



PRODUCT SPECIFICATION

Model No : CSM-88160VM9

Descriptions:

- 1.2 Inch 8X8 Dot-Matrix Display
- Dot Pitch 4.0mm
- CSM-88160: 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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Spec. No.	PS-ND-08090402
Rev.	A

Model No : CSM-88160VM9

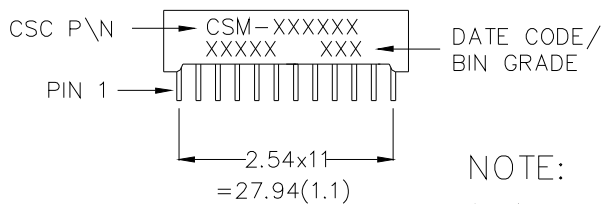
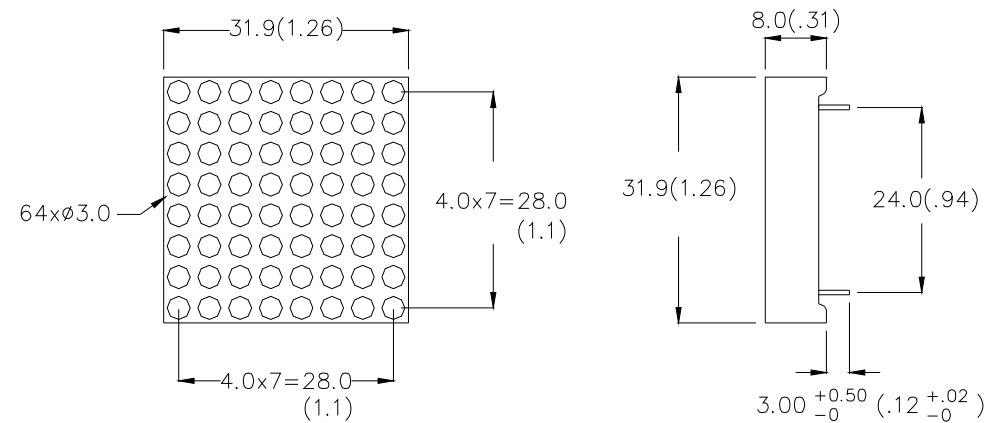
Features -

1. 1.2 inch (31.0mm) 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-88160VM9	AlGaAsP	Super Bright Orange	Cathode	Anode
	AlGaAsP	Super Bright Green		

Package Dimensions -



NOTE:

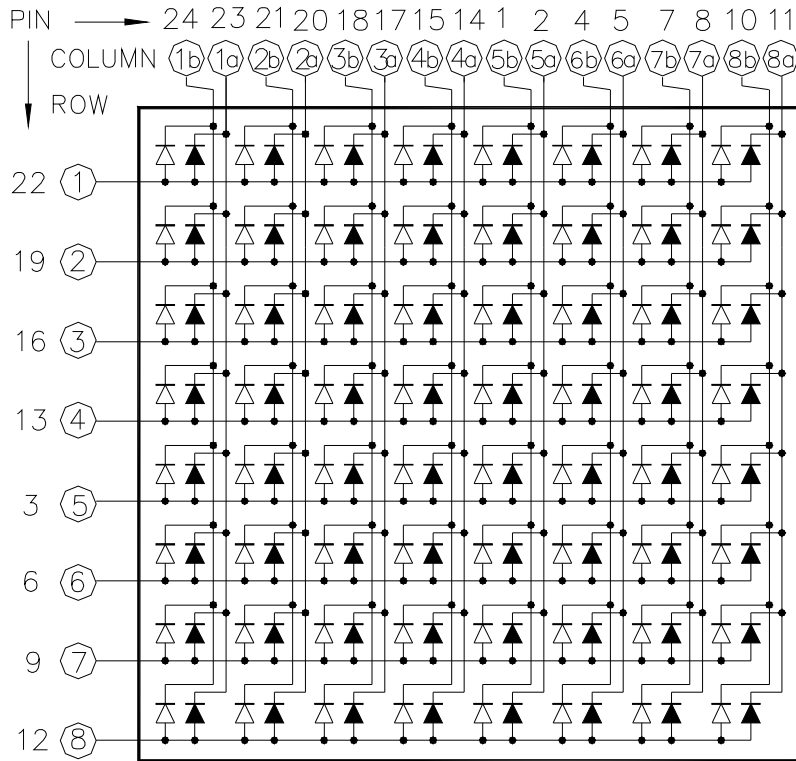
1. All pins are $\phi 0.5(.02)$.
2. Dimension in millimeter (inch), and tolerance is $\pm 0.25 (.01)$ unless otherwise noted.



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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 _{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			



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Super Bright Green		(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 -

Super Bright Orange		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Segment	V_F	-	2.0	2.8	V	I _F =20mA
Luminous Intensity Per Segment	I_v	-	25	-	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	I_{V-m}	-	-	2:1	-	I _p =80mA 1/16Duty

Super Bright Green		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Segment	V_F	-	2.1	2.8	V	I _F =20mA
Luminous Intensity Per Segment	I_v	-	12	-	mcd	I _F =10mA
Peak Emission Wavelength	λ_p	-	572	-	nm	I _F =20mA
Dominant Wavelength	λ_d	-	570	-	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 -Super Bright Orange

(Ta = 25°C Unless Otherwise Noted)

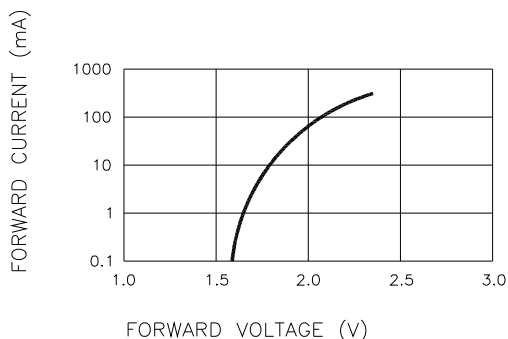


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

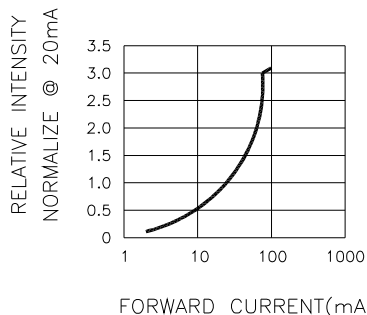


Fig.2 RELATIVE INTENSITY VS. FORWARD CURRENT

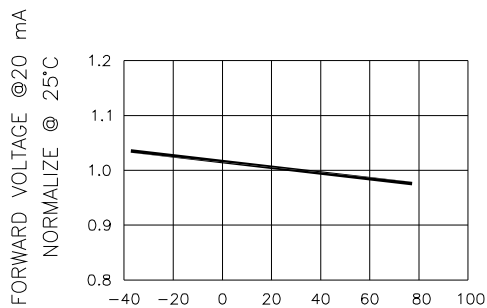


Fig.3 FORWARD VOLTAGE VS. TEMPERATURE

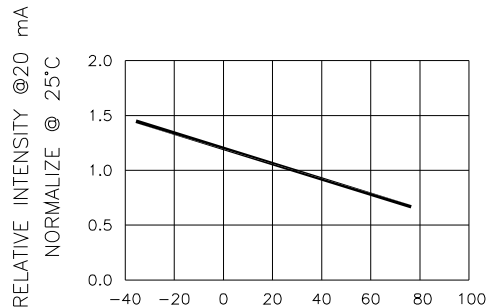


Fig.4 RELATIVE INTENSITY VS. TEMPERATURE

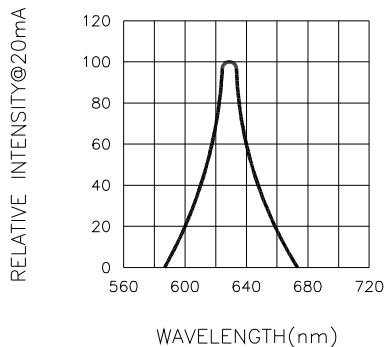


Fig.5 RELATIVE INTENSITY VS. WAVELENGTH



Model No : CSM-88160VM9

Super Bright Green

(Ta = 25°C Unless Otherwise Noted)

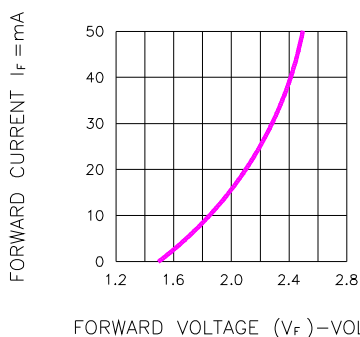


Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

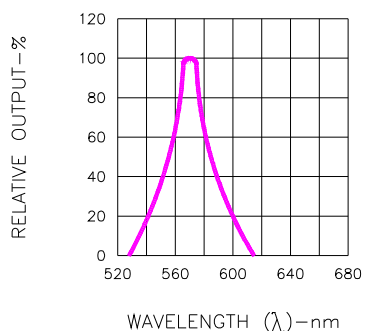


Fig.2 SPECTRAL RESPONSE

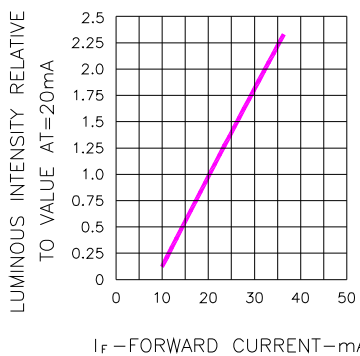


Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

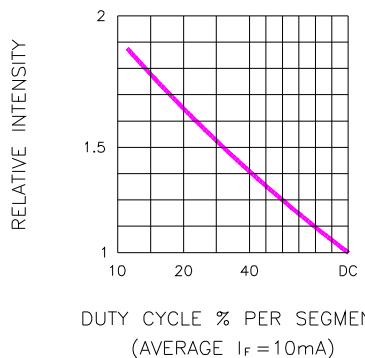


Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

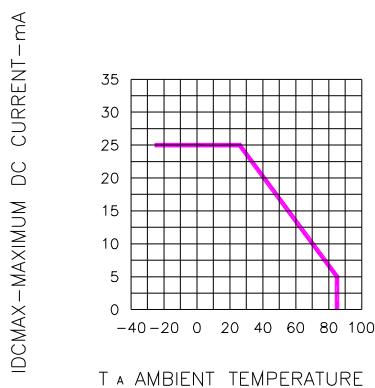


Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

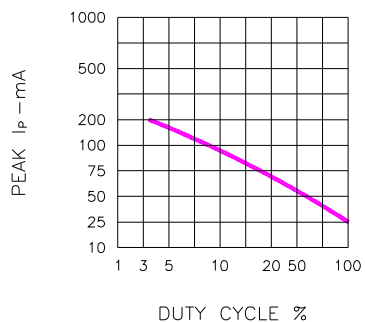


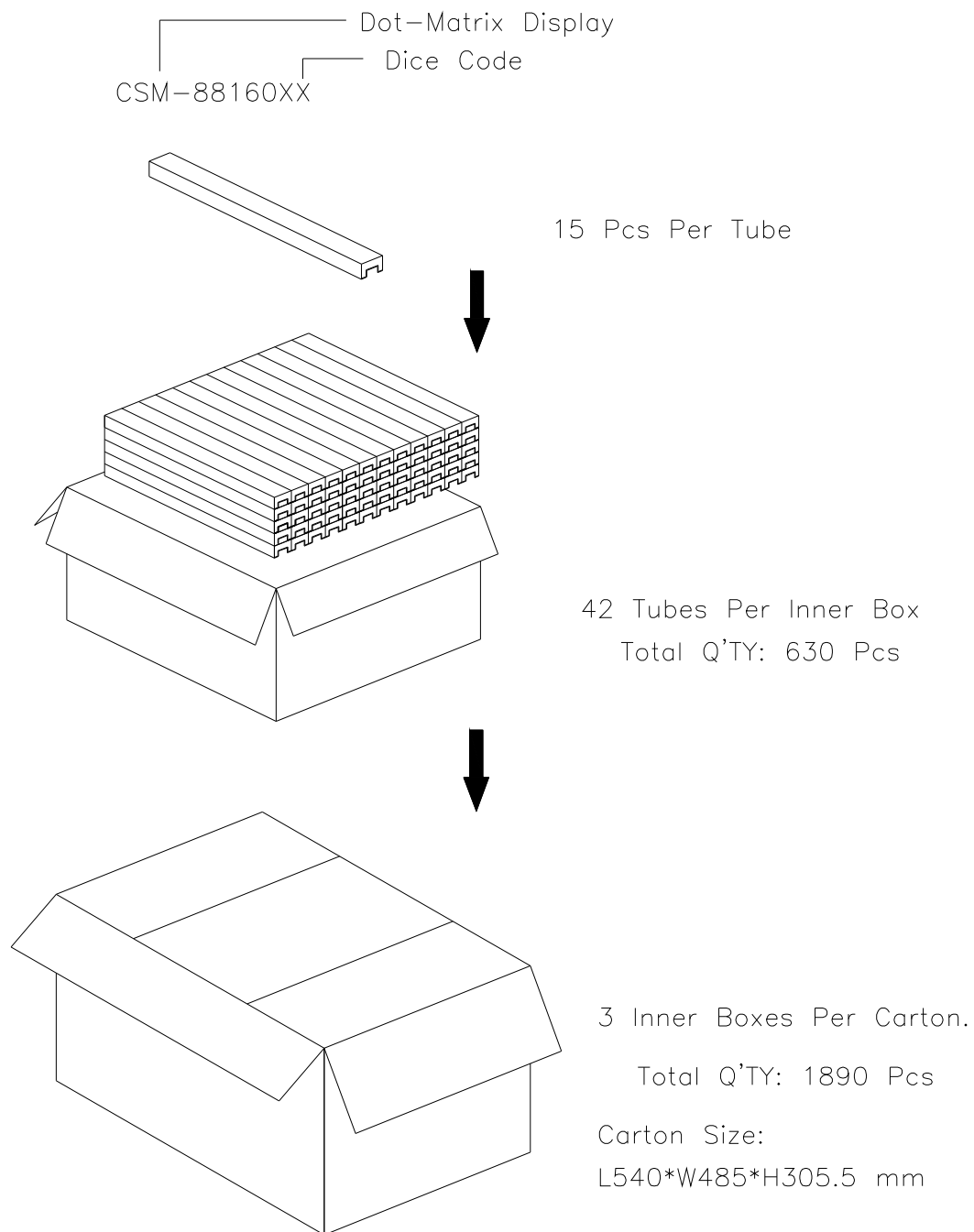
Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)



Spec. No.	PS-ND-0710
Rev.	A

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■ Package Dimensions



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