



# PRODUCT SPECIFICATION

**Model No : CSM-88211V9/88221V9**

## 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 Orange



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

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**Model No : CSM-88211V9/88221V9**

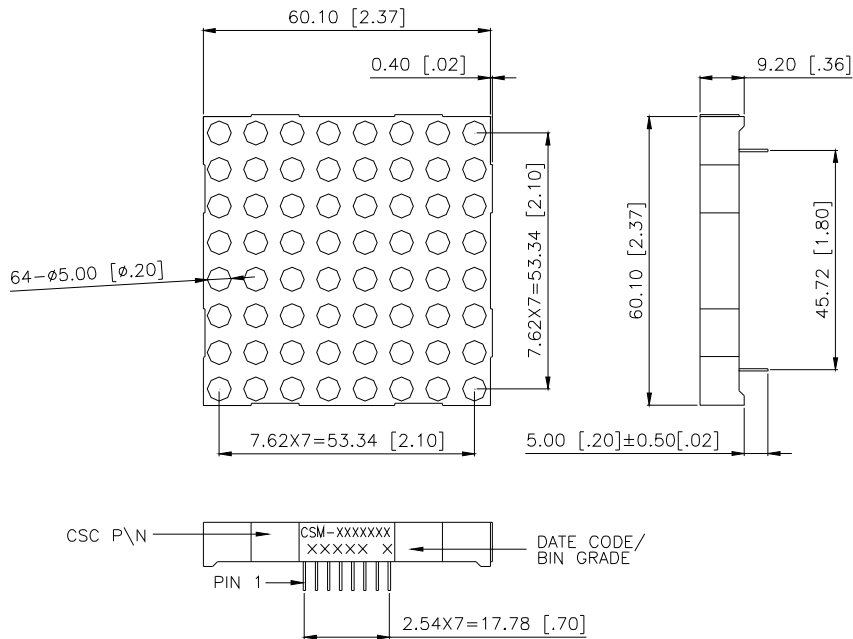
**Features -**

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
<b>CSM-88211V9</b>	<b>AlGaInP</b>	<b>Super Bright Orange</b>	<b>Anode</b>	<b>Cathode</b>
<b>CSM-88221V9</b>	<b>AlGaInP</b>	<b>Super Bright Orange</b>	<b>Cathode</b>	<b>Anode</b>

**Package Dimensions -**

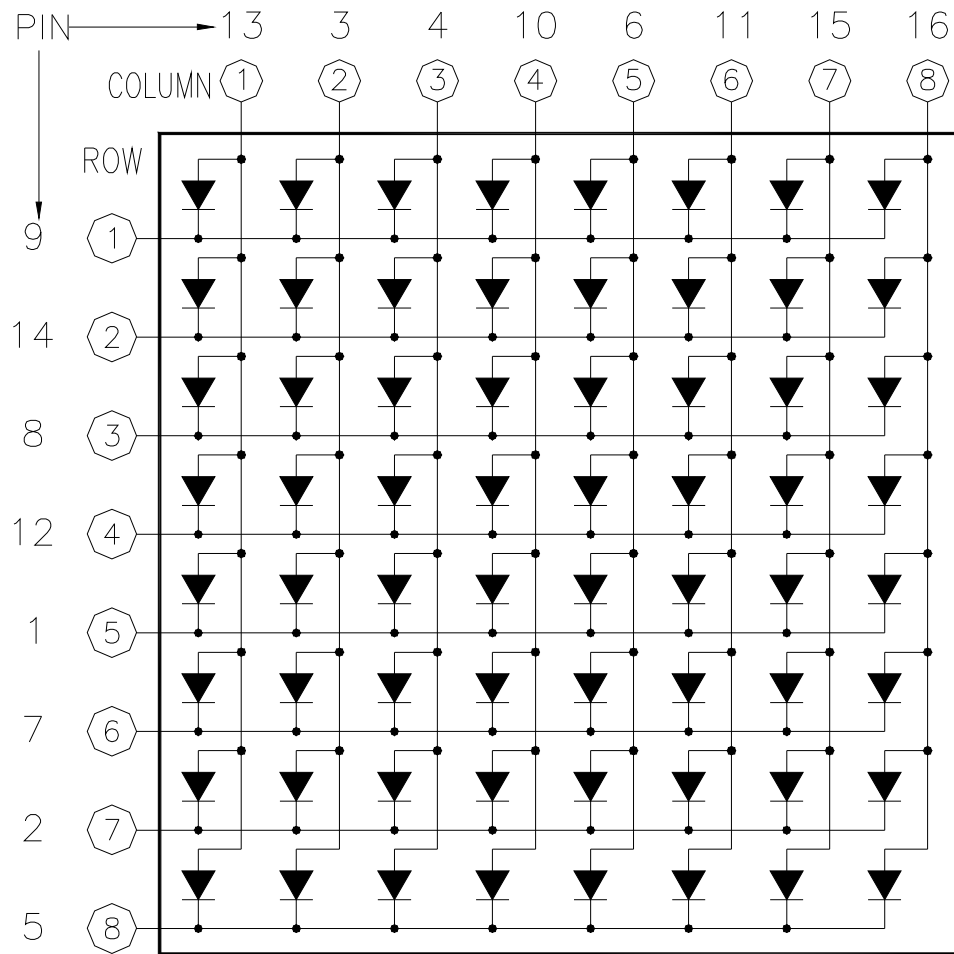


**NOTE:**  
 1. All pins are  $\phi$ 0.5(.02).  
 2. Dimensions in millimeters (inch), tolerance is  $\pm$ 0.25 (.01) unless otherwise noted.



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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 <sub>AD</sub>	70	mW
Continuous Forward Current Per Dice	I <sub>AF</sub>	25	mA
Peak Current Per Dice(duty cycle 1/10, 1kHz)	I <sub>PF</sub>	90	mA
Derating Linear From 25°C Per Dice	-	0.33	mA/°C
Reverse Voltage Per Dice	V <sub>R</sub>	5	V
Operating Temp.	T <sub>opr</sub>	-35 ~ +85	°C
Storage Temp.	T <sub>stg</sub>	-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 <sub>F</sub>	-	2.0	2.8	V	I <sub>F</sub> =20mA
Luminous Intensity Per Dot	I <sub>v</sub>	-	40	-	mcd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>p</sub>	-	632	-	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	-	624	-	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	Δλ	-	20	-	nm	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>V-m</sub>	-	-	2:1	-	I <sub>p</sub> =80mA 1/16Duty



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

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■ Typical Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)

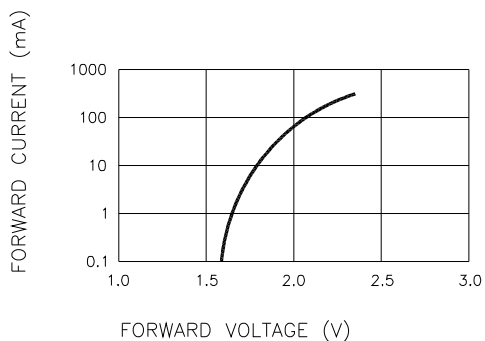


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

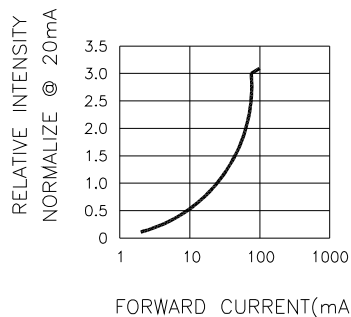


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

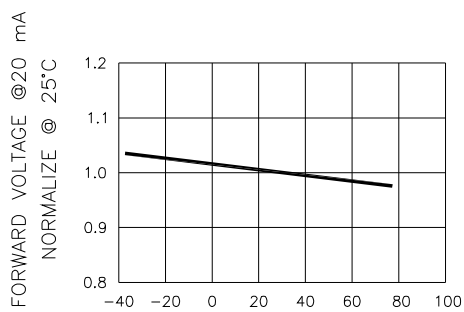


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

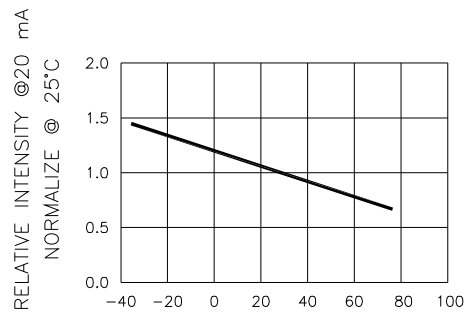


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

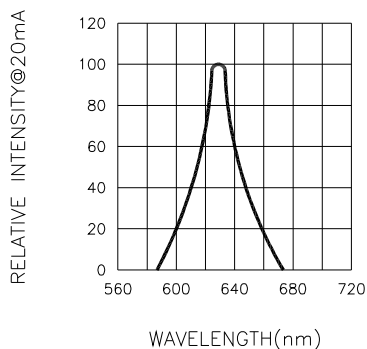


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH



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### ■ Package Dimensions

