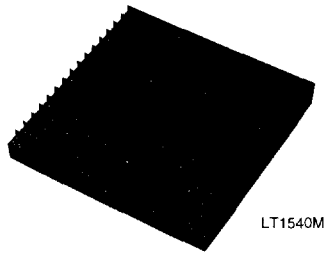
Dot Matrix LED Unit for Outdoor Use LT1540M(Lamp Type)

■ Features

- No. of dots : 16×16dots
- Outline dimensions : 240×240mm
- Dot size : 13.0×13.0mm
- Dot pitch : 14.9mm
- Radiation color : Yellow-green+Red(High-luminosity)dichromatic type
- Driving method : 1/8 duty dynamic drive

Outline dimensions are shown on the page 204, Fig.14.



LT1540M

■ 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 +8.5	V
Input voltage	V_I	-0.3 to Vcc+0.3	V
Turn-on time	t_{ON}	1	ms
Operating temperature	Topr	-20 to +45*1	°C
Storage temperature	Tstg	-25 to +100	°C
Power dissipation	P	58	W

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

■ Optical Characteristics

(Vcc=5V,VLED=8V,Ta=25°C)

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

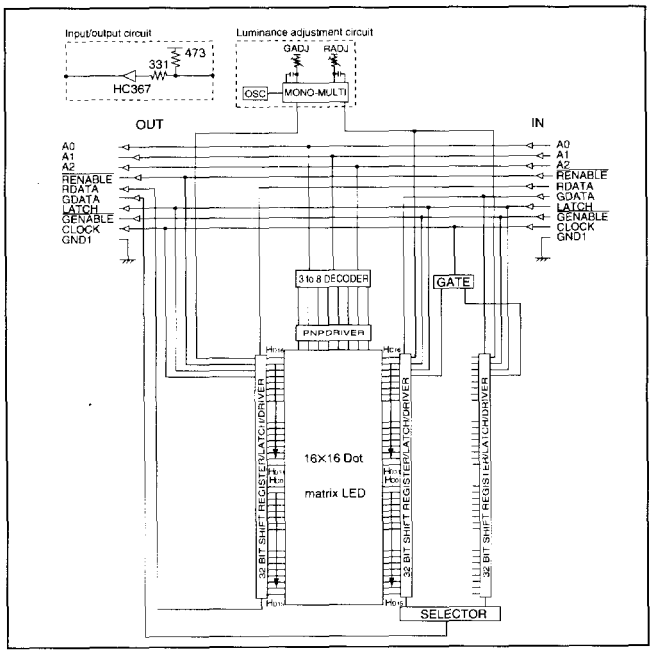
■ Luminance

Luminance is classified into 2 ranks shown below.

(Vcc=5V,VLED=8V,Ta=25°C)

Radiation color	Rank		Unit
	1	2	
Red	1 200	1 600	cd/m²
Yellow-green	750	1 000	

■ Block Diagram



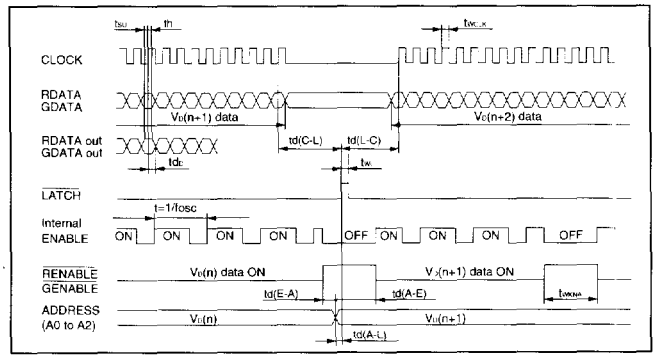
■ Electrical Characteristics

(Vcc=5V,VLED=8V,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}	7.5	8.0	8.25	V
IC current dissipation	I_{CC}	—	200	500	mA
LED current dissipation*1	I_{LED}	—	5.5	7.0	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}	—	—	10.0	MHz
Frame frequency	f_{FR}	250	400	3 000	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	tWCLK	50	—	—	ns	
Latch pulse width	tWL	50	—	—	ns	
Enable pulse width	tWENA	4	—	—	μs	
Data setup time	tSU	35	—	—	ns	
Data hold time	th	25	—	—	ns	
Clock-latch time	td (C-L)	50	—	—	ns	
Latch-clock time	td (L-C)	60	—	—	ns	
Data output delay time	tdD	—	91	—	ns	RDATA,GDATA
Enable-address time	td (E-A)	2	—	—	μs	
Address-enable time	td (A-E)	6	—	—	μs	
Address-latch time	td (A-L)	0	—	—	μs	
Propagation delay time	tPLH,tPHL	—	26	—	ns	Except data terminal
Oscillation frequency	fOSC	—	300	—	kHz	
Enable frequency	fENA	—	—	30	kHz	*
Frame frequency	fOSC	250	400	3 000	Hz	

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

Notice	In the absence of confirmation by device specification sheets,SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs,data books,etc.Contact SHARP in order to obtain the latest device specification sheets before using any SHARP device.
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