

# PRODUCT SPECIFICATION

**Model No. : CSDV-S12053X-01**

Description:	
■ Product Type	: Touch SMD Display
■ Digit Height	: 8.0*8.0mm
■ Emitting Color	: Pure Green; Yellow; Amber; Orange; Red; Deep Red
■ Feature	: White Face With Touch PCB White Segment



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

**OPTO PLUS TECHNOLOGIES CO.,LTD**

Address:No.696,Yangming North Rd,  
ShaoXing City,ZheJiang Province, P.R.China.

Tel :86-575-88623888

Fax:86-575-88623112

**Model No.: CSDV-S12053X-01**

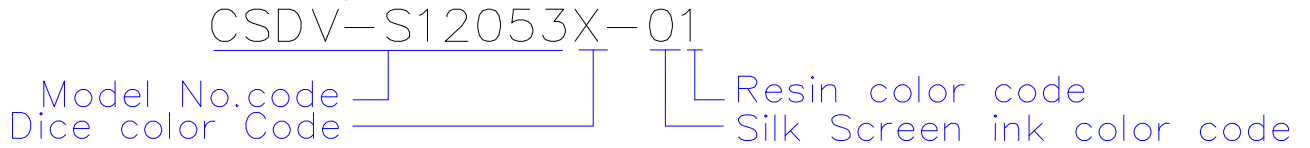
■ Features -

1. SMD type
2. Qualified according to JEDEC moisture sensitivity Level 2a
3. RoHS compliant.
4. Low power consumption.
5. Easy mounting on P.C. board

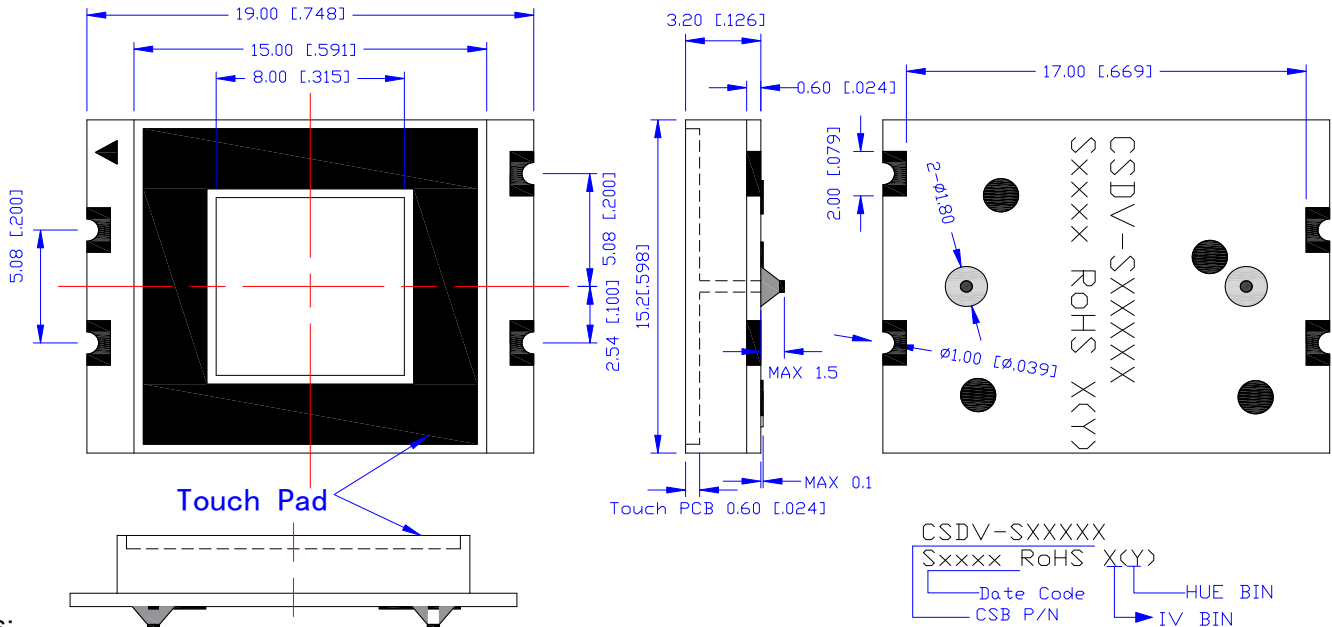
■ Device Selection Guide -

Model No.	Chip Material	Color		Description
		Emitter	Segment Resin	
CSDV-S120532	InGaN	Pure Green	White	/
CSDV-S12053T	AlGaInP	Yellow		
CSDV-S12053A		Amber		
CSDV-S12053V		Orange		
CSDV-S12053L		Red		
CSDV-S12053U		Deep Red		

■ LED Numeric/Alphanumeric Display



■ Mechanical Dimensions -

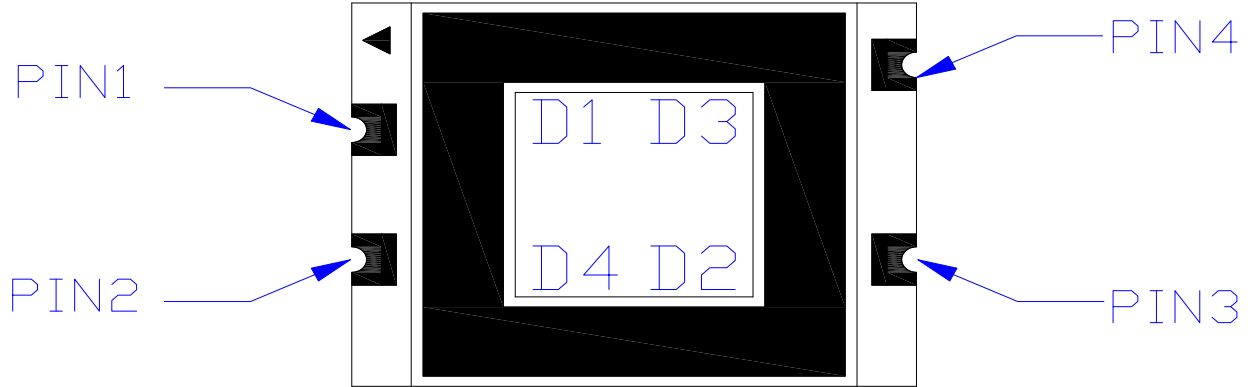


Notes:

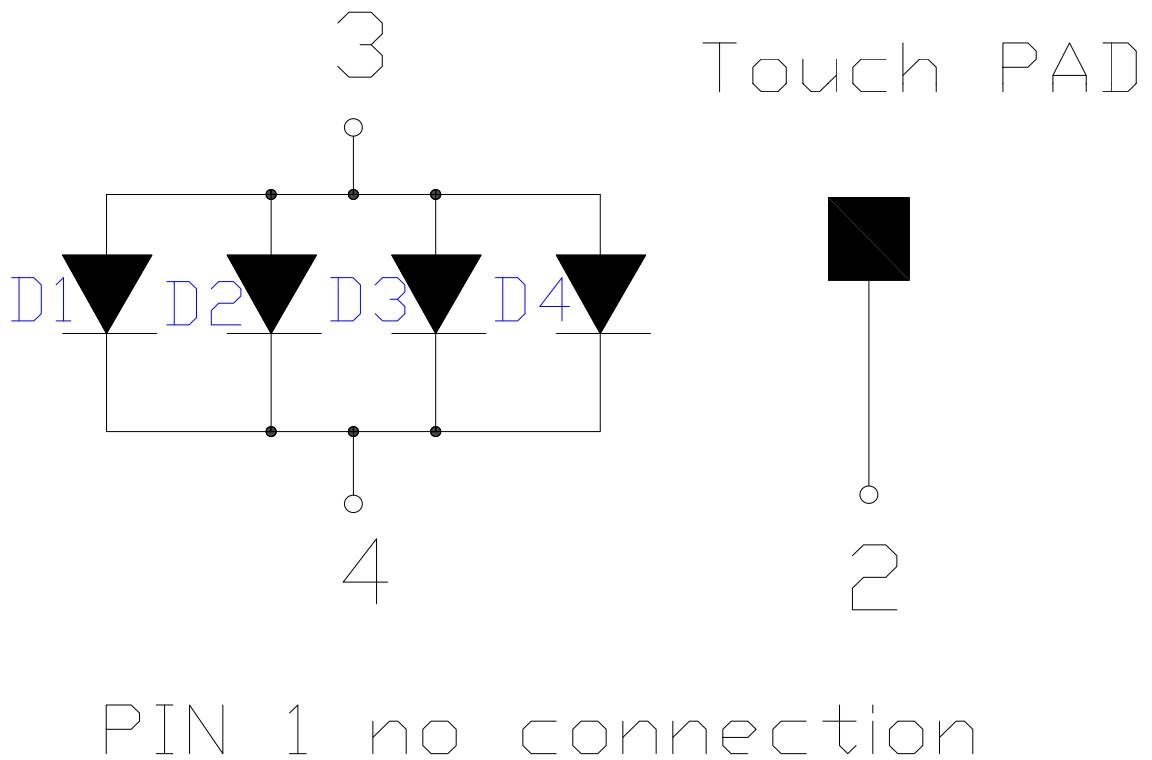
1. Dimension in millimeter [inch], tolerance is  $\pm 0.25$  [0.010], unless otherwise noted
2. Bending  $\leq$  Length \* 1%

**Model No.: CSDV-S12053X-01**

**■ All Light On Segments Feature & Pad Position**



**■ Internal Circuit Diagrams -**



Model No.: CSDV-S12053X-01

■ Absolute Maximum Rating -

Parameter	Symbol	Rating		Unit
		2	M/T/A/V/L/U	
Power Dissipation Per Dice	$P_d$	114	70	mW
Continuous Forward Current Per Dice	$I_f$	30	25	mA
Peak Current Per Dice(duty cycle 1/10,1KHz)	$I_{fp}$	100	90	mA
Derating Liner from 25°C Per Dice	$\Delta I_f / \Delta T$	0.4	0.33	mA / °C
Reverse Voltage Per Dice	$V_r$	5	5	V
Electrostatic discharge(HBM)	ESD	1000	/	V
Operating Temp.	$T_{opr}$	-40 ~ +105		°C
Storage Temp.	$T_{stg}$	-40 ~ +105		°C
Hand Soldering Temp.	$T_{sol}$	350		°C

■ Electro-optical Characteristics -

Parameter	Symbol	Chip	Min.	Typ.	Max.	Unit	Condition
Forward Voltage Per Dice	$V_f$	2	-	3.2	3.8	V	$I_f=20mA$
		T/A/V/L/U	-	2	2.8		
Luminous Intensity Per Segment	$I_v$	2	-	650	-	mcd	$I_f=20mA$
		T	-	135	-		
		A	-	155	-		
		V	-	105	-		
		L	-	65	-		
		U	-	40	-		
Peak Emission Wavelength/Dominant Wavelength	$\lambda_p/\lambda_d$	2	-	*/525	-	nm	$I_f=20mA$
		T	-	592/590	-		
		A	-	612/605	-		
		V	-	632/625	-		
		L	-	644/630	-		
		U	-	660/645	-		
Spectrum Radiation Bandwidth	$\Delta \lambda$	2	-	30	-	nm	$I_f=20mA$
		T/A/V/L/U	-	20	-		
Reverse Current	$I_r$	$I_v$	-	-	100	$\mu A$	$V_r=5V$
Luminous Intensity Matching Ratio	$I_v-m$	$I_v$	-	-	2:1	-	$I_f=20mA$

**Model No.: CSDV-S12053X-01**

**Electrical / Optical Characteristics Curves -Per Dice**

(Ta = 25°C Unless Otherwise Noted)

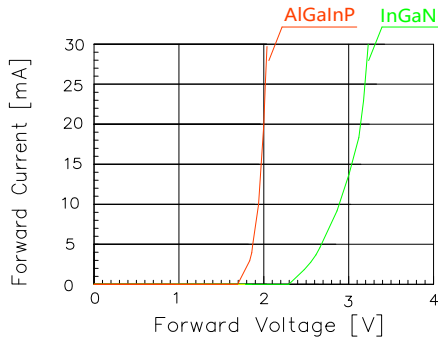


Fig 1. Forward Current vs. Forward Voltage

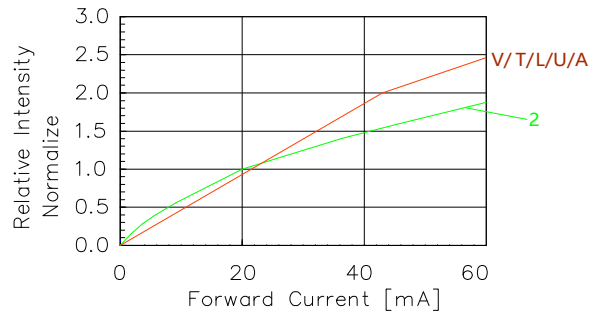


Fig 2. Relative Intensity vs. Forward Current

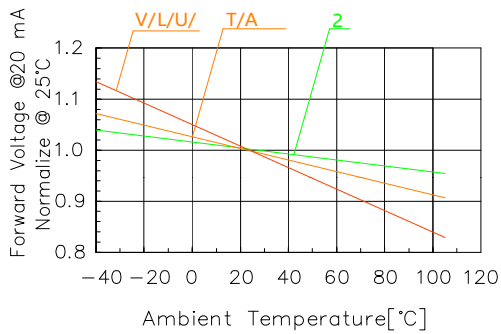


Fig 3. Forward Voltage vs. Temperature

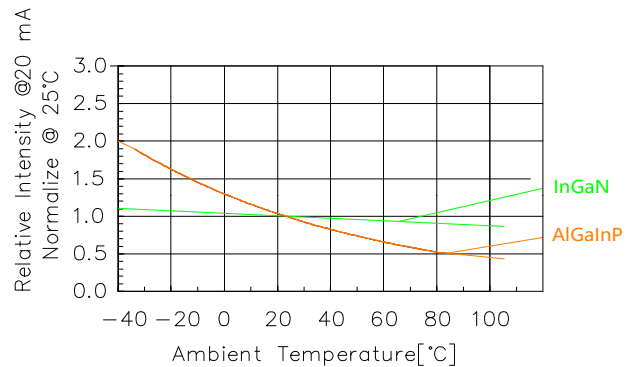


Fig 4. Relative Intensity vs. Temperature

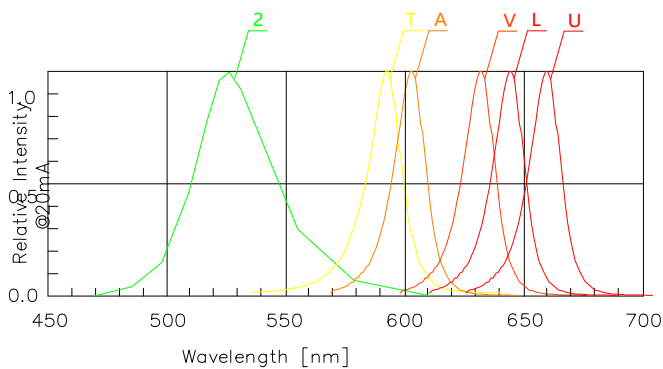


Fig 5. Relative Intensity vs. Wavelength

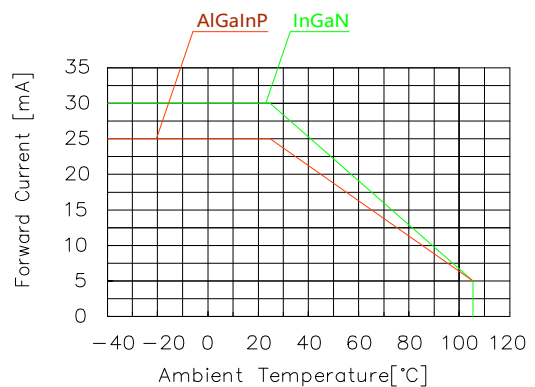
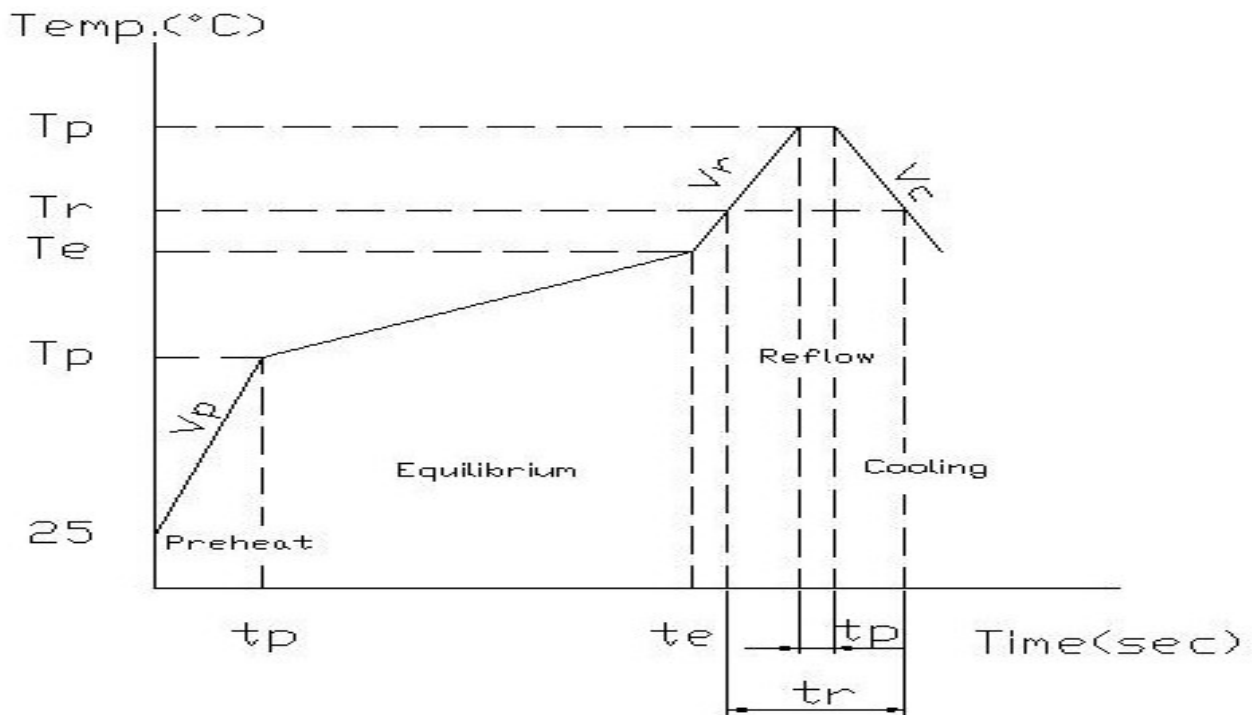


Fig 6. Forward current vs. Temperature

■ Soldering Characteristics

1. IR-Reflow Soldering Profile :

Area	Title	Symbol	Min	Max	Unit
(1)Preheat	Ramp-up rate	Vp	1	5	°C/sec
	temperature	Tp	150	—	°C
	time	tp	—	—	sec
(2)Equilibrium	Ramp-up rate	Ve	—	—	°C/sec
	temperature	Te	150	200	°C
	Time	te	60	120	sec
(3)Reflow	Ramp-up rate	Vr	1	5	°C/sec
	temperature	Tr	220	—	°C
	Time	tr	—	60	sec
	Peak temperature	Trp	—	260	°C
	Peak time	trp	—	10	sec
(4)Cooling	Ramp-down rate	Vc	3	6	°C/sec



## 2.Hand Soldering (Iron Condition)

Soldering Iron:30W Max

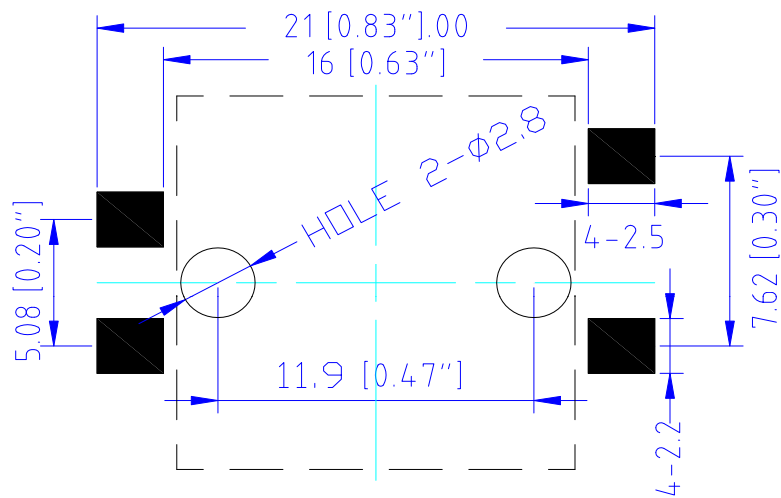
Temperature 350°C Max

Soldering Time:3 Seconds Max(One Time)

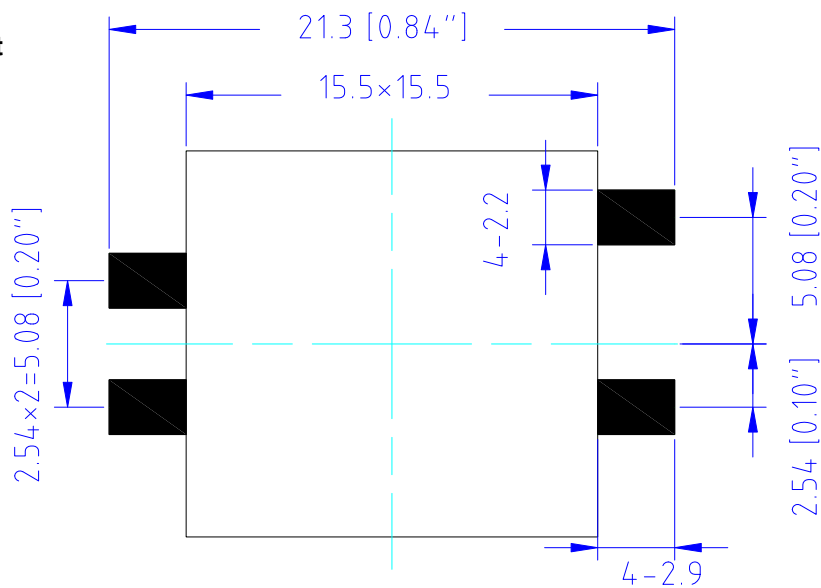
Distance:1.6mm min(From seating plane)

### ■ Soldering Pad Size

#### Top Mount

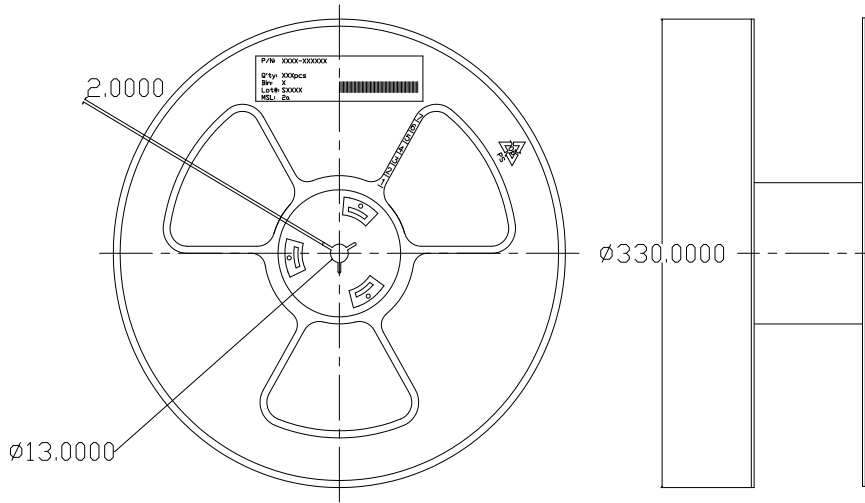


#### Reverse Mount

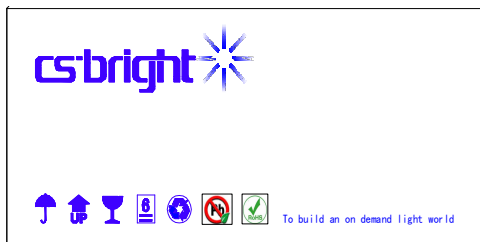
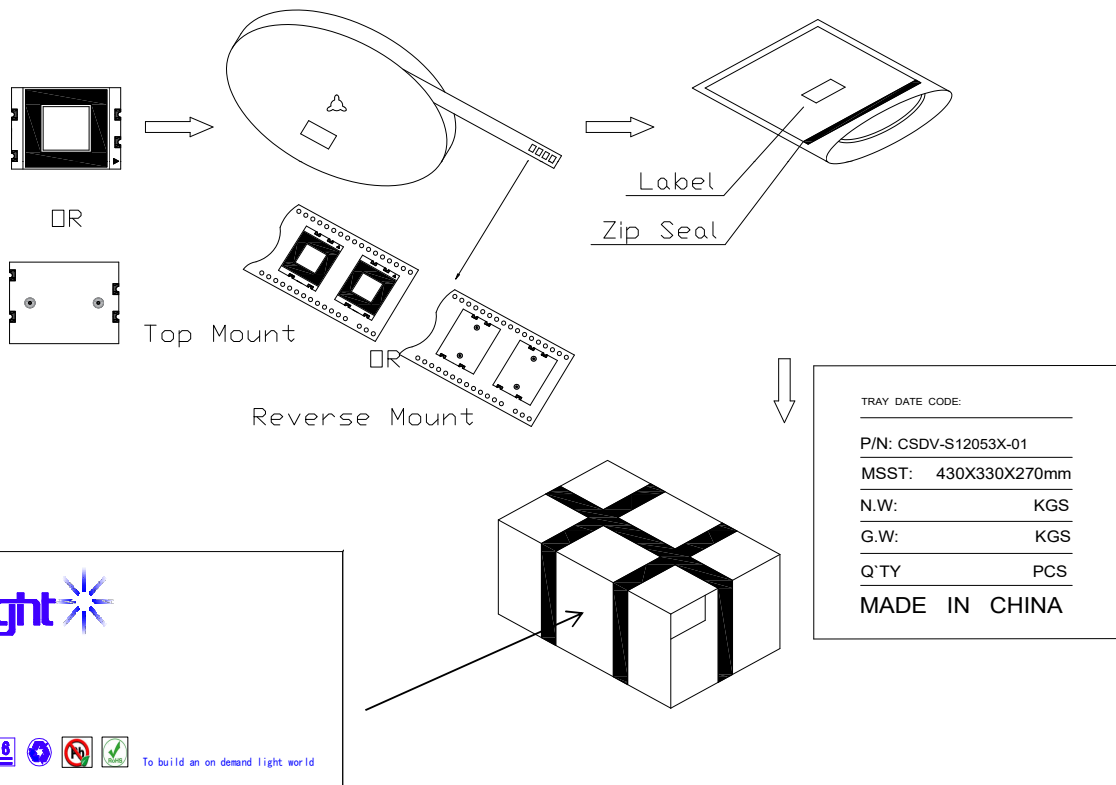


**Model No.: CSDV-S12053X-01**

**■ Reel Dimensions**



**■ Packing & Label Specifications**



Package Name	Size	Unit	Amount	Unit	Amount	Unit	Note
Reel	Φ 330	mm	1	Reel	750	Pcs	/
Bag	L450*W430	mm	1	Reel	750	Pcs	/
Outer Box	L430*W330*H270	mm	5	Bag	3750	Pcs	/



■ **Storage Method**

● Storage Conditions

Before opening the package:

The LEDs should be kept at 30°C or less and 90%RH or less. The LEDs should be used within a year.

When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

After opening the package:

The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be soldered within 168 hours (7days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

- If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.

Baking treatment: more than 24 hours at 65 ± 5°C