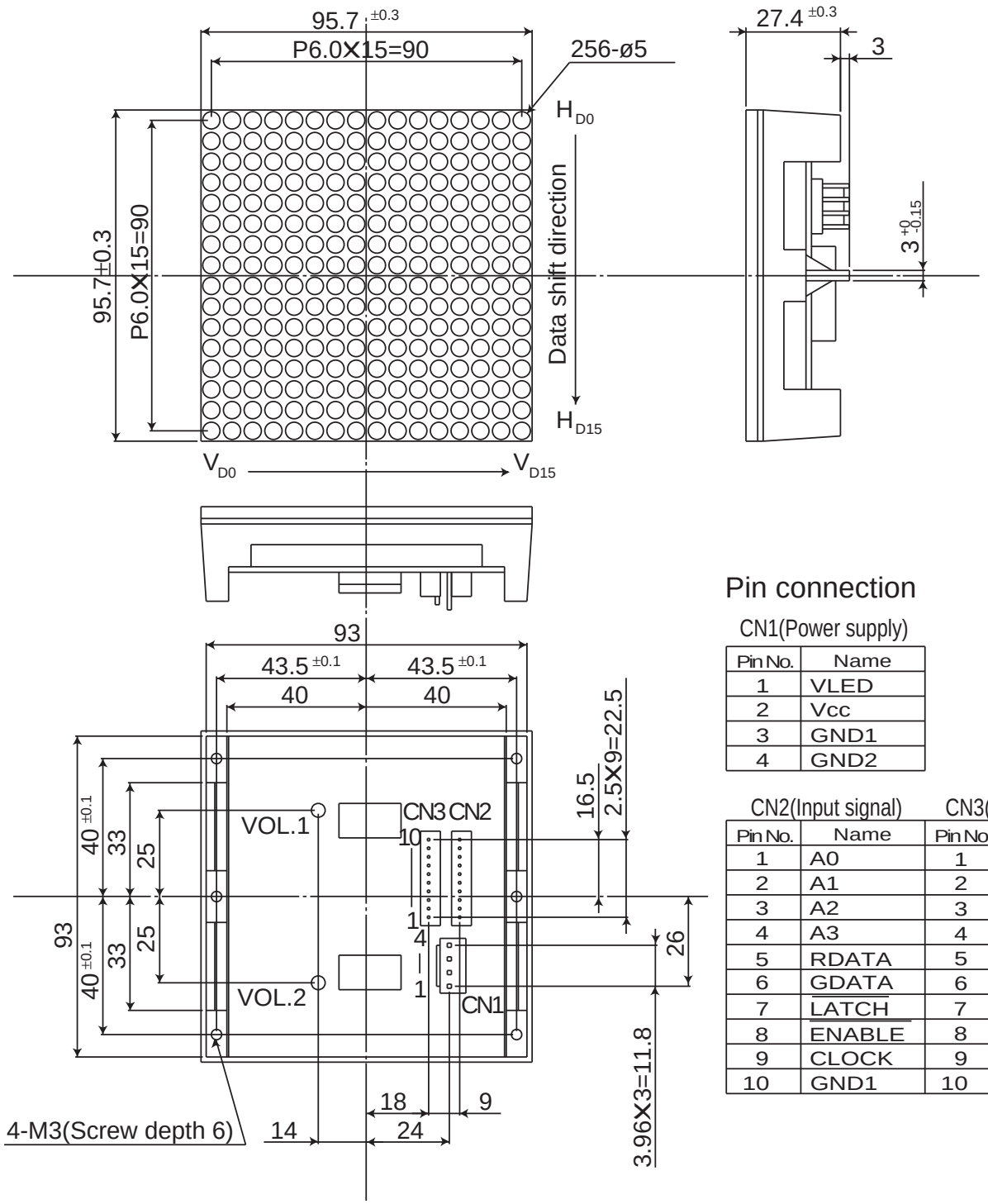


■ Terminal Functions

Connector	Symbol	Function
Power supply (CN1)	V_{LED}	Supply voltage for LED (+5V)
	V_{CC}	Supply voltage for IC (+5V)
	GND1	Ground for IC
	GND2	Ground for LED
Input signal (CN2)	A0 to A3	Address specification signal for row driver
	RDATA	Serial data input for red (H=ON, L=OFF)
	GDATA	Serial data input for yellow-green (H=ON, L=OFF)
	$\overline{\text{LATCH}}$	Latch signal of display data. H: Serial data is converted to parallel data. L: Contents are latched.
	$\overline{\text{ENABLE}}$	Controls ON/OFF of LED (H: LED OFF)
	CLOCK	Clock signal for data transmission in the shift-register. (L→H: serial data is shifted.)
	GND1	Ground for signal
Output signal (CN3)	A0 to A3	Buffered input signal
	RDATA	Input signal generated through 16-bit shift register or buffer
	GDATA	Input signal generated through 16-bit shift register or buffer
	$\overline{\text{LATCH}}$	Buffered input signal
	$\overline{\text{ENABLE}}$	Buffered input signal
	CLOCK	Buffered input signal
	GND1	Ground for signal

Each signal is used as input signal for next unit.

* As for the terminal number, refer to the outline dimensions.



Pin connection

CN1(Power supply)

Pin No.	Name
1	VLED
2	Vcc
3	GND1
4	GND2

CN2(Input signal)		CN3(Output signal)	
Pin No.	Name	Pin No.	Name
1	A0	1	A0
2	A1	2	A1
3	A2	3	A2
4	A3	4	A3
5	RDATA	5	RDATA
6	GDATA	6	GDATA
7	$\overline{\text{LATCH}}$	7	$\overline{\text{LATCH}}$
8	$\overline{\text{ENABLE}}$	8	$\overline{\text{ENABLE}}$
9	CLOCK	9	CLOCK
10	GND1	10	GND1