



**APEX OPTO  
CORP**

## **HIGH POWER LIGHT AOL-SX1XAX 1W STAR Series**



APEX are designed by particular package for High Power LED. 1W STAR white has more than 55 lumens @350mA and over 20 times brighter than standard LEDs. Unlike most fluorescent sources, APEX contains no mercury and has more energy efficient than other incandescent light source.

### **Features**

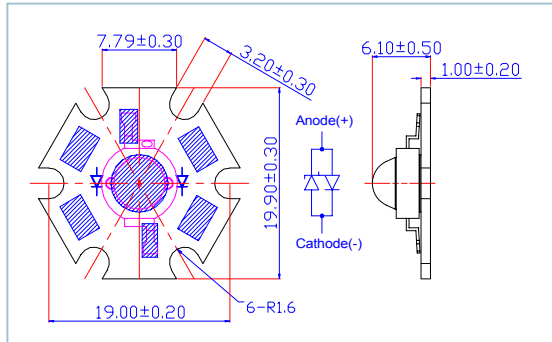
- Various colors
- More energy efficient than incandescent and most halogen lamps
- Low voltage operated
- Instant light
- Long operating life

### **Typical Applications**

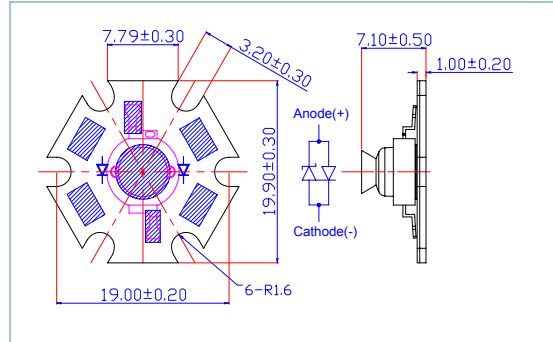
- Reading lights
- Portable flashlight
- Up-lighters and Down-lighters
- General lighting
- Contour lights
- Ceiling lights
- Garden lighting
- Decoration lights
- Architectural lighting
- Beacon lights

## Package Outlines

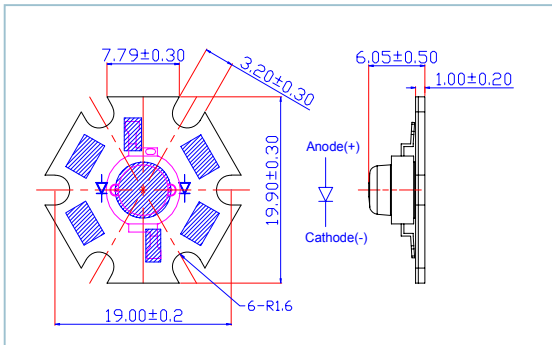
### Lambertian



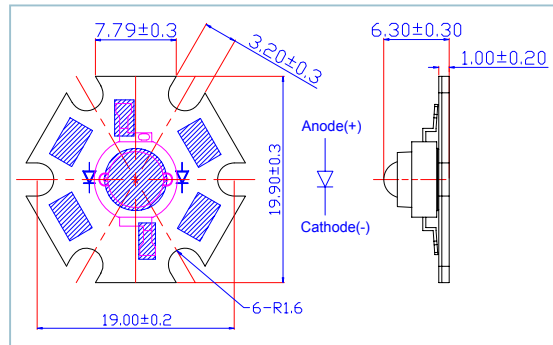
### Side Emitting



### Batwing



### Focusing



### Notes:

1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended that the temperature of lead be not higher than  $55^{\circ}\text{C}$ .

### Absolute Maximum Ratings

Parameter	Symbol	Rating	Units
DC Forward Current	$I_F$	350	mA
Peak pulse current;(tp ≤ 100μs, Duty cycle=0.25)	$I_{pulse}$	500	mA
Reverse Voltage	$V_R$	5	V
Reverse Current( $V_R=5V$ )	$I_R$	50	μA
LED junction Temperature ( at 350 mA)	$T_j$	125	°C
Operating Temperature	$T_{opr}$	-30 ~ +110	°C
Storage Temperature	$T_{stg}$	-40 ~ +120	°C
Manual Soldering Time at 260°C(Max.)	$T_{sol}$	5	seconds

### Luminous Flux Characteristics at $I_F=350mA(T_a=25°C, T_{opr}=100ms)$ :

Lens Item	Part Name	Color	Flux			Units
			Min.	Typ.	Max.	
Lambertian Side Emitting	AOL-SW1xAx	White	30.3	55.0	--	lm
	AOL-SX1xAx	Warm White	17.9	35.0	--	lm
	AOL-SR1xAx	Red	23.3	40.0	--	lm
	AOL-SO1xAx	Red Orange	23.3	45.0	--	lm
	AOL-SA1xAx	Amber	23.3	40.0	--	lm
	AOL-ST1xAx	True Green	30.3	55.0	--	lm
	AOL-SB1xAx	Blue	8.2	20.0	--	lm
Lens Item	Part Name	Color	Flux			Units
			Min.	Typ.	Max.	
Batwing Focusing	AOL-SW1xAx	White	30.3	50.0	--	lm
	AOL-SX1xAx	Warm White	17.9	32.0	--	lm
	AOL-SR1xAx	Red	23.3	38.0	--	lm
	AOL-SO1xAx	Red Orange	23.3	42.0	--	lm
	AOL-SA1xAx	Amber	23.3	38.0	--	lm
	AOL-ST1xAx	True Green	30.3	50.0	--	lm
	AOL-SB1xAx	Blue	8.2	17.0	--	lm

**Forward Voltage Characteristics at  $I_F=350\text{mA}$  ( $T_a=25^\circ\text{C}$ ,  $T_{opr}=100\text{ms}$ ):**

Lens Item	Part Name	Color	$V_F$			Units
			Min.	Typ.	Max.	
Lambertian Side Emitting Batwing Focusing	AOL-SW1xAx	White	3.1	--	4.3	V
	AOL-SX1xAx	Warm White	3.1	--	4.3	V
	AOL-SR1xAx	Red	2.0	--	3.0	V
	AOL-SO1xAx	Red Orange	2.0	--	3.0	V
	AOL-SA1xAx	Amber	2.0	--	3.0	V
	AOL-ST1xAx	True Green	2.8	--	4.0	V
	AOL-SB1xAx	Blue	3.1	--	4.3	V

**Wavelength or Color Temperature Characteristics at  $I_F=350\text{mA}$  ( $T_a=25^\circ\text{C}$ ,  $T_{opr}=100\text{ms}$ ):**

Lens Item	Part Name	Color	$\lambda_d/\text{CCT}$			Units
			Min.	Typ.	Max.	
Lambertian Side Emitting Batwing Focusing	AOL-SW1xAx	White	5000	--	8000	K
	AOL-SX1xAx	Warm White	2800	--	3800	K
	AOL-SR1xAx	Red	620	--	630	nm
	AOL-SO1xAx	Red Orange	610	--	620	nm
	AOL-SA1xAx	Amber	585	--	595	nm
	AOL-ST1xAx	True Green	515	--	535	nm
	AOL-SB1xAx	Blue	460	--	475	nm

**Temperature Coefficient of Forward Voltage & Thermal Resistance Junction to Board Characteristics at  $I_F=350\text{mA}$  ( $T_a=25^\circ\text{C}$ ):**

Lens Item	Part Name	Color	$\Delta V_F/\Delta T$		$R\theta_{J-B}$	
			Typ.	Units	Typ.	Units
Lambertian Side Emitting Batwing Focusing	AOL-SW1xAx	White	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-SX1xAx	Warm White	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-SR1xAx	Red	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-SO1xAx	Red Orange	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-SA1xAx	Amber	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-ST1xAx	True Green	-2	mV/C	20	$^\circ\text{C}/\text{W}$
	AOL-SB1xAx	Blue	-2	mV/C	20	$^\circ\text{C}/\text{W}$

**Emission Angle Characteristics at  $I_F=350\text{mA}$  ( $T_a=25^\circ\text{C}$ ):**

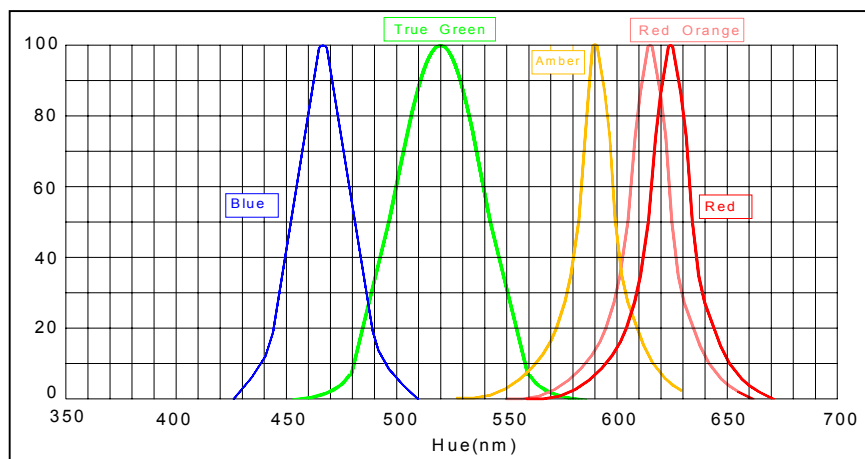
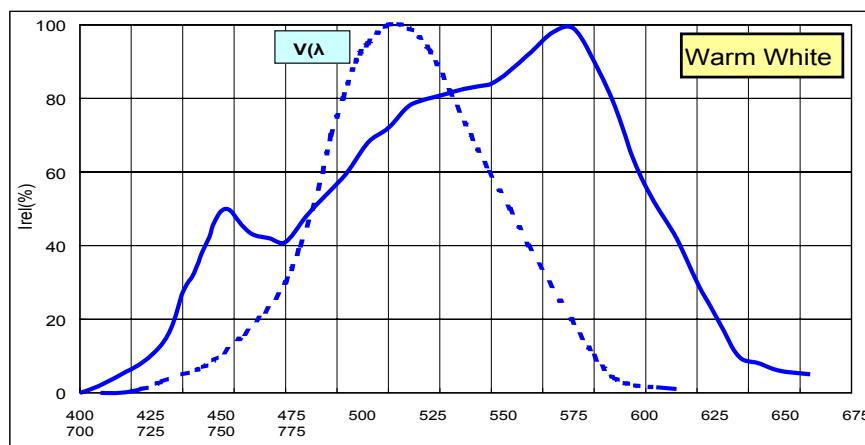
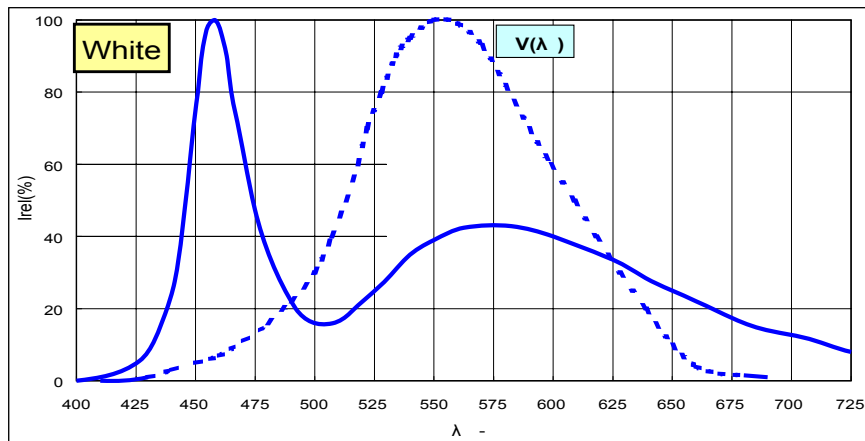
Part Name	Color	$2\theta^{1/2}(\text{Typ.})$			Units
		Lambertian	Batwing	Focusing	
AOL-SW1xAx	White	130	110	80	Degrees
AOL-SX1xAx	Warm White	130	110	80	Degrees
AOL-SR1xAx	Red	120	100	35	Degrees
AOL-SO1xAx	Red Orange	120	100	35	Degrees
AOL-SA1xAx	Amber	120	100	35	Degrees
AOL-ST1xAx	True Green	150	110	40	Degrees
AOL-SB1xAx	Blue	150	110	40	Degrees

Part Name	Color	$\theta_{\text{PEAK}}(\text{Typ.})$		Units
		Batwing	Side emitting	
AOL-SW1xAx	White	$\pm 40$	$\pm 80$	Degrees
AOL-SX1xAx	Warm White	$\pm 40$	$\pm 80$	Degrees
AOL-SR1xAx	Red	$\pm 35$	$\pm 80$	Degrees
AOL-SO1xAx	Red Orange	$\pm 35$	$\pm 80$	Degrees
AOL-SA1xAx	Amber	$\pm 35$	$\pm 80$	Degrees
AOL-ST1xAx	True Green	$\pm 40$	$\pm 80$	Degrees
AOL-SB1xAx	Blue	$\pm 40$	$\pm 80$	Degrees

**Note**

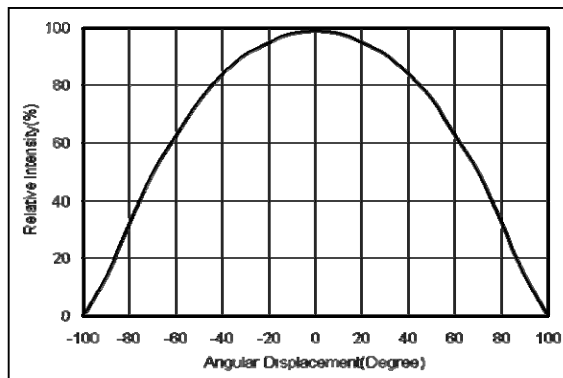
1. Flux is measured with an accuracy of  $\pm 10\%$ .
2. CCT selection acc. to CCT groups and an accuracy of  $\pm 200\text{K}$
3. Forward Voltage is measured with an accuracy of  $\pm 0.1\text{V}$
4. Wavelength is measured with an accuracy of  $\pm 0.5\text{nm}$
5. All white, warm white, True green and blue emitters are built with InGaN
6. All red, red-orange and amber emitters are built with AlGaInP

## Electrical & Optical Curves-Spectrum

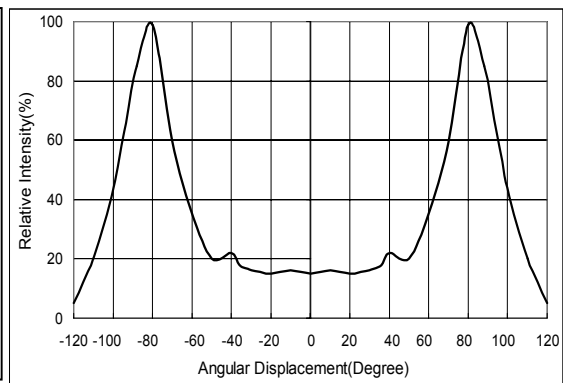


## Typical Radiation Pattern for

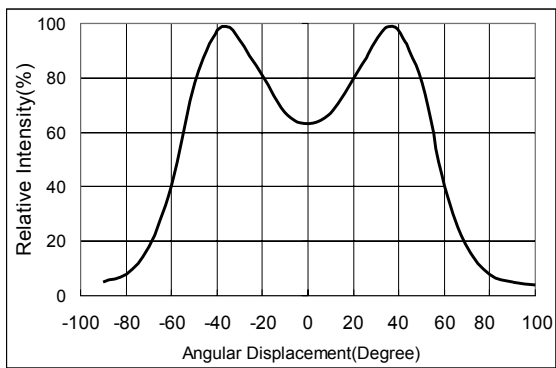
### Lambertian



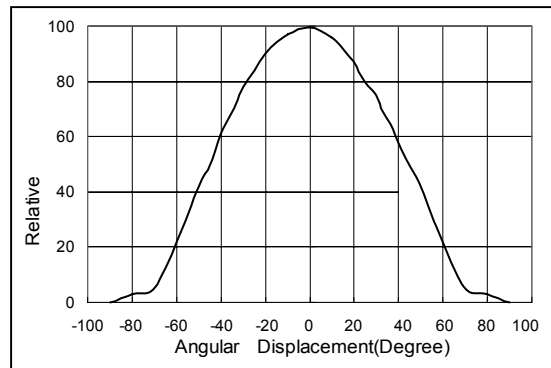
### Side Emitting



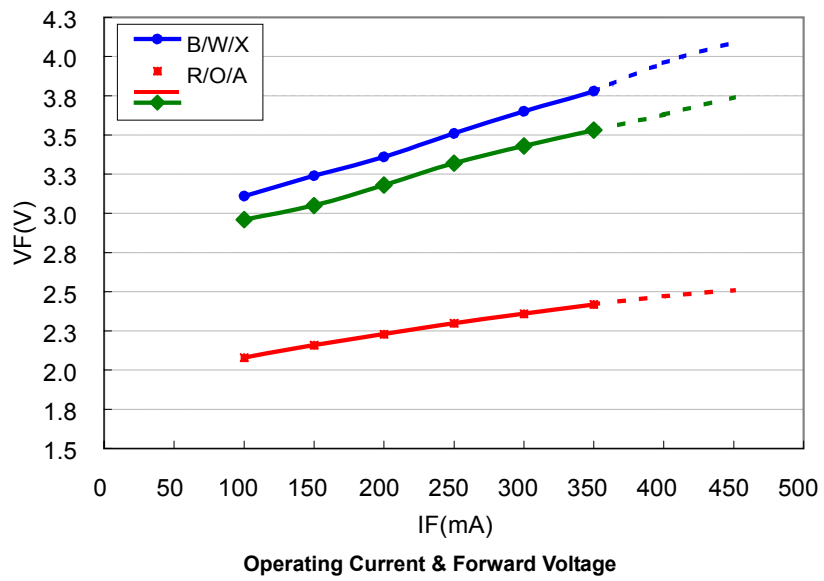
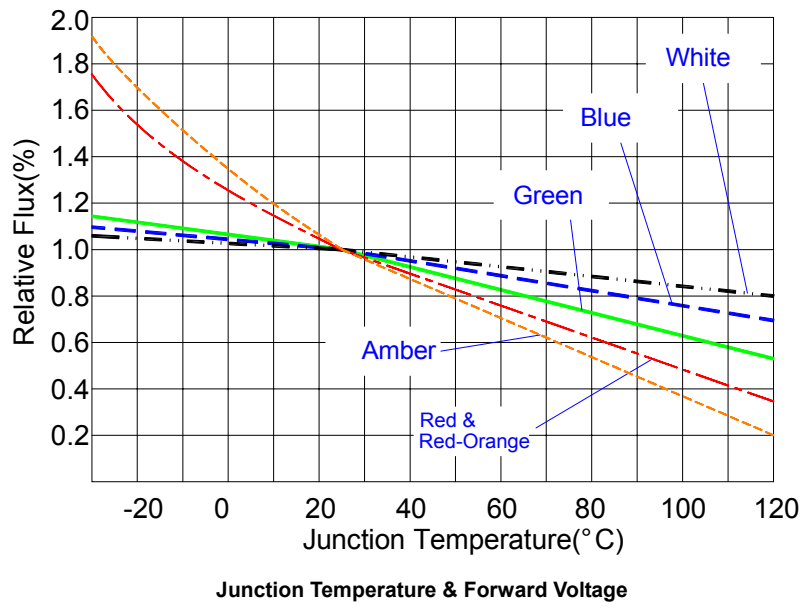
### Batwing



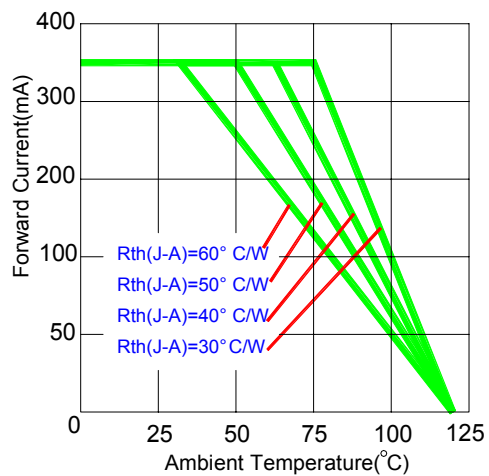
### Focusing



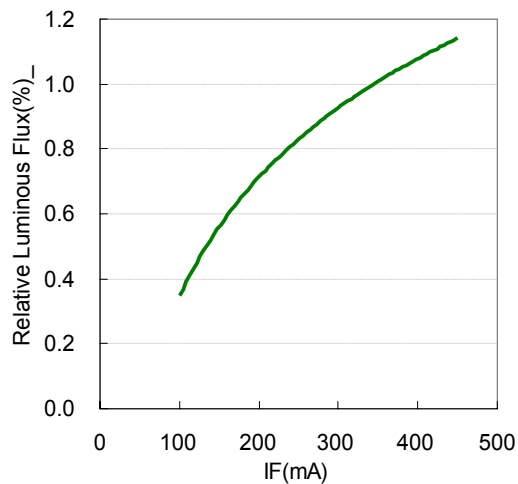
**Typical Optical and Electrical Curves**



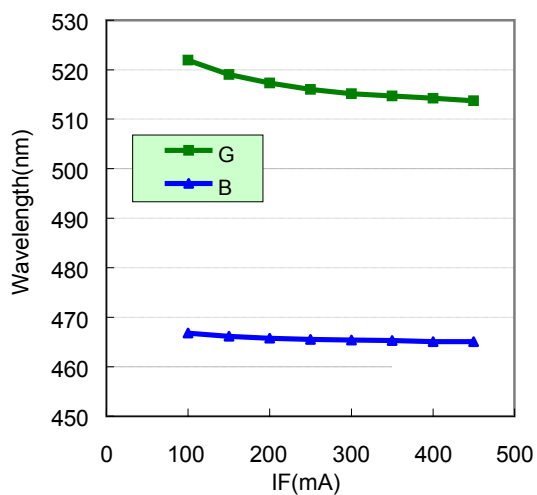
## Typical Optical and Electrical Curves



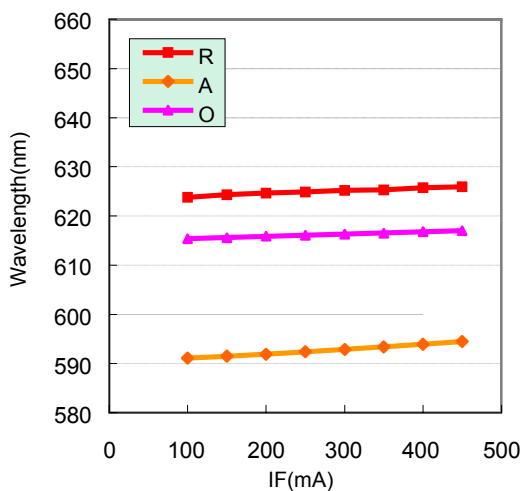
Operating Current & Ambient Temperature



Forward Current & Luminous Flux



Forward Current & Wavelength



## Package Specifications

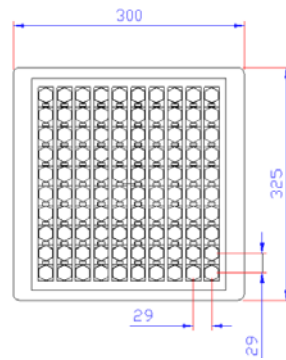
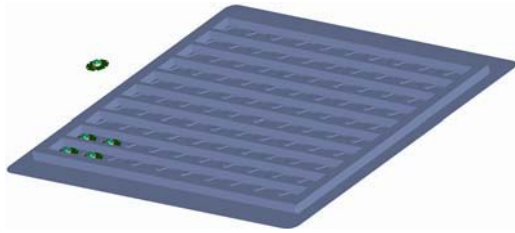


Figure 1: Tray

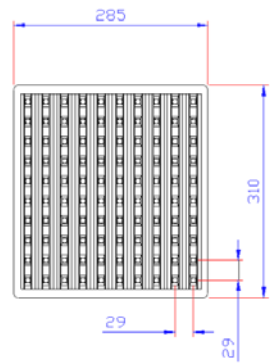


Figure 2: Cover

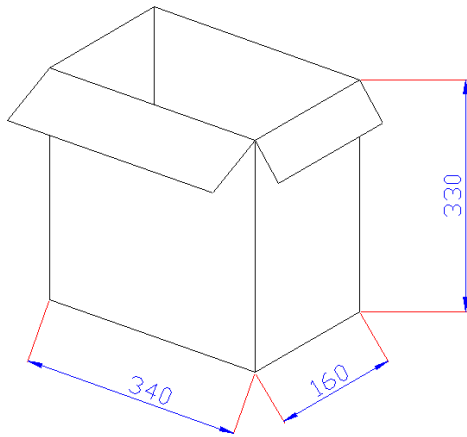


Figure 3: Inner box

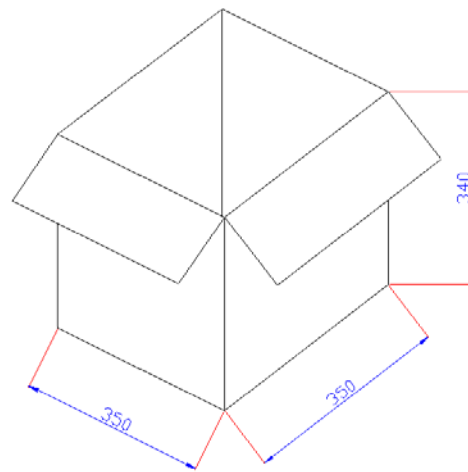


Figure 4: Outer box

### Note

1. All dimensions are in mm.
2. There are 100pcs stars in a tray.(Tray+Cover)
3. There are 10 trays in an inner box.
4. There are 2 inner boxes in an outer box.