



PRODUCT SPECIFICATION

Model No : CSM-88191VM9/88101VM9

Descriptions:

- 1.5Inch Dot-Matrix Display
- 8*8 Array with X-Y Select.
- CSM-88191: Column Anode, Row Cathode
- CSM-88101: Column Cathode, Row Anode
- Emitting Color: Super Bright Orange & Super Bright Green



CUSTOMER APPROVED	APPROVED BY	CHECKED BY	PREPARED BY
SIGNATURES			

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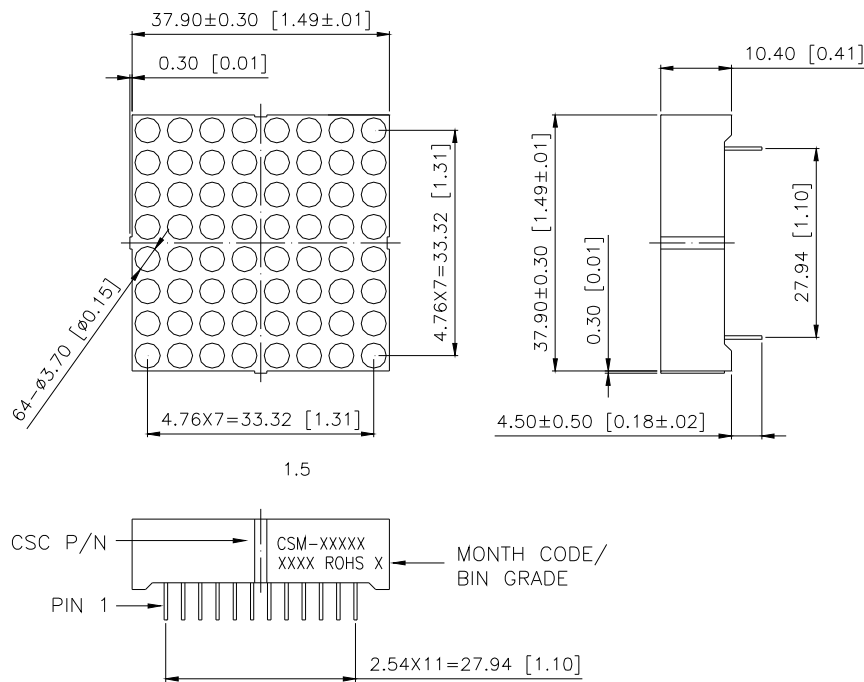
Features -

1. 1.5 inch (37.02mm) 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-88191VM9	AlGaInP	Super-Bright Orange	Anode	Cathode
	AlGaInP	Super-Bright Green		
CSM-88101VM9	AlGaInP	Super-Bright Orange	Cathode	Anode
	AlGaInP	Super-Bright Green		

Package Dimensions -



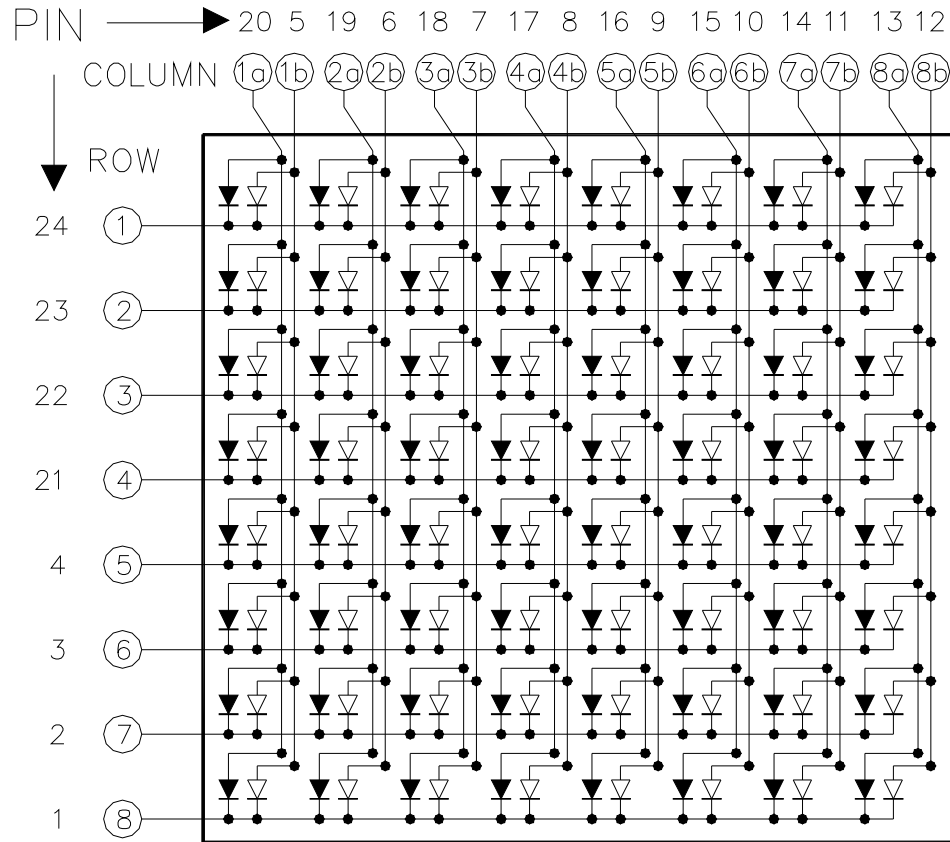
NOTE:

1. All pins are $\phi 0.6$ (.02).
2. Dimensions in millimeters (inch), tolerance is ± 0.25 (.01) unless otherwise noted.



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Internal Circuit Diagrams -



→ "a" for Orange color chip

→ "b" for Green color chip

CSM-88191: Column Anode, Row Cathode

(CSM-88101: Column Cathode, Row Anode)



Model No : CSM-88191VM9/88101VM9

■ Absolute Maximum Rating -

Super Bright Orange		(Ta=25°C)	
Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P_D	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			

Super Bright Green		(Ta=25°C)	
Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P_D	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			



Model No : CSM-88191VM9/88101VM9

■ Electro-optical Characteristics -

Super Bright Orange		(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	-	30	-	mcd	I _F =10mA
Peak Emission Wavelength	λ _p	-	632	-	nm	I _F =20mA
Dominant Wavelength	λ _d	-	624	-	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	IV-m	-	-	2:1	-	I _p =80mA 1/16Duty

Super Bright Green		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dot	V _F	-	2.1	2.8	V	I _F =20mA
Luminous Intensity Per Dot	I _v	-	15	-	mcd	I _F =10mA
Peak Emission Wavelength	λ _p	-	570	-	nm	I _F =20mA
Dominant Wavelength	λ _d	-	572	-	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	IV-m	-	-	2:1	-	I _p =80mA 1/16Duty



Model No : CSM-88191VM9/88101VM9

■ Typical Electrical / Optical Characteristics Curves -Super-Bright Orange
(Ta = 25°C Unless Otherwise Noted)

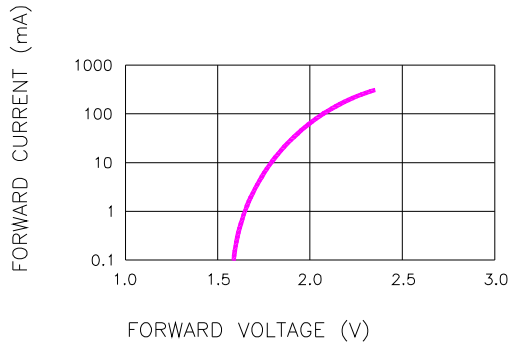


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

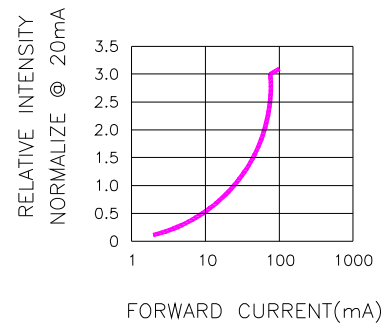


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

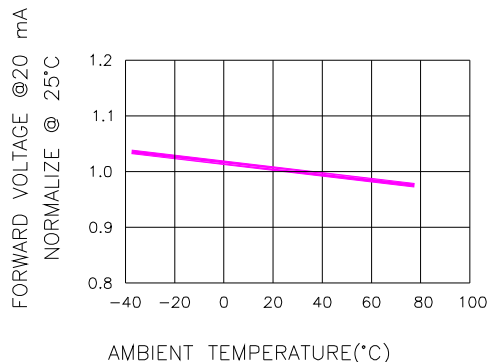


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

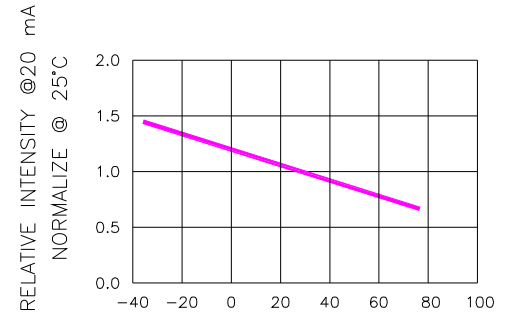


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

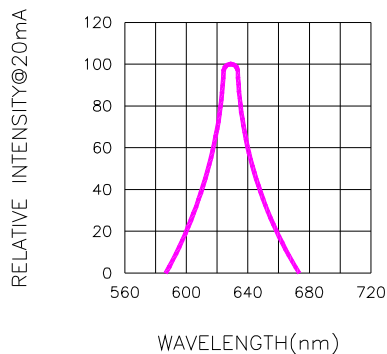


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH



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($T_a = 25^\circ\text{C}$ Unless Otherwise Noted)

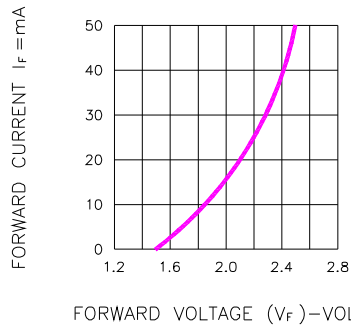


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

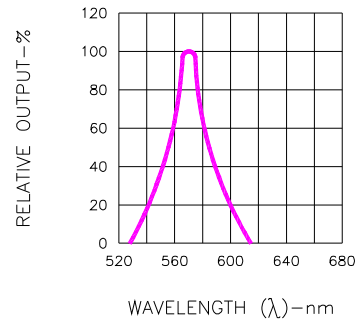


Fig.2 SPECTRAL RESPONSE

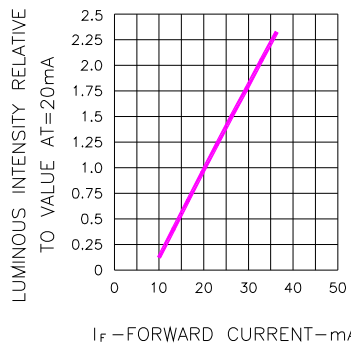


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

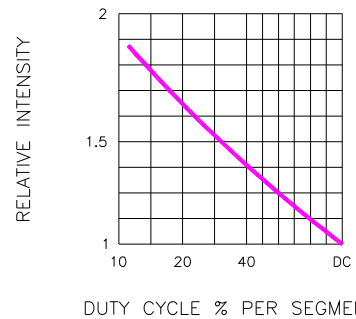


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

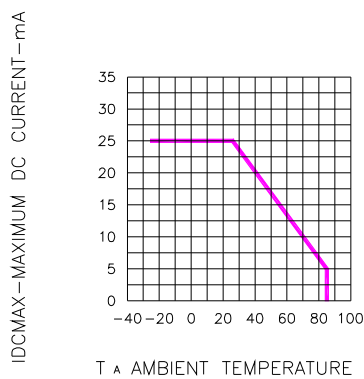


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

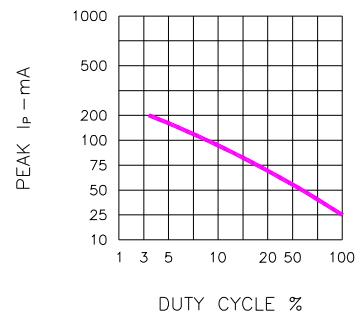
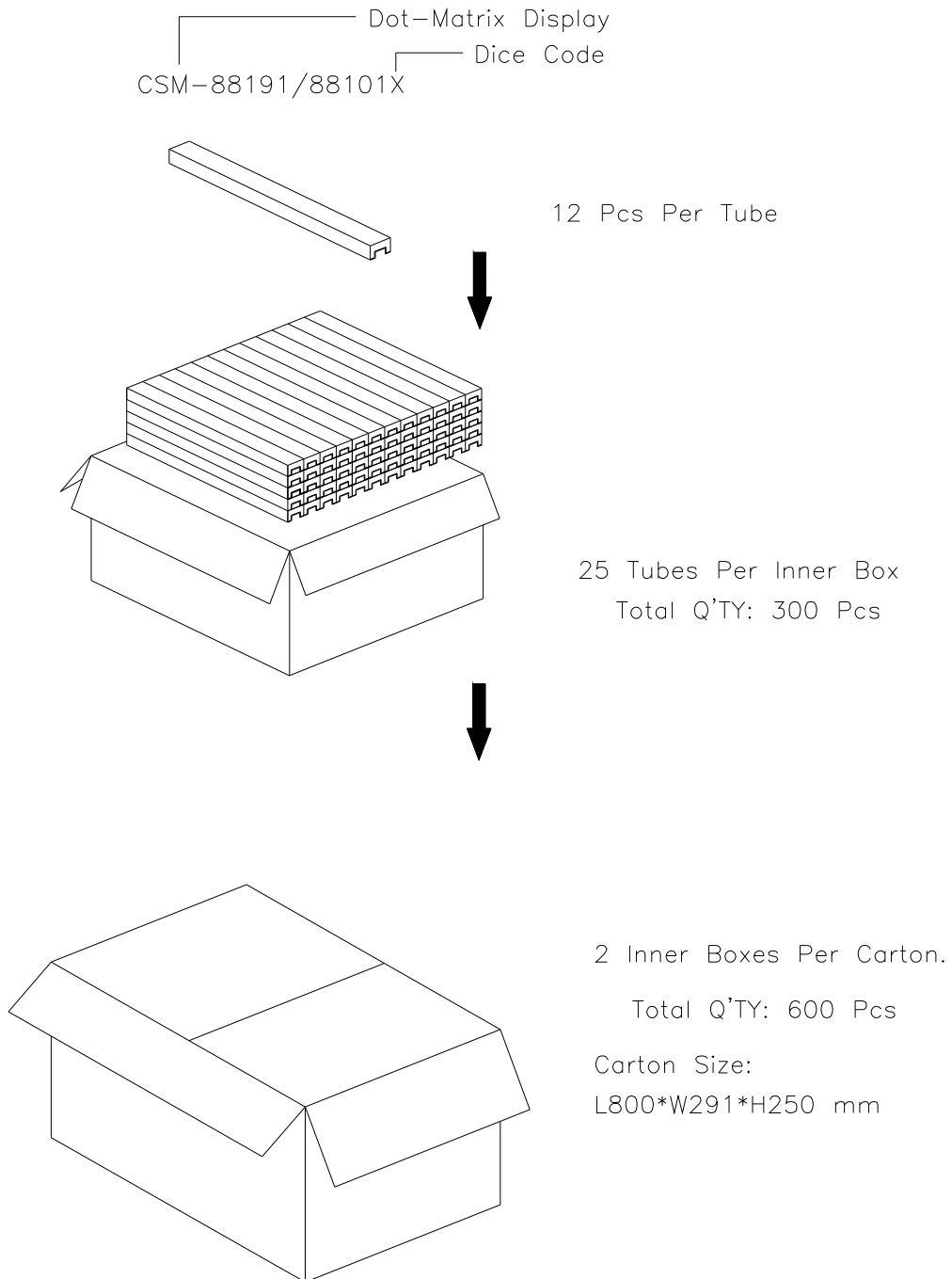


Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE $f = 1\text{ KHz}$)



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■ Package Dimensions



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