

# PRODUCT SPECIFICATION

**Model No.: CSDM-88122VB2-21**

Descriptions:
<ul style="list-style-type: none"> <li>■ 1.5 Inch Dot-Matrix Display</li> <li>■ 8*8 Array with X-Y Select.</li> <li>■ Column Cathode ,Row Anode</li> <li>■ Emitting Color: Orange , Pure Green, Blue</li> <li>■ Black Face</li> <li>■ White Dot</li> </ul>



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

**OPTO PLUS TECHNOLOGIES CO.,LTD**

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**Model No.: CSDM-88122VB2-21**

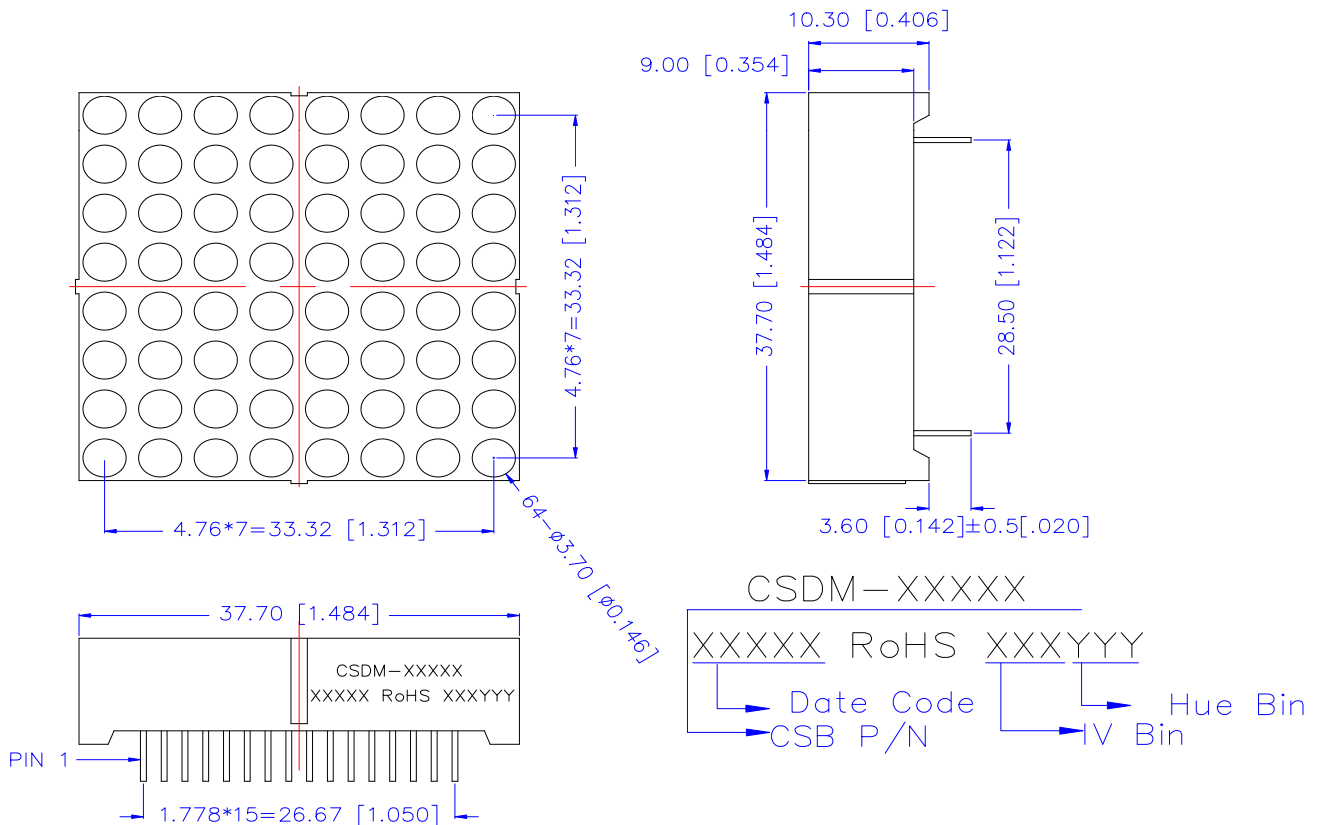
■ **Features -**

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 -**

Model No.	Chip		Description	
	Material	Emitting Color	Column	Row
CSDM-88122VB2-21	AlGaInP	Orange	Cathode	Anode
	InGaN	Pure Green		
	InGaN	Blue		

■ **Mechanical Dimensions -**

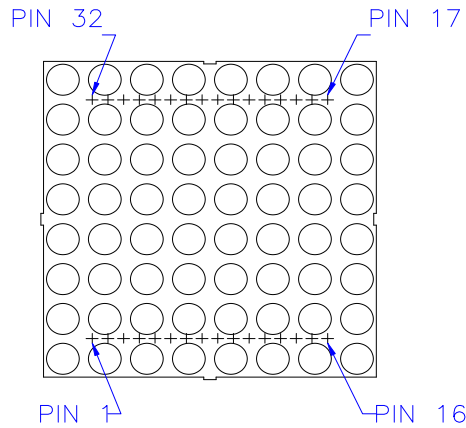


Notes:

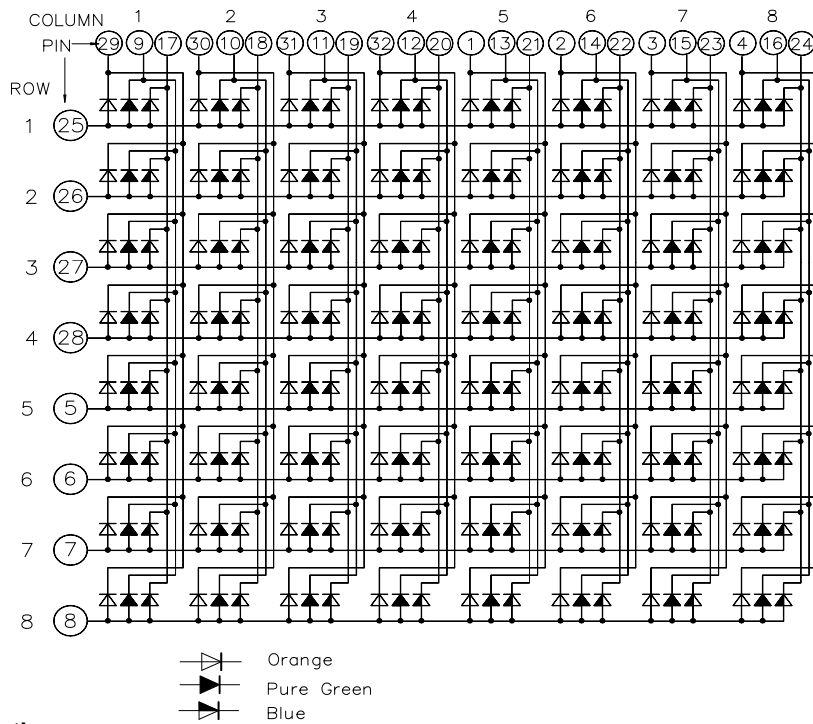
1. All pins are  $\Phi 0.51 [0.020] \pm 0.1 [0.004]$
2. Dimension in millimeter [inch], tolerance is  $\pm 0.25 [0.010]$  and angle is  $\pm 1^\circ$  unless otherwise noted.
3. Bending  $\leq$  Length\*1%.

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■ All Light On Segments Feature & Pin Position



■ Internal Circuit Diagrams -



■ Absolute Maximum Rating -

Orange		(Ta=25°C)	
Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P <sub>AD</sub>	70	mW
Derating Liner from 25°C per Dice	-	0.33	mA/°C
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
Reverse Voltage Per Dice	VR	5	V
Operating Temp.	T <sub>opr</sub>	-35 ~ +85	°C
Storage Temp.	T <sub>stg</sub>	-35 ~ +85	°C
Hand Soldering Temp.	T <sub>sol</sub>	350	°C

Model No.: CSDM-88122VB2-21

Pure Green		(Ta=25°C)	
Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P <sub>AD</sub>	114	mW
Continuous Forward Current Per Dice	I <sub>AF</sub>	0.4	mA
Derating Liner from 25°C per Dice	-	30	mA/°C
Peak Current Per Dice(duty cycle 1/10,1KHz)	I <sub>PF</sub>	100	mA
Reverse Voltage Per Dice	V <sub>R</sub>	5	V
Electrostatic discharge(HBM)	ESD	1000	V
Operating Temp.	T <sub>opr</sub>	-35 ~ +85	°C
Storage Temp.	T <sub>stg</sub>	-35 ~ +85	°C
Hand Soldering Temp.	T <sub>sol</sub>	350	°C

Blue		(Ta=25°C)	
Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	P <sub>AD</sub>	114	mW
Derating Liner from 25°C per Dice	-	0.4	mA/°C
Continuous Forward Current Per Dice	I <sub>AF</sub>	30	mA
Peak Current Per Dice(duty cycle 1/10,1KHz)	I <sub>PF</sub>	100	mA
Reverse Voltage Per Dice	V <sub>R</sub>	5	V
Electrostatic discharge(HBM)	ESD	1000	V
Operating Temp.	T <sub>opr</sub>	-35 ~ +85	°C
Storage Temp.	T <sub>stg</sub>	-35 ~ +85	°C
Hand Soldering Temp.	T <sub>sol</sub>	350	°C

■ Electro-optical Characteristics -

Orange		(Ta=25°C)				
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dot	V <sub>F</sub>	-	2.0	2.8	V	I <sub>F</sub> =20mA
Luminous Intensity Per Dot	I <sub>v</sub>	-	73	-	mcd	I <sub>F</sub> =10mA
Peak Emission Wavelength	λ <sub>P</sub>	-	632	-	nm	I <sub>F</sub> =20mA
Dominant Wavelength	λ <sub>d</sub>	-	624	-	nm	I <sub>F</sub> =20mA
Spectrum Radiation Bandwidth	Δλ	-	20	-	nm	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> =5V
Luminous Intensity Matching Ratio	I <sub>v-m</sub>	-	-	2:1		*1

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Pure Green							(Ta=25°C)
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Forward Voltage Per Dot	V <sub>F</sub>	-	3.2	3.8	V	I <sub>F</sub> =20mA	
Luminous Intensity Per Dot	I <sub>v</sub>	-	520	-	mcd	I <sub>F</sub> =10mA	
Peak Emission Wavelength	λ <sub>P</sub>	-	525	-	nm	I <sub>F</sub> =20mA	
Dominant Wavelength	λ <sub>d</sub>	-	520	-	nm	I <sub>F</sub> =20mA	
Spectrum Radiation Bandwidth	Δλ	-	40	-	nm	I <sub>F</sub> =20mA	
Reverse Current	I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> =5V	
Luminous Intensity Matching Ratio	I <sub>V-m</sub>	-	-	2:1		*1	

Blue							(Ta=25°C)
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition	
Forward Voltage Per Dot	V <sub>F</sub>	-	3.2	3.8	V	I <sub>F</sub> =20mA	
Luminous Intensity Per Dot	I <sub>v</sub>	-	100	-	mcd	I <sub>F</sub> =10mA	
Peak Emission Wavelength	λ <sub>P</sub>	-	465	-	nm	I <sub>F</sub> =20mA	
Dominant Wavelength	λ <sub>d</sub>	-	470	-	nm	I <sub>F</sub> =20mA	
Spectrum Radiation Bandwidth	Δλ	-	30	-	nm	I <sub>F</sub> =20mA	
Reverse Current	I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> =5V	
Luminous Intensity Matching Ratio	I <sub>v-m</sub>	-	-	2:1	-	*1	

- Notes: 1. \*1 Condition is I<sub>p</sub>=80mA 1/16Duty  
 2. The device can not operated under continuous reverse voltage.

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■ **Electrical / Optical Characteristics Curves -**

● **Orange**

(Ta = 25°C Unless Otherwise Noted)

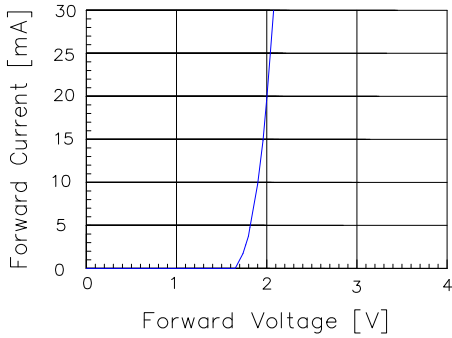


Fig 1. Forward Current vs. Forward Voltage

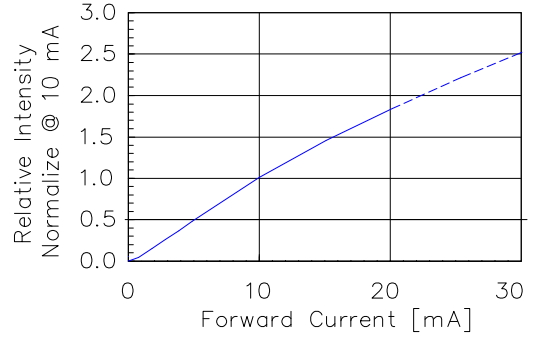


Fig 2. Relative Intensity vs. Forward Current

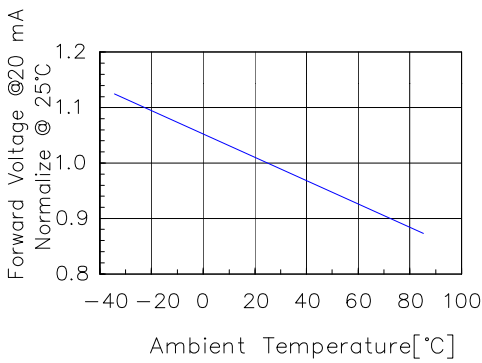


Fig 3. Forward Voltage vs. Temperature

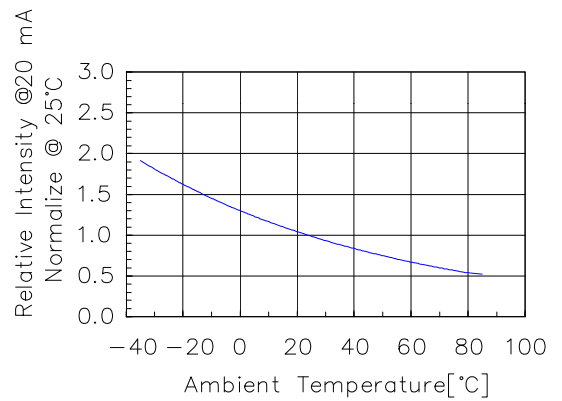


Fig 4. Relative Intensity vs. Temperature

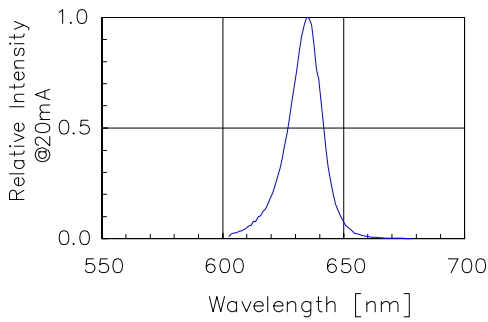


Fig 5. Relative Intensity vs. Wavelength

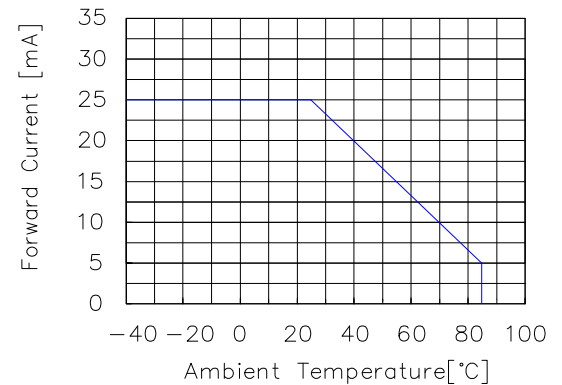


Fig 6. Forward current vs. Temperature

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● **Pure Green**

(Ta = 25°C Unless Otherwise Noted)

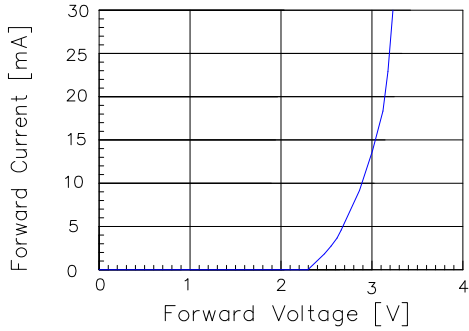


Fig 1. Forward Current vs. Forward Voltage

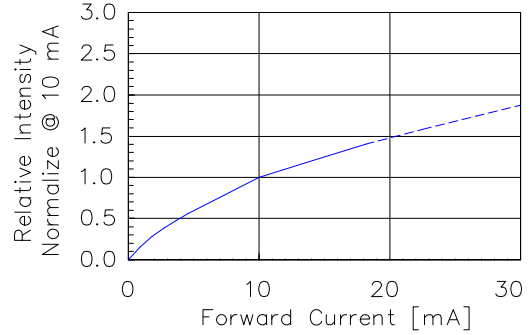


Fig 2. Relative Intensity vs. Forward Current

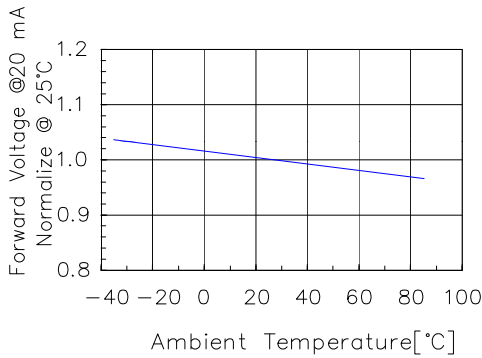


Fig 3. Forward Voltage vs. Temperature

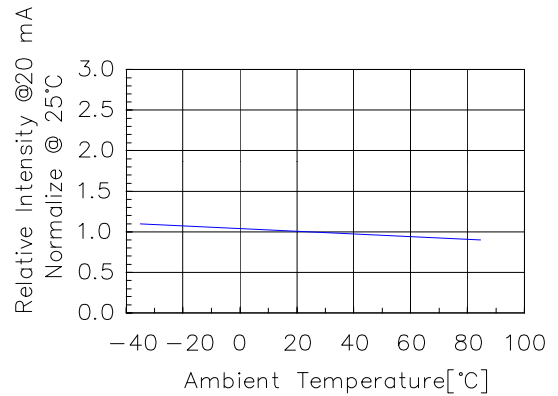


Fig 4. Relative Intensity vs. Temperature

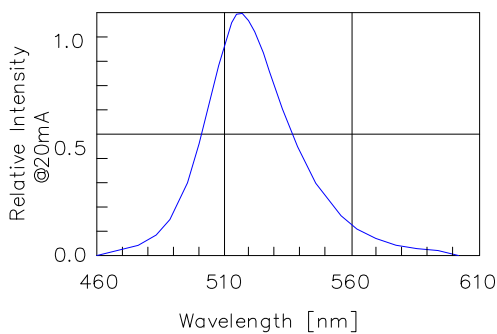


Fig 5. Relative Intensity vs. Wavelength

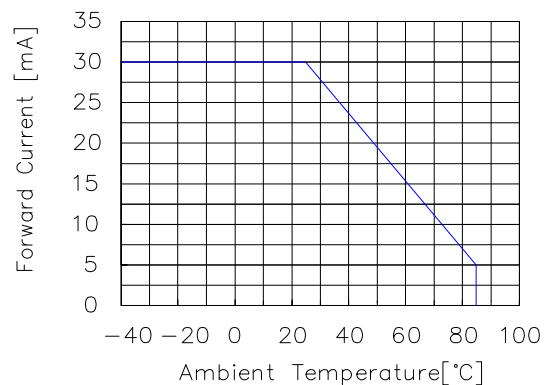


Fig 6. Forward current vs. Temperature

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● **Blue**

(Ta = 25°C Unless Otherwise Noted)

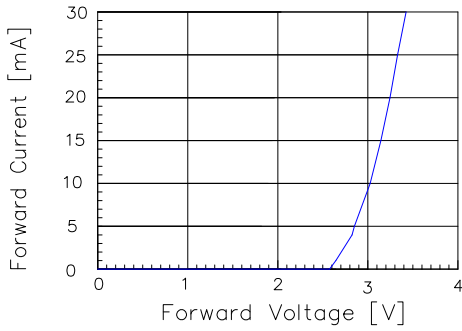


Fig 1. Forward Current vs. Forward Voltage

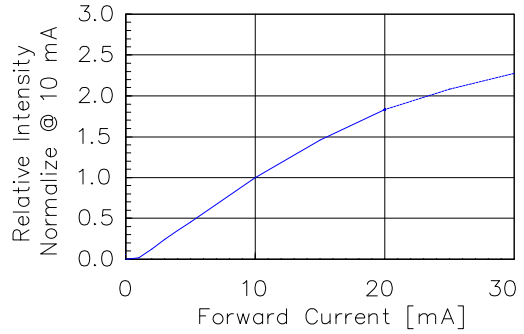


Fig 2. Relative Intensity vs. Forward Current

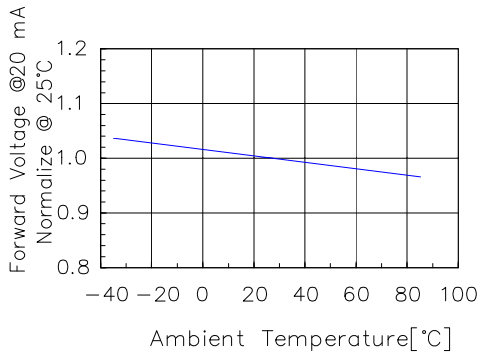


Fig 3. Forward Voltage vs. Temperature

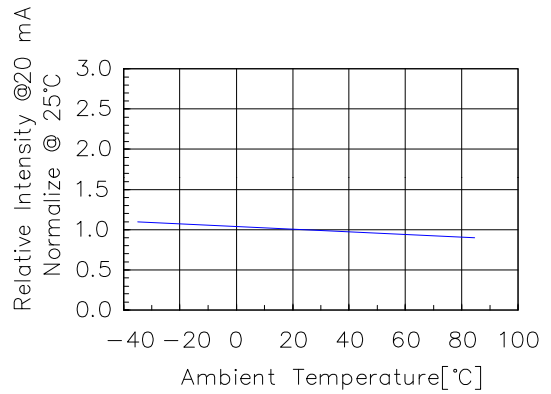


Fig 4. Relative Intensity vs. Temperature

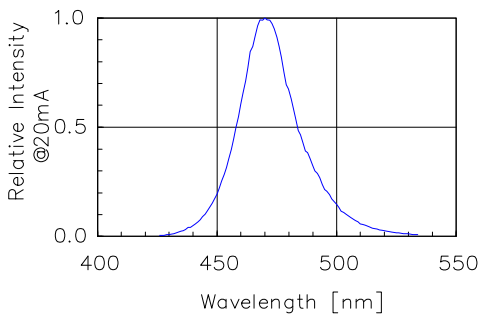


Fig 5. Relative Intensity vs. Wavelength

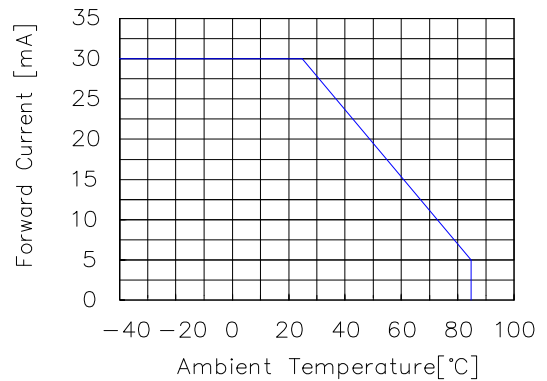


Fig 6. Forward current vs. Temperature



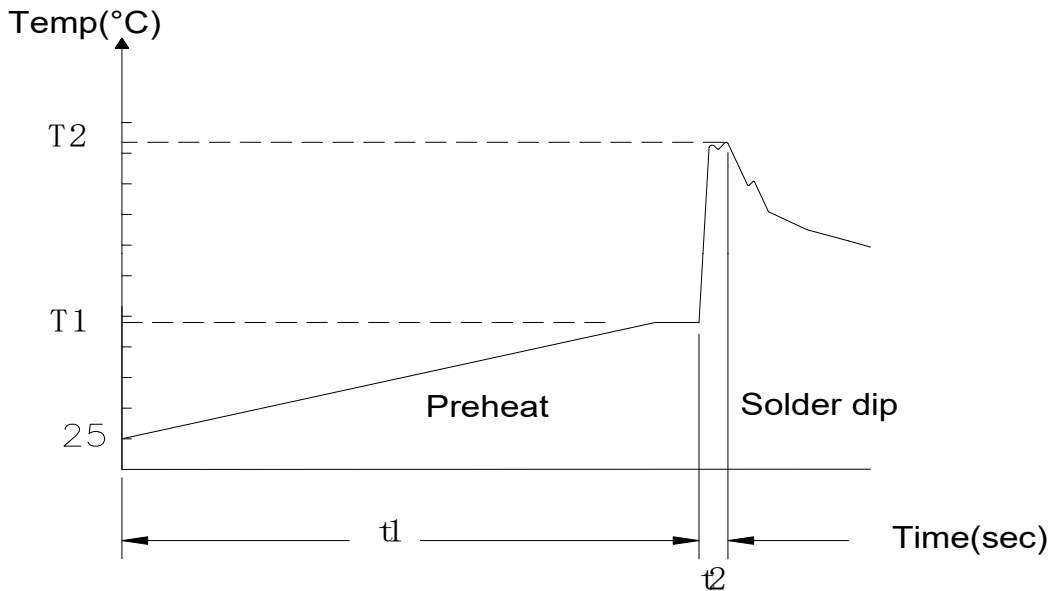
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**■ Precautions For Use -**

**1.Wave Soldering Profile**

Distance:1.6mm min(From seating plane)

Item	Condition		Note
Preheat	Temperature T1	80 – 120°C	PWB temperature (Soldering side surface)
	Time t1	60 – 180sec	
Solder Dip	Temperature T2	230 – 260°C	Bath temperature
	Time t2	2 – 4sec	Solder tank passage time



**2.Hand Soldering (Iron Condition)**

Soldering Iron:30W Max

Temperature 350°C Max

Soldering Time:3 Seconds Max(One Time)

Distance:1.6mm min(From seating plane)