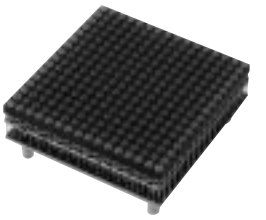
Dot Matrix LED Unit for Indoor/Outdoor Use LT1455M/LT1456M(Lamp Type)

■ Features

- No. of dots : 16×16dots
- Outline dimensions : 96.0×96.0mm
- Dot size : ø5.0mm
- Dot pitch : 6.0mm
- Radiation color : Yellow-green+Red(High-luminosity)dichromatic type
- Driving method : 1/8 duty dynamic drive

Outline dimensions are shown on page 206, Fig.8.



LT1455M

LT1456M

■ 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 +5.5	V
Input voltage	V_I	-0.3 to Vcc+0.3	V
Turn-on time	t_{ON}	1	ms
Operating temperature	Topr	-10 to +65*1	˚C
Storage temperature	Tstg	-20 to +85	˚C
Power dissipation	P	22	W

*1 When dichromatic all dots are lit, duty ratio=1/8.

■ Optical Characteristics

(V_{CC}=5V,V_{LED}=5V,Ta=25˚C)

Parameter		Symbol	TYP.	Unit
Viewing angle		$2\theta_{1/2}$	50/40	°
Peak emission wavelength	Red	λp	660	nm
	Yellow-green		565	

Each figure in the table is the one of LT1455M/LT1456M in sequence.

■ Luminance

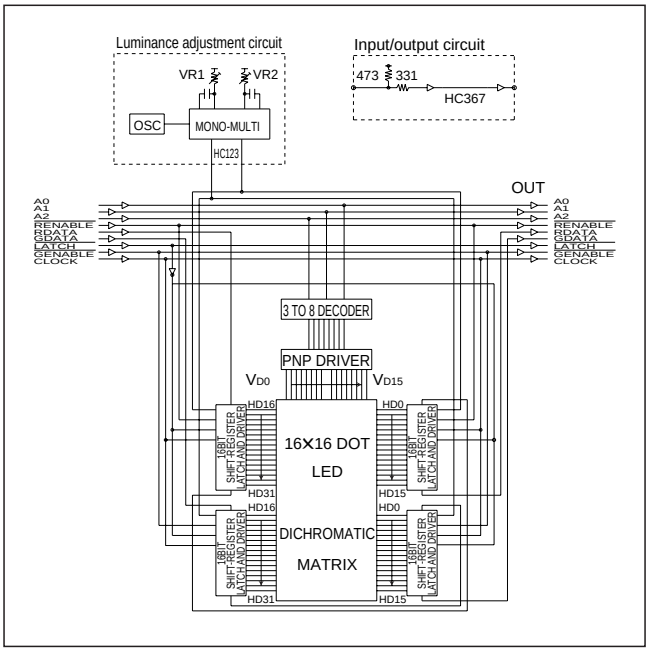
Luminance is classified into 2 ranks shown below.

(V_{CC}=5V,V_{LED}=5V,Ta=25˚C)

Radiation color	Rank		Unit
	1	2	
Red	450/700	550/1 000	cd/㎡
Yellow-green	330/700	450/1 000	

Each figure in the table is the one of LT1455M/LT1456M in sequence.

■ Block Diagram



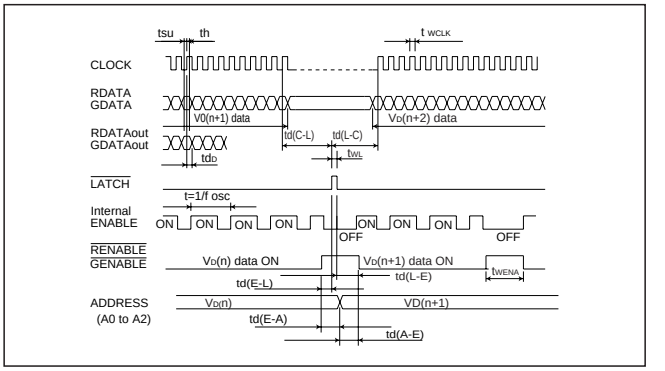
■ Electrical Characteristics

(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	I_{CC}	—	15	40	mA
LED current dissipation*1	I_{LED}	—	3.5	3.9	A
Signal input voltage	V_{IH}	3.5	—	—	V
	V_{IL}	—	—	1.5	V
Signal input current	I_{IH}	—	—	0.1	µA
	I_{IL}	—	—	0.12	mA
Clock frequency	f_{CLK}	—	—	3.0	MHz
Frame frequency	f_{FR}	125	200	400	Hz

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

■ Timing Chart



■ Recommended Timing Conditions

(Vcc=5.0V,Ta=25˚C)

Parameter	Symbol	Rating			Unit	Remarks
		Min.	Typ.	Max.		
Clock pulse width	t_{WCLK}	100	—	—	ns	
Latch pulse width	t_{WL}	80	—	—	ns	
Enable pulse width	t_{WENA}	2	—	—	µs	
Data setup time	t_{SU}	80	—	—	ns	
Data hold time	th	40	—	—	ns	
Clock-latch time	td (C-L)	80	—	—	ns	
Latch-clock time	td (L-C)	150	—	—	ns	
Data output delay time	t_{dD}	—	85	150	ns	RDATA,GDATA
Enable-latch time	td (E-L)	2	—	—	µs	
Latch-enable time	td (L-E)	2	—	—	µs	
Enable-address time	td (E-A)	2	—	—	µs	
Address-enable time	td (A-E)	20	—	—	µs	
Propagation delay time	t_{PLH},t_{PHL}	—	15	40	ns	Except data terminal
Oscillation frequency	f_{OSC}	—	25	—	kHz	
Enable frequency	f_{ENA}	—	—	3.2	kHz	*
Frame frequency	f_{FR}	125	200	400	Hz	

* When enable frame frequency is close to oscillation frequency, it causes flickering and unevenness of luminance.