



PRODUCT SPECIFICATION

Model No : CSM-88211A9/88221A9

Descriptions:

- 2.3 Inch 8X8 Dot-Matrix Display
- Dot Pitch 7.62mm
- CSM-88211: Column Anode, Row Cathode
- CSM-88221: Column Cathode, Row Anode
- Emitting Color: Super Bright Amber



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

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Spec. No.	PS-ND-08090304
Rev.	A

Model No : CSM-88211A9/88221A9

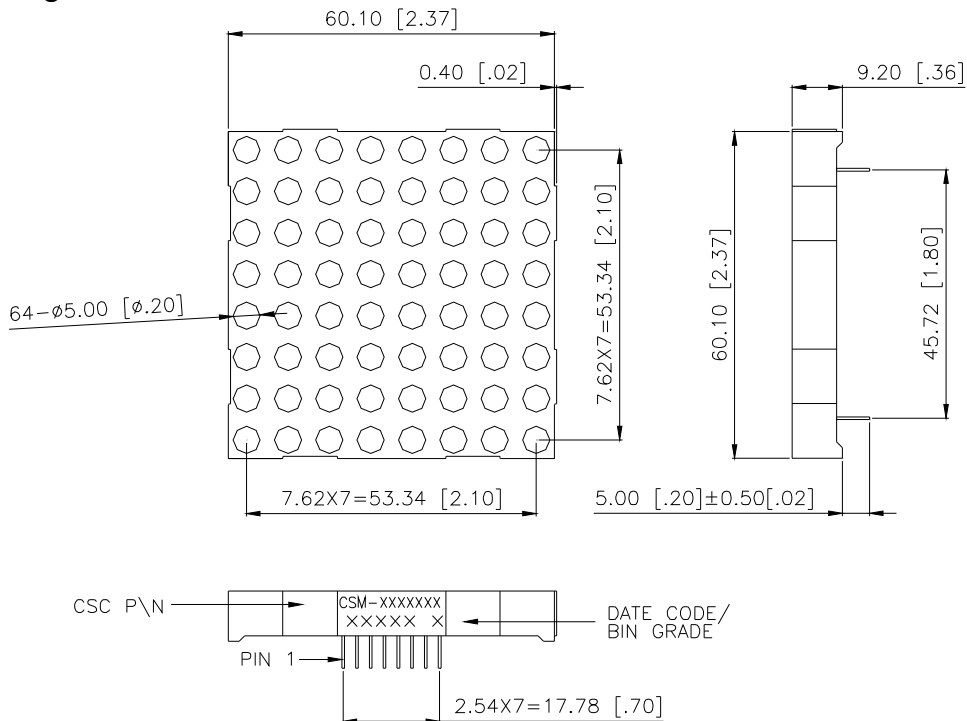
■ Features -

1. 2.3 inch (58.34mm) Matrix height.
2. 8x8 array with X-Y select.
3. RoHS compliant.
4. Low power consumption.
5. Easy mounting on P.C. board or socket.

■ Device Selection Guide -

Part No.	Chip		Description	
	Material	Emitted Color	Column	Row
CSM-88211A9	AlGaInP	Super Bright Amber	Anode	Cathode
CSM-88221A9	AlGaInP	Super Bright Amber	Cathode	Anode

■ Package Dimensions -



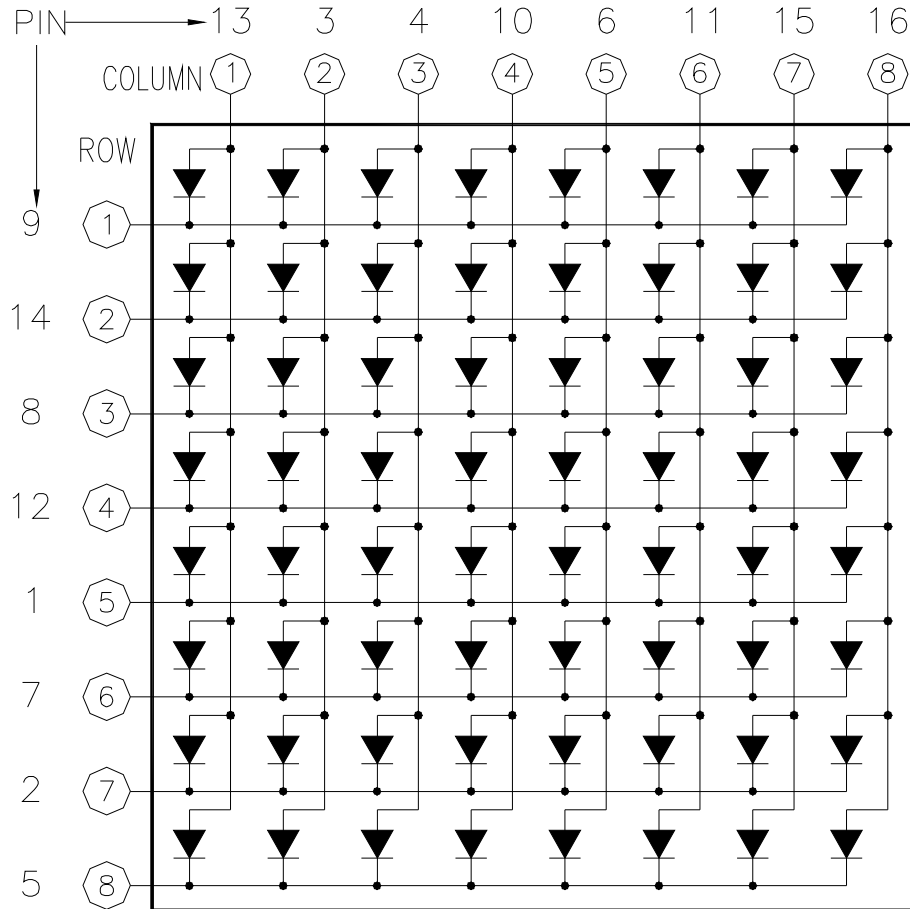
NOTE:

1. All pins are ϕ 0.5(.02).
2. Dimensions in millimeters (inch), tolerance is \pm 0.25 (.01) unless otherwise noted.



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Internal Circuit Diagrams -



CSM-88211 Column Anode, Row Cathode

CSM-88221 Column Cathode, Row Anode



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■ Absolute Maximum Rating -

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P _{AD}	70	mW
Continuous Forward Current Per Dice	I _{AF}	25	mA
Peak Current Per Dice(duty cycle 1/10, 1kHz)	I _{PF}	90	mA
Derating Linear From 25°C Per Dice	-	0.33	mA/°C
Reverse Voltage Per Dice	V _R	5	V
Operating Temp.	T _{opr}	-35 ~ +85	°C
Storage Temp.	T _{stg}	-35 ~ +85	°C
Solder temperature 1/16 inch below seating plane for 3 seconds at 260°C			

■ Electro-optical Characteristics -

(Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dot	V _F	-	2.0	2.8	V	I _F =20mA
Luminous Intensity Per Dot	I _v	-	45	-	mcd	I _F =10mA
Peak Emission Wavelength	λ _p	-	610	-	nm	I _F =20mA
Dominant Wavelength	λ _d	-	608	-	nm	I _F =20mA
Spectrum Radiation Bandwidth	Δλ	-	20	-	nm	I _F =20mA
Reverse Current	I _R	-	-	100	μA	V _R =5V
Luminous Intensity Matching Ratio	I _{V-m}	-	-	2:1	-	I _p =80mA 1/16Duty



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Typical Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)

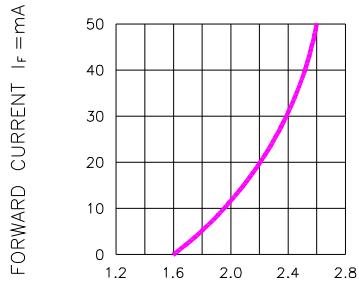


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

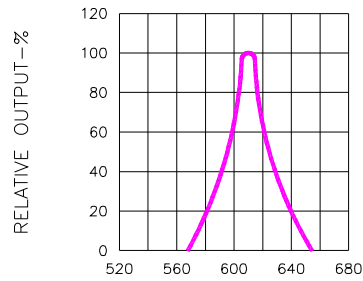


Fig.2 SPECTRAL RESPONSE

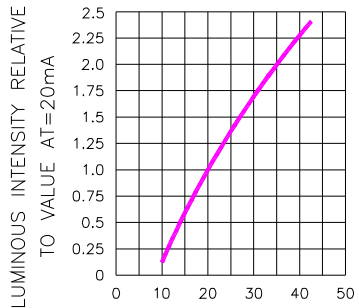


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

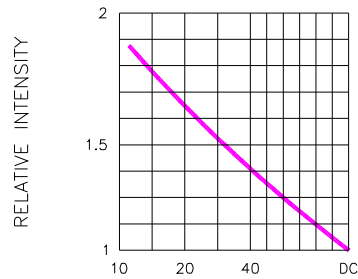


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

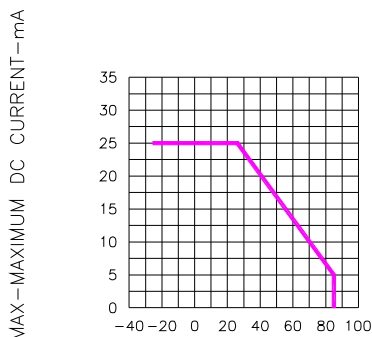


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

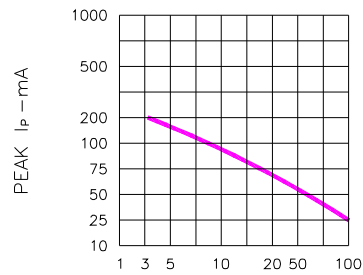


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)



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