



# PRODUCT SPECIFICATION

**Model No : CSM-88181VM9**

## Descriptions:

- 1.5 Inch 8X8 Dot-Matrix Display
- Dot Pitch 5.0mm
- CSM-88181: Column Cathode, Row Anode
- Emitting Color: Super Bright Orange & Super Bright Green



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

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**Model No : CSM-88181VM9**

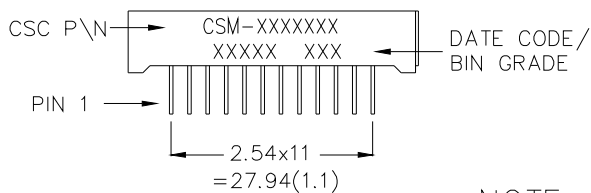
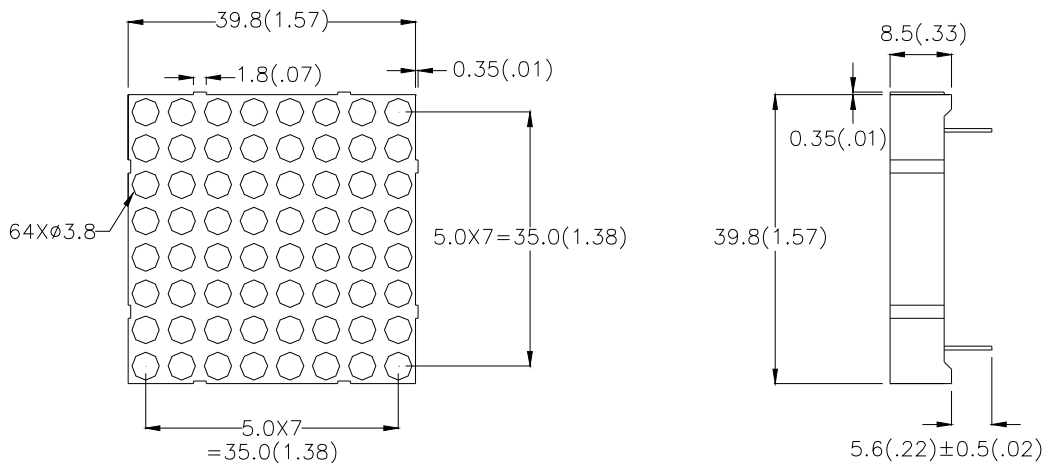
**Features -**

1. 1.5 inch (38.8mm) Matrix height.
2. Case mold type.
3. RoHS compliant.
4. Low power consumption.
5. Easy mounting on P.C. board or socket.

**Device Selection Guide -**

Part No.	Chip		Column	Row
	Material	Emitted Color		
CSM-88181VM9	AlGaInP	Super Bright Orange	Cathode	Anode
	AlGaInP	Super Bright Green		

**Package Dimensions -**



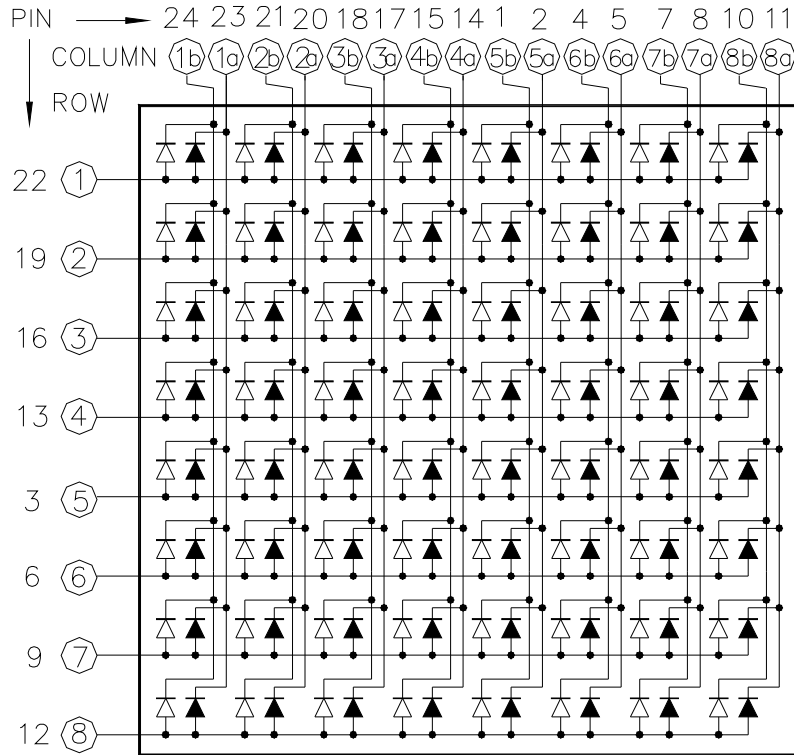
**NOTE:**

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



Model No : CSM-88181VM9

Internal Circuit Diagrams -



▶ "a" for Super Bright Orange color chip.  
 ▷ "b" for Super Bright Green color chip.

Absolute Maximum Rating -

Super Bright Orange		(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			



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

■ Electro-optical Characteristics -

Super Bright Orange		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dot	<b>V<sub>F</sub></b>	-	2.0	2.8	V	I <sub>F</sub> =20mA
Luminous Intensity Per Dot	<b>I<sub>v</sub></b>	-	30	-	mcd	I <sub>F</sub> =10mA
Peak Emission Wavelength	<b>λ<sub>p</sub></b>	-	632	-	nm	I <sub>F</sub> =20mA
Dominant Wavelength	<b>λ<sub>d</sub></b>	-	624	-	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	<b>Δ λ</b>	-	20	-	nm	I <sub>F</sub> =20mA
Reverse Current	<b>I<sub>R</sub></b>	-	-	100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	<b>I<sub>V-m</sub></b>	-	-	2:1		I <sub>p</sub> =80mA 1/16Duty

Super Bright Green		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dot	<b>V<sub>F</sub></b>	-	2.1	2.8	V	I <sub>F</sub> =20mA
Luminous Intensity Per Dot	<b>I<sub>v</sub></b>	-	14	-	ucd	I <sub>F</sub> =10mA
Peak Emission Wavelength	<b>λ<sub>p</sub></b>	-	572	-	nm	I <sub>F</sub> =20mA
Dominant Wavelength	<b>λ<sub>d</sub></b>	-	570	-	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	<b>Δ λ</b>	-	20	-	nm	I <sub>F</sub> =20mA
Reverse Current	<b>I<sub>R</sub></b>	-	-	100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	<b>I<sub>V-m</sub></b>	-	-	2:1		I <sub>p</sub> =80mA 1/16Duty



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### Typical Electrical / Optical Characteristics Curves -Super Bright Orange

(Ta = 25°C Unless Otherwise Noted)

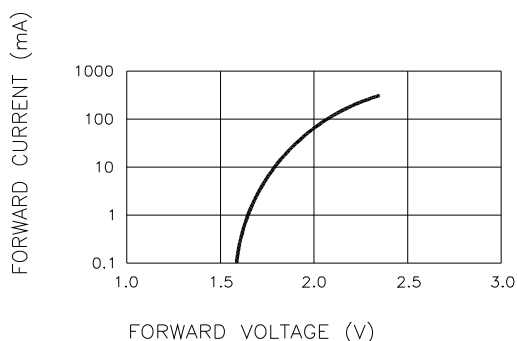


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

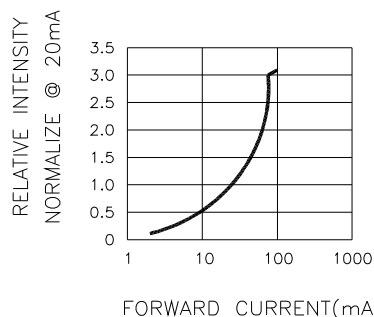


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

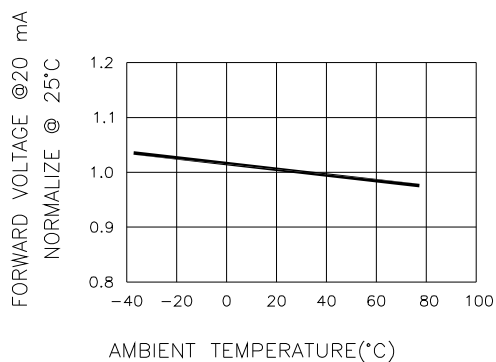


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

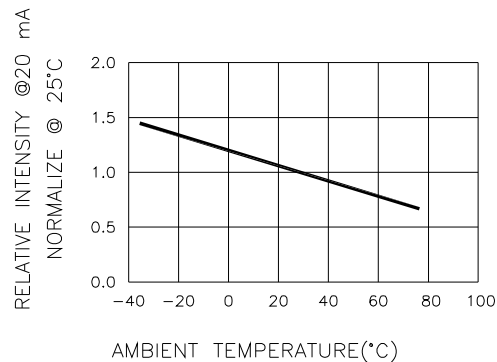


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

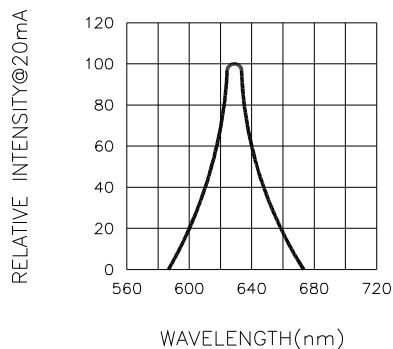


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH



Model No: CSM-88181VM9

■ Super Bright Green

(Ta = 25°C Unless Otherwise Noted)

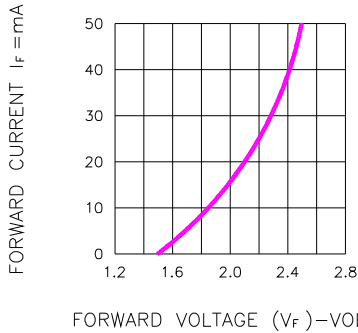


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

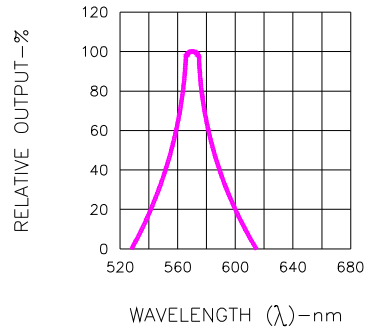


Fig.2 SPECTRAL RESPONSE

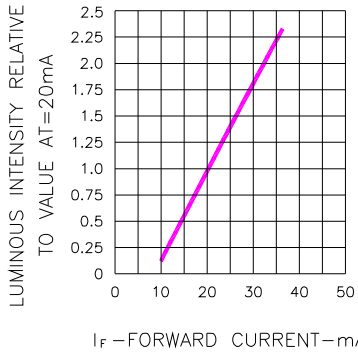


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

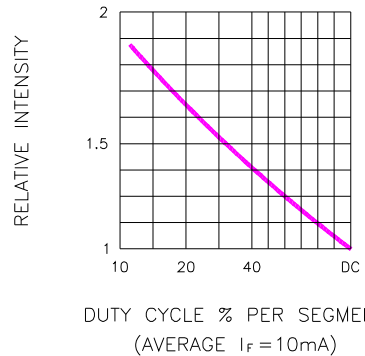


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

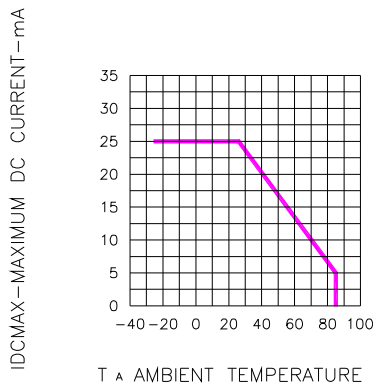


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

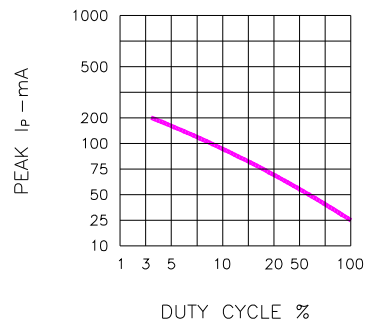


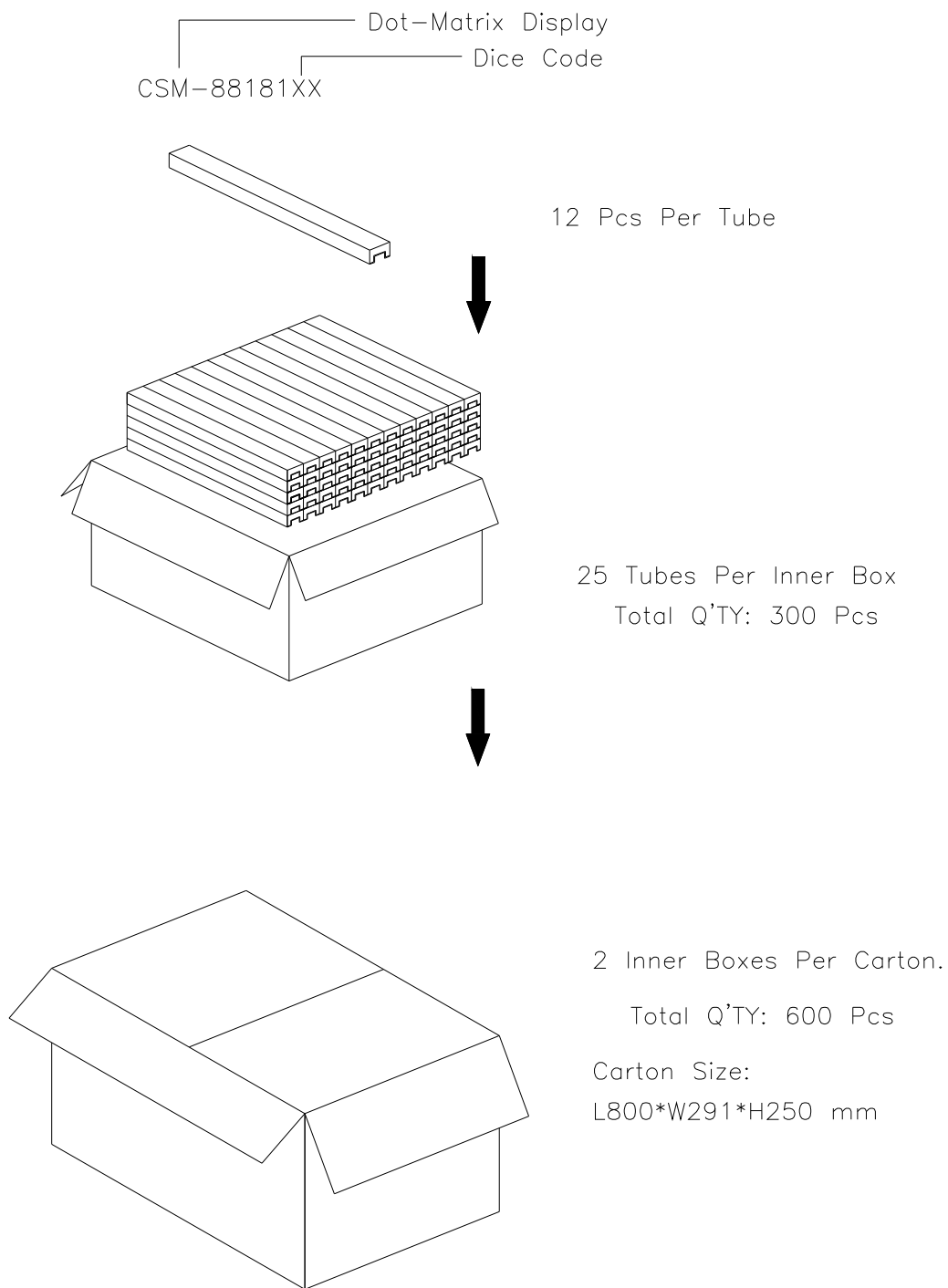
Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)



Spec. No.	PS-ND-08090402
Rev.	A

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■ Package Dimensions



Note: The specifications are subject to change without notice. Please contact us for updated information.