

# PRODUCT SPECIFICATION

**Model No.: CSOV-12031X-01**

Descriptions:
<ul style="list-style-type: none"> <li>■ Touch Display ( W/O touch drive IC )</li> <li>■ Emitting Color: Blue ; White</li> <li>■ White Face</li> <li>■ White Segment</li> </ul>



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

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**Model No.: CSOV-12031X-01**

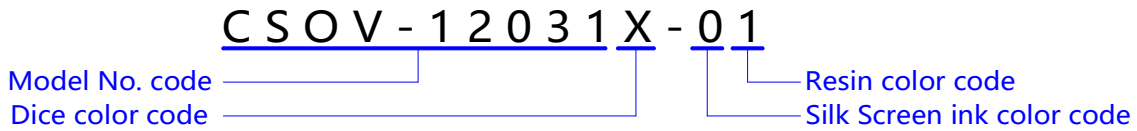
■ **Features -**

1. Case mold type.
2. RoHS compliant.
3. Low power consumption.
4. Easy mounting on P.C. board or socket.

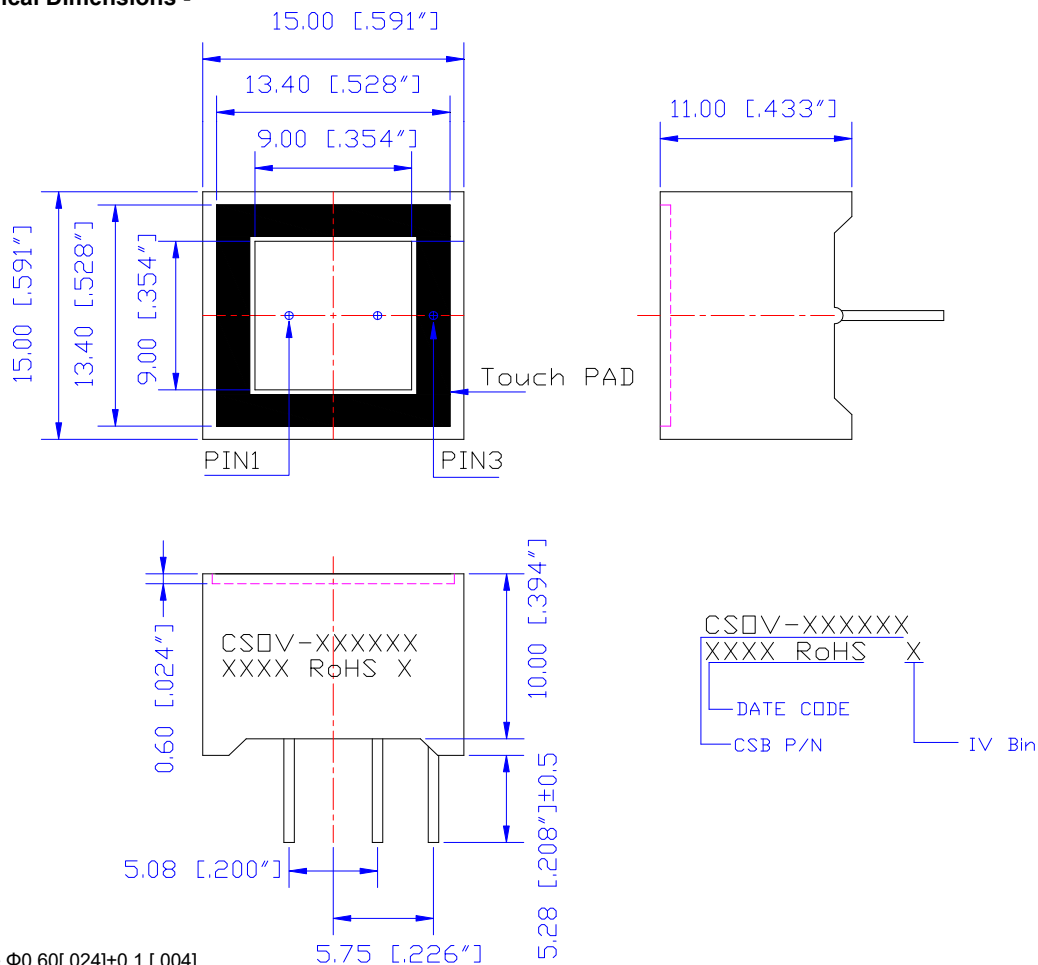
■ **Device Selection Guide -**

Model No.	Chip		Characteristics
	Material	Emitting Color	
CSOV-12031X-01	InGaN	Blue (B)	Annex 1
	InGaN	White (W)	Annex 2

■ **LED Numeric/Alphanumeric Display**



■ **Mechanical Dimensions -**

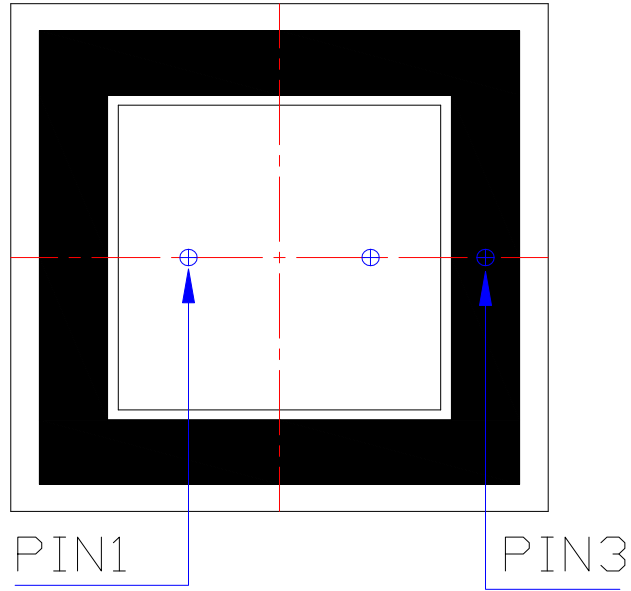


Notes:

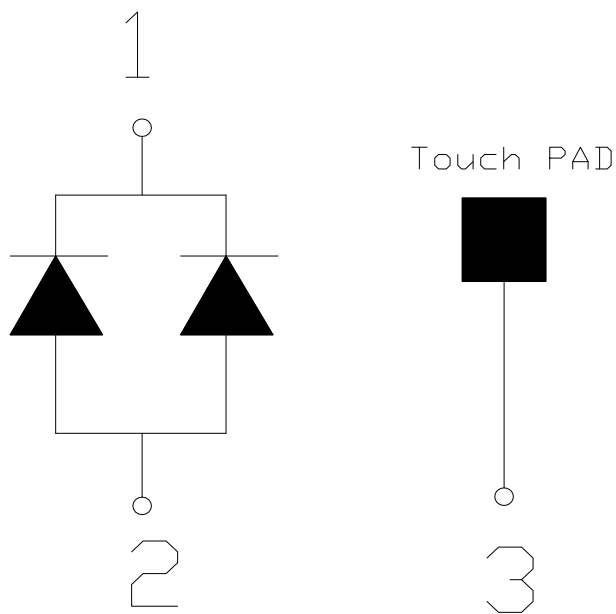
1. All pins are  $\Phi 0.60 [0.024] \pm 0.1 [0.004]$
2. Dimension in millimeter [inch], tolerance is  $\pm 0.25 [0.010]$  and angle is  $\pm 1^\circ$  unless otherwise noted.

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■ All Light On Segments Feature & Pin Position



■ Internal Circuit Diagrams -



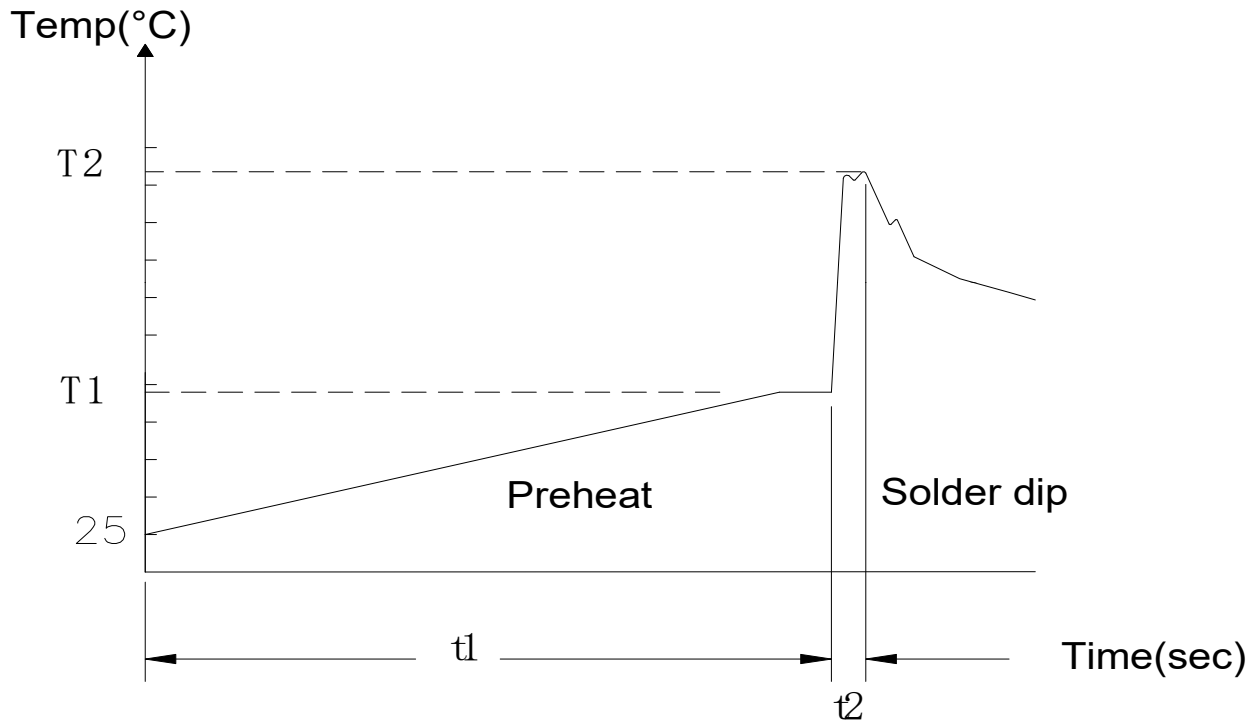
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■ Precautions For Use -

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)

■ Absolute Maximum Rating -

(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation Per Dice	$P_d$	114	mW
Derating Liner from 25°C per Dice	-	0.4	mA/°C
Continuous Forward Current Per Dice	$I_f$	30	mA
Peak Current Per Dice(duty cycle 1/10,1KHz)	$I_{fp}$	100	mA
Reverse Voltage Per Dice	$V_r$	5	V
Electrostatic discharge(HBM)	ESD	1000	V
Operating Temp.	$T_{opr}$	-35 ~ +85	°C
Storage Temp.	$T_{stg}$	-35 ~ +85	°C

■ Electro-optical Characteristics -

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	$V_f$	-	3.2	3.8	V	$I_f=20mA$
Luminous Intensity	$I_v$	44	92	-	mcd	$I_f=20mA$
Dominant Wavelength	$\lambda_d$	-	470	-	nm	$I_f=20mA$
Spectrum Radiation Bandwidth	$\Delta \lambda$	-	30	-	nm	$I_f=20mA$
Reverse Current	$I_r$	-	-	50	$\mu A$	$V_r=5V$
Luminous Intensity Matching Ratio	$I_v-m$	-	-	2:1	-	$I_f=10mA$

Notes:The device can not operated under continuous reverse voltage.

■ Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)

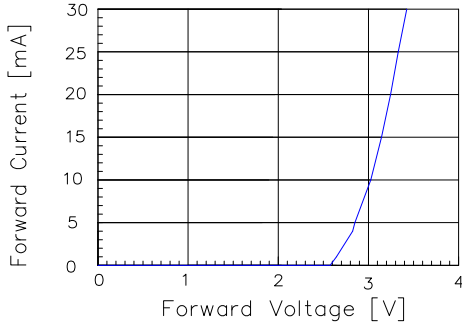


Fig 1. Forward Current vs. Forward Voltage

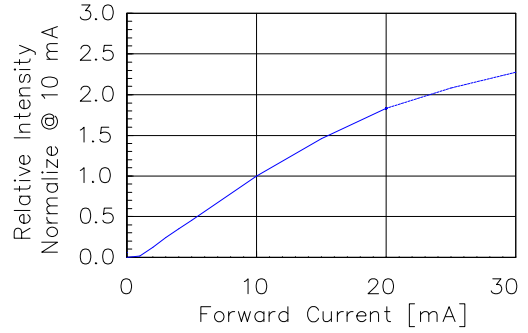


Fig 2. Relative Intensity vs. Forward Current

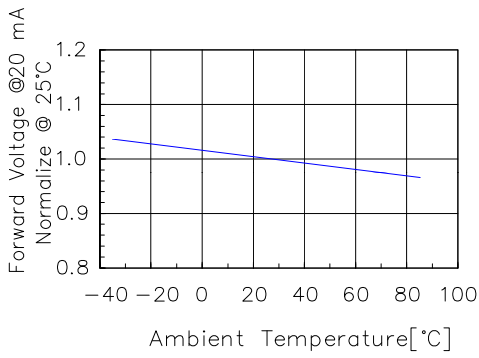


Fig 3. Forward Voltage vs. Temperature

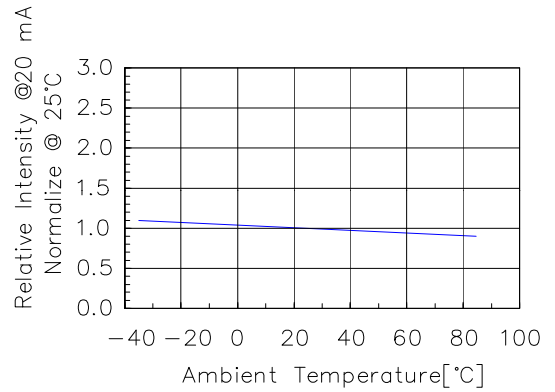


Fig 4. Relative Intensity vs. Temperature

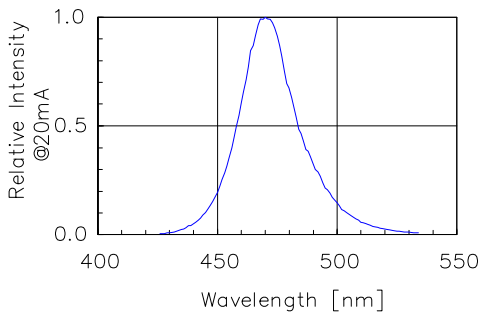


Fig 5. Relative Intensity vs. Wavelength

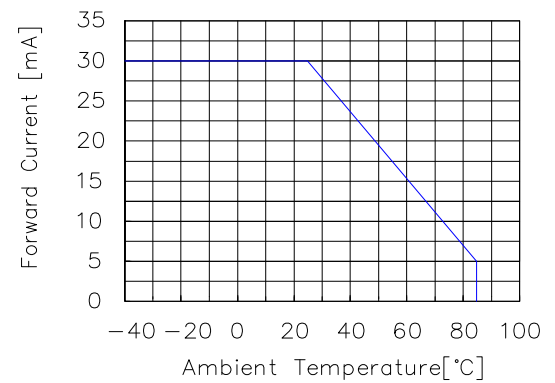


Fig 6. Forward current vs. Temperature

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(Ta=25°C)

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Operating Temp.	$T_{opr}$	-35 ~ +85	°C
Storage Temp.	$T_{stg}$	-35 ~ +85	°C

■ Electro-optical Characteristics -

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	$V_f$	-	3.2	3.8	V	$I_f=20mA$
Luminous Intensity	$I_v$	113	232	-	mcd	$I_f=20mA$
Chromaticity Coordinates (Tolerance: ±0.01)	X	-	0.27	-	-	$I_f=10mA$
	Y	-	0.25	-	-	
Reverse Current	$I_r$	-	-	50	μA	$V_r=5V$
Luminous Intensity Matching Ratio	$I_v-m$	-	-	2:1	-	$I_f=10mA$

Notes:The device can not operated under continuous reverse voltage.

■ Electrical / Optical Characteristics Curves -

(Ta = 25°C Unless Otherwise Noted)

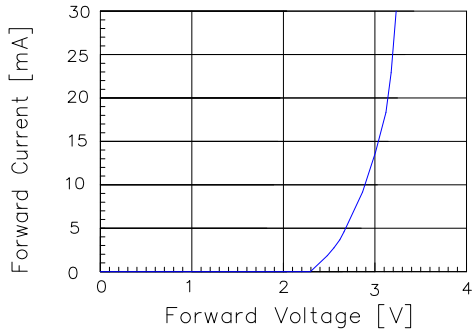


Fig 1. Forward Current vs. Forward Voltage

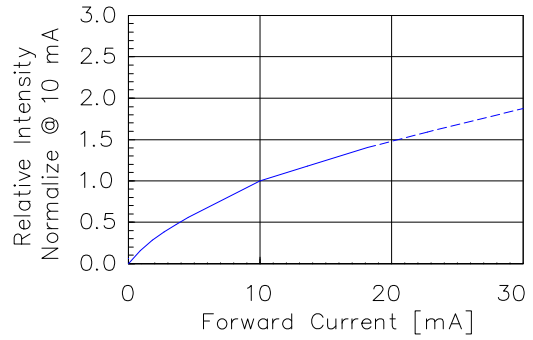


Fig 2. Relative Intensity vs. Forward Current

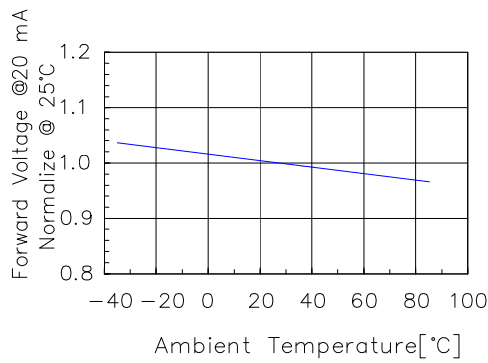


Fig 3. Forward Voltage vs. Temperature

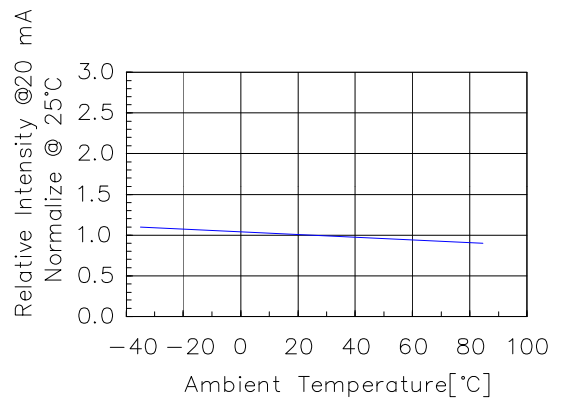


Fig 4. Relative Intensity vs. Temperature

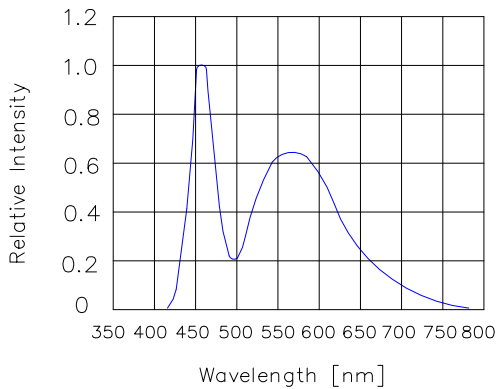


Fig 5. Relative Intensity vs. Wavelength

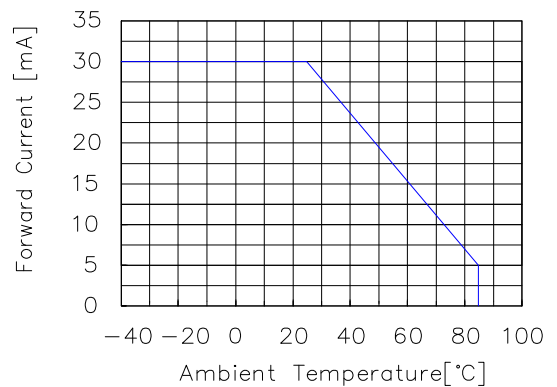


Fig 6. Forward current vs. Temperature