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 SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

CHINA SEMICONDUCTOR CORPORATION
Address:2FL. NO.909,Chung-Cheng Road,
Chung-Ho City Taipei Hsien,Taiwan.

Tel:886-2-2223-9696
Fax:886-2-2223-9377

OPTO PLUS TECHNOLOGIES CO.,LTD
Address:696 Shun jiang Rd.,Ji Shan St.Shaoxing,
ZheJiang,China

Tel:86-0575-88623888
Fax:86-0575-88623112

Model No : CSM-88191VM9/88101VM9

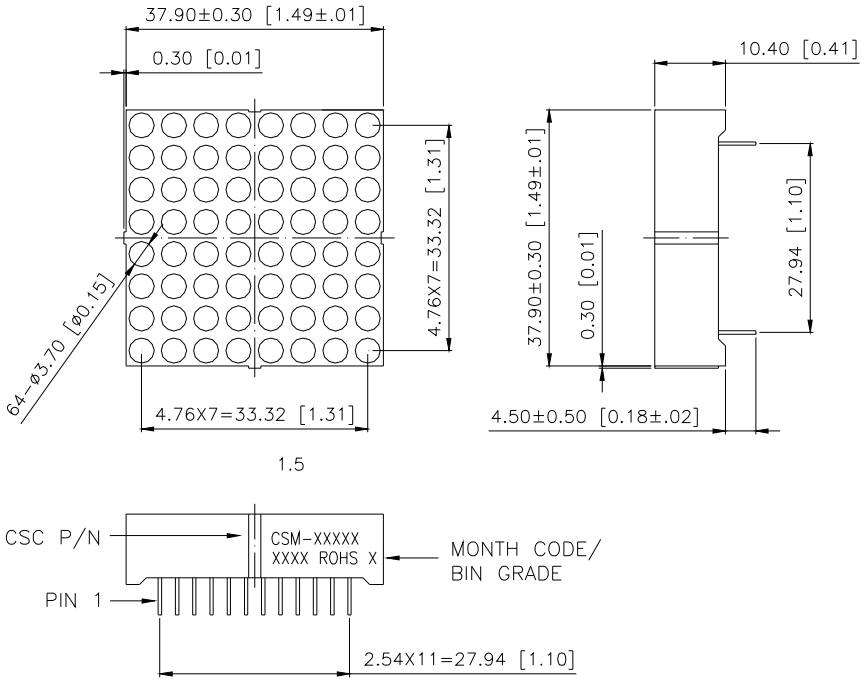
Features -

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 ø0.6(.02).
2. Dimensions in millimeters (inch), tolerance is ±0.25 (.01) unless otherwise noted.

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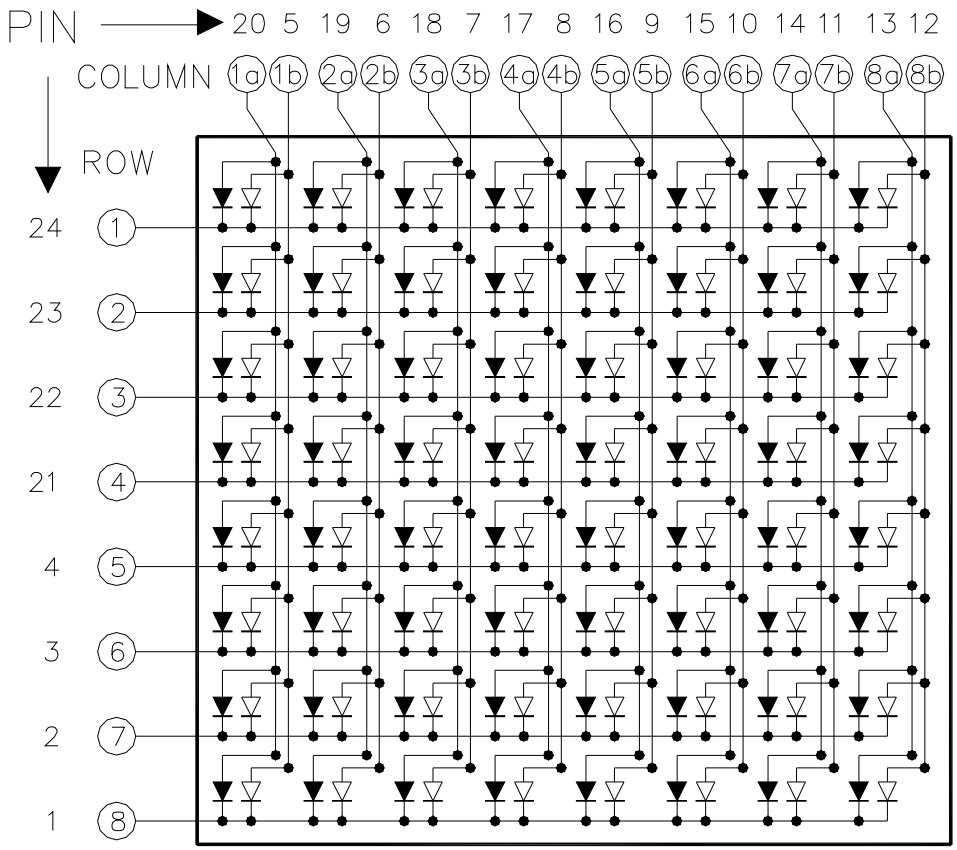
■ **Internal Circuit Diagrams -**



→| "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℃)

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℃ Per Dice	-	0.33	mA/℃
Reverse Voltage Per Dice	V_R	5	V
Operating Temp.	Topr	-35 ~ +85	℃
Storage Temp.	Tstg	-35 ~ +85	℃
Solder temperature 1/16 inch below seating plane for 3 seconds at 260℃			

Super Bright Green

(Ta=25℃)

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℃ Per Dice	-	0.33	mA/℃
Reverse Voltage Per Dice	V_R	5	V
Operating Temp.	Topr	-35 ~ +85	℃
Storage Temp.	Tstg	-35 ~ +85	℃
Solder temperature 1/16 inch below seating plane for 3 seconds at 260℃			

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■ Electro-optical Characteristics -

Super Bright Orange (Ta=25℃)

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	Iv	-	30	-	mcd	I_F=10mA
Peak Emission Wavelength	λp	-	632	-	nm	I_F=20mA
Dominant Wavelength	λd	-	624	-	nm	I_F=20mA
Spectrum Radiation Bandwidth	$\Delta \lambda$	-	20	-	nm	I_F=20mA
Reverse Current	IR	-	-	100	μA	V_R=5V
Luminous Intensity Matching Ratio	IV-m	-	-	2:1	-	Ip=80mA 1/16Duty

Super Bright Green (Ta=25℃)

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	Iv	-	15	-	mcd	I_F=10mA
Peak Emission Wavelength	λp	-	570	-	nm	I_F=20mA
Dominant Wavelength	λd	-	572	-	nm	I_F=20mA
Spectrum Radiation Bandwidth	$\Delta \lambda$	-	20	-	nm	I_F=20mA
Reverse Current	IR	-	-	100	μA	V_R=5V
Luminous Intensity Matching Ratio	IV-m	-	-	2:1	-	Ip=80mA 1/16Duty

Model No：CSM-88191VM9/88101VM9

■ Typical Electrical / Optical Charateristics Curves -Super-Bright Orange

(Ta = 25℃ Unless Otherwise Noted)

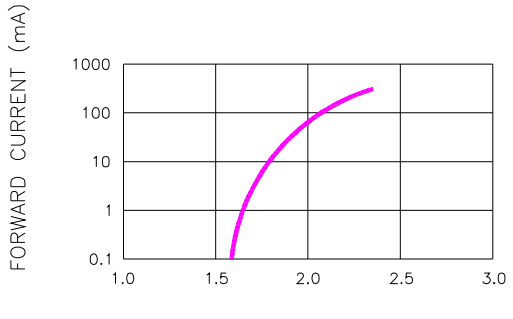

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

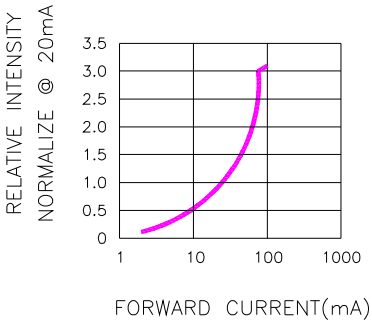

Fig.2 RELATIVE INTENSITY
VS. FORWARD CURRENT

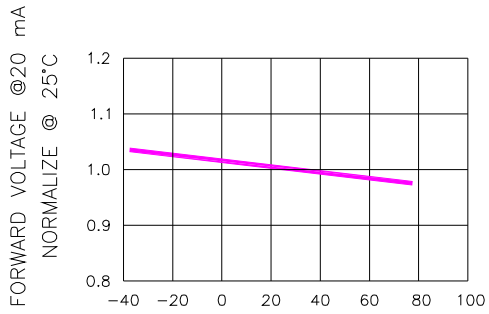

Fig.3 FORWARD VOLTAGE
VS. TEMPERATURE

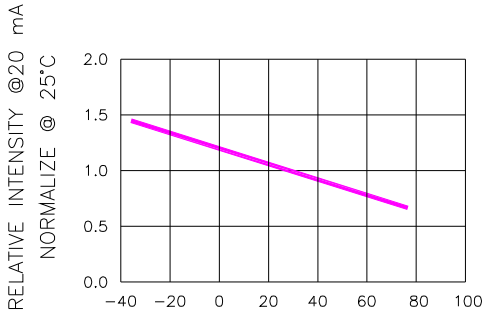

Fig.4 RELATIVE INTENSITY
VS. TEMPERATURE

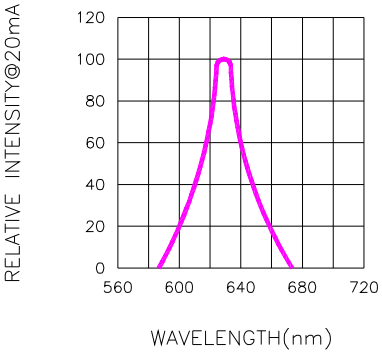

Fig.5 RELATIVE INTENSITY VS. WAVELENGTH

Model No：CSM-88191VM9/88101VM9

■ Typical Electrical / Optical Charateristics Curves -Super-Bright Green

(Ta = 25℃ Unless Otherwise Noted)

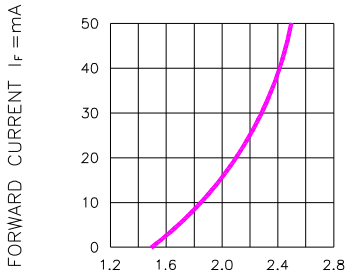

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE

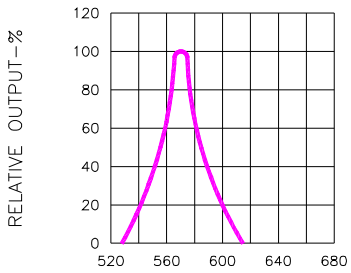

Fig.2 SPECTRAL RESPONSE

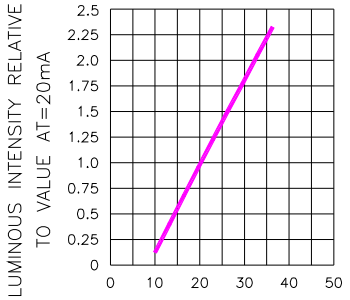

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

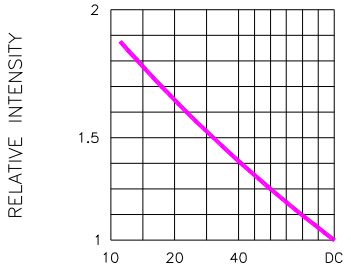

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE

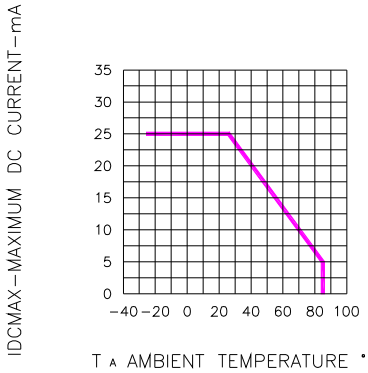

Fig.4 MAXIMUM ALLOWABLE DC CURRENT PER SEGMENT VS. A FUNCTION OF AMBIENT TEMPERATURE

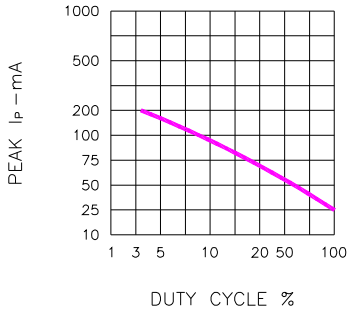

Fig.6 MAX PEAK CURRENT VS. DUTY CYCLE % (REFRESH RATE f=1 KHz)

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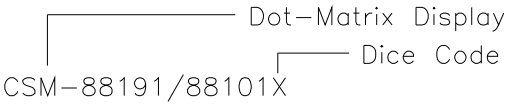
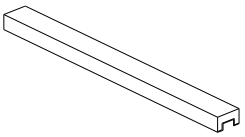
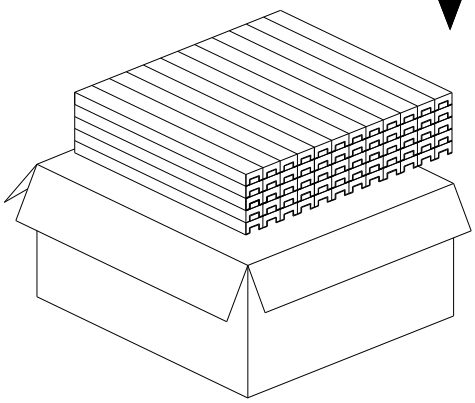
■ Package Dimensions

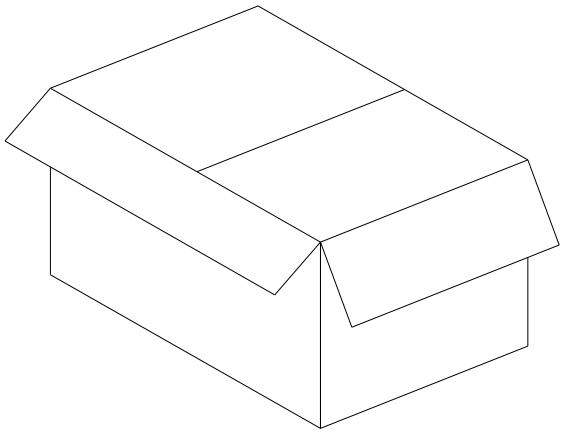




12 Pcs Per Tube



25 Tubes Per Inner Box
Total Q'TY: 300 Pcs



2 Inner Boxes Per Carton.

Total Q'TY: 600 Pcs

Carton Size:
L800*W291*H250 mm