



# PRODUCT SPECIFICATION

**Model No : CSM-58211M9/58221M9**

## Descriptions:

- 2.3 Inch 5X8 Dot-Matrix Display
- Dot Pitch 7.62mm
- CSM-58221: Column Anode, Row Cathode
- CSM-58221: Column Cathode, Row Anode
- Emitting Color: 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:86-0575-8623888  
Fax:86-0575-8623112



**Model No : CSM-58211/58221M9**

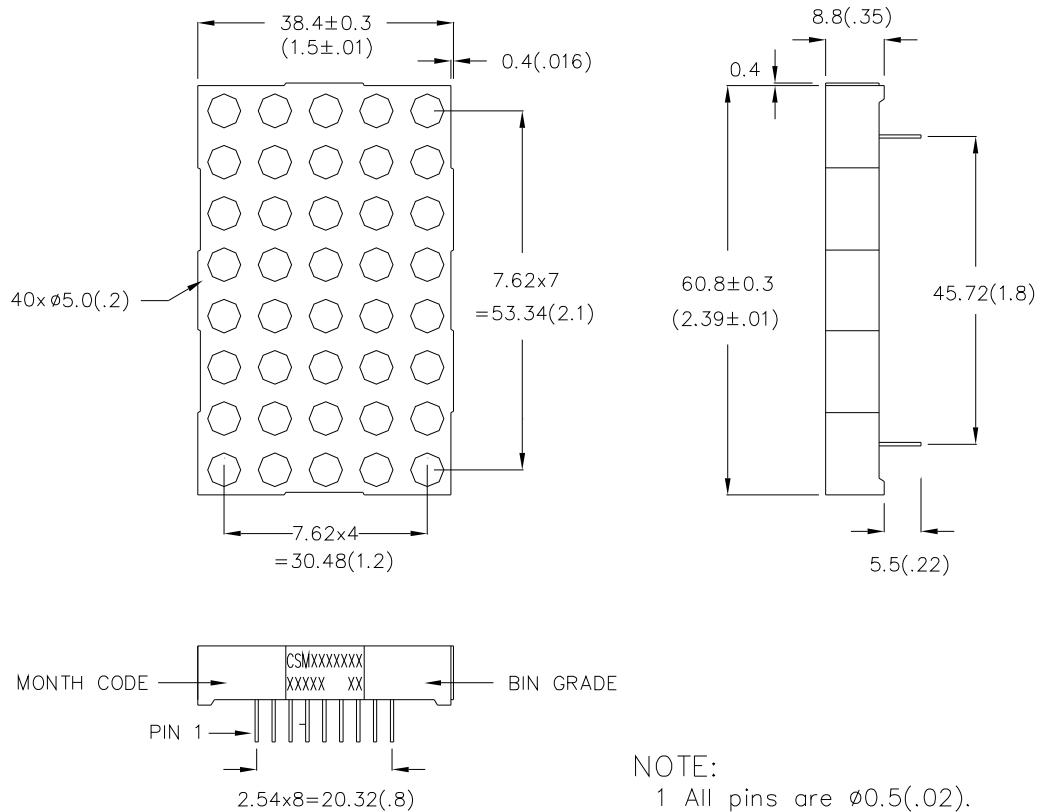
**Features -**

1. 2.3 inch (58.34mm) 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-58211M9	AlGaInP	Super Bright Green	Anode	Cathode
CSM-58221M9	AlGaInP	Super Bright Green	Cathode	Anode

**Package Dimensions -**



**NOTE:**

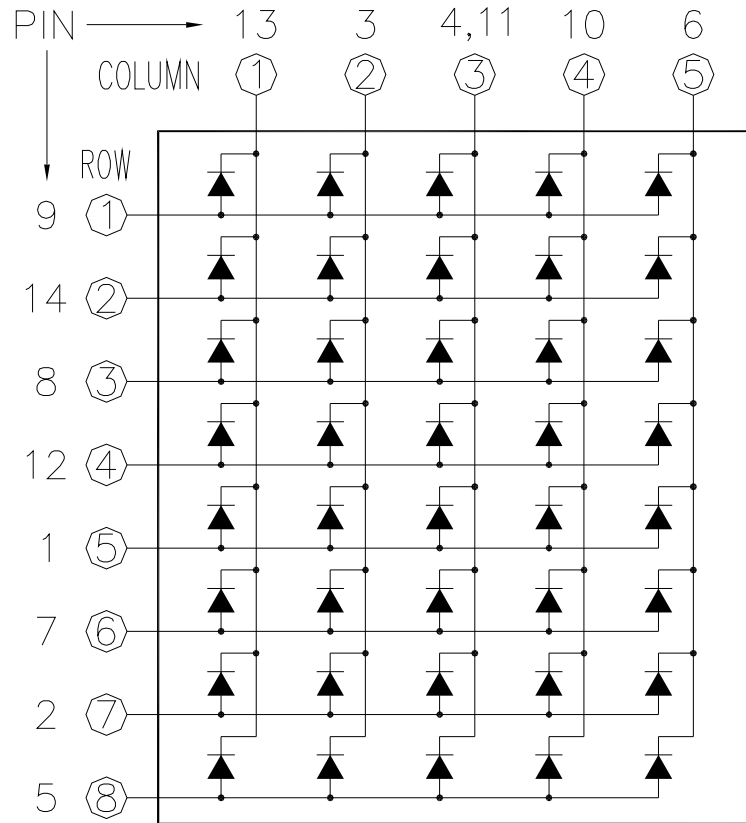
- 1 All pins are  $\phi 0.5$  (.02).
- 2 Dimension in millimeters (inch), tolerance is  $\pm 0.25$  (.01) unless otherwise noted.



Model No : CSM-58211/58221M9

Internal Circuit Diagrams -

CSM-58221



CSM-58211		CSM-58221		CSM-58221			
PIN NO.	FUNCTION	PIN NO.	FUNCTION	PIN NO.	FUNCTION		
1	Cathode Row 5	8	Cathode Row 3	1	Anode Row 5	8	Anode Row 3
2	Cathode Row 7	9	Cathode Row 1	2	Anode Row 7	9	Anode Row 1
3	Anode Column 2	10	Anode Column 4	3	Cathode Column 2	10	Cathode Column 4
4	Anode Column 3	11	Anode Column 3	4	Cathode Column 3	11	Cathode Column 3
5	Cathode Row 8	12	Cathode Row 4	5	Anode Row 8	12	Anode Row 4
6	Anode Column 5	13	Anode Column 1	6	Cathode Column 5	13	Cathode Column 1
7	Cathode Row 6	14	Cathode Row 2	7	Anode Row 6	14	Anode Row 2



Model No : CSM-58211/58221M9

■ Absolute Maximum Rating -

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	<b>Pd</b>	70	mW
Continuous Forward Current Per Dice	<b>IAF</b>	25	mA
Peak Current Per Dice(duty cycle 1/10, 1kHz)	<b>IPF</b>	90	mA
Derating Linear From 25°C Per Dice	-	0.33	mA/°C
Reverse Voltage Per Dice	<b>VR</b>	5	V
Operating Temp.	<b>Topr</b>	-35 ~ +85	°C
Storage Temp.	<b>Tstg</b>	-35 ~ +85	°C
Solder temperature 1/16 inch below seating plane for 3 seconds at 260°C			

■ Electro-optical Characteristics -

(Ta=25°C)

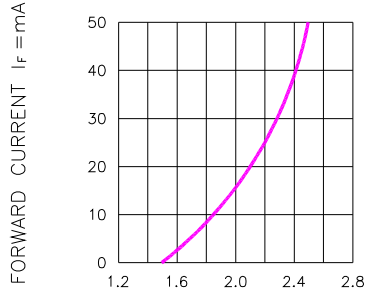
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Segment	<b>VF</b>	-	2.1	2.8	V	IF=20mA
Luminous Intensity Per Segment	<b>Iv</b>	-	18	-	mcd	IF=10mA
Peak Emission Wavelength	$\lambda_p$	-	572	-	nm	IF=20mA
Dominant Wavelength	$\lambda_d$	-	570	-	nm	IF=20mA
Spectrum Radiation Bandwidth	$\Delta \lambda$	-	20	-	nm	IF=20mA
Reverse Current	<b>IR</b>	-	-	100	$\mu A$	VR=5V
Luminous Intensity Matching Ratio	<b>IV-m</b>	-	-	2:1	-	IF=10mA



Model No : CSM-58211/58221M9

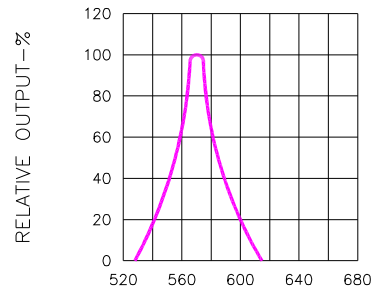
Typical Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)



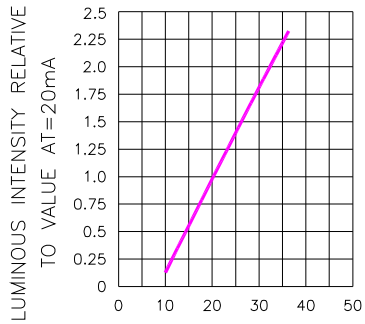
FORWARD VOLTAGE (V<sub>F</sub>) - VOLTS

Fig.1 FORWARD CURRENT VS. FORWARD VOLTAGE



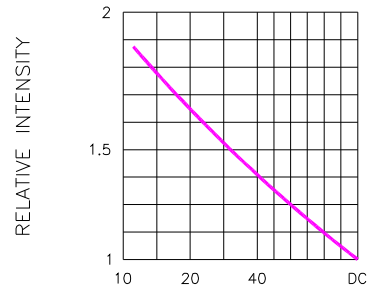
WAVELENGTH (λ) - nm

Fig.2 SPECTRAL RESPONSE



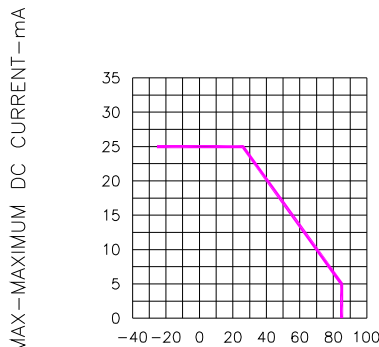
I<sub>F</sub> - FORWARD CURRENT - mA

Fig.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



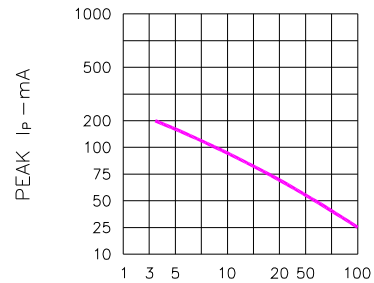
DUTY CYCLE % PER SEGMENT (AVERAGE I<sub>F</sub> = 10mA)

Fig.5 LUMINOUS INTENSITY VS. DUTY CYCLE



T<sub>A</sub> AMBIENT TEMPERATURE °C

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



DUTY CYCLE %

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