



**Features**

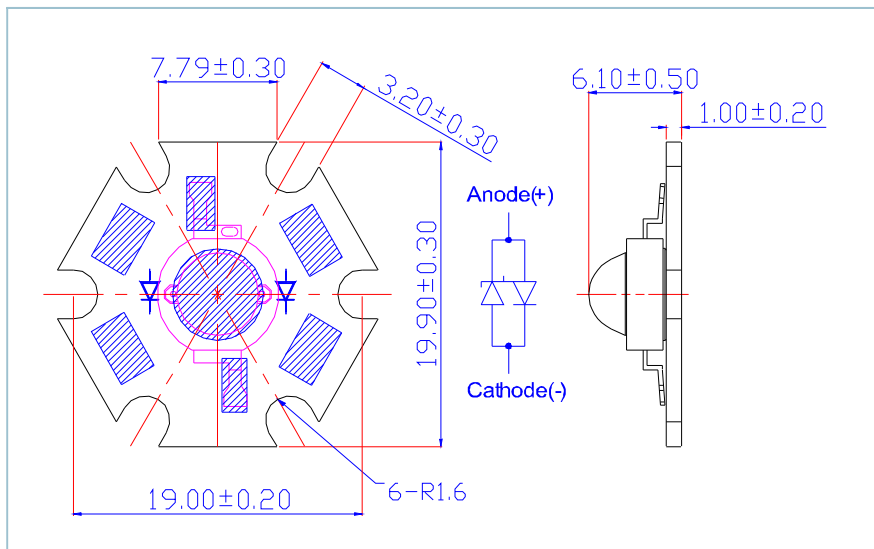
- Various colors
- High energy efficiency
- Low voltage
- Suitable for all SMT assembly methods
- Long operating life

**Typical Applications**

- Effect and accent lighting: display cases, front panels
- Architectural lighting: flood lights, stairway lighting, garden lighting
- Room lighting: contour lighting, chandeliers, pendants, coves
- Specialty lighting: security lighting, portable flashlight, reading lamps

**Package Outlines**

**Lambertian**



**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°C.

**Absolute Maximum Ratings**

Parameter	Symbol	Rating	Units
DC Forward Current	$I_F$	350	mA
Peak pulse current;(tp ≤ 100 s, 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	VAOL-SW1xAx-SA	White	70.3	90.0	--	lm
	VAOL-SX1xAx-SA	Warm White	63.0	80.0	--	lm
	VAOL-SR1xAx-SA	Red	30.0	50.0	--	lm
	VAOL-SO1xAx-SA	Red Orange	33.3	55.0	--	lm
	VAOL-SA1xAx-SA	Amber	30.0	50.0	--	lm
	VAOL-ST1xAx-SA	True Green	70.3	90.0	--	lm
	VAOL-SB1xAx-SA	Blue	20.3	35.0	--	lm

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

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

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

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

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

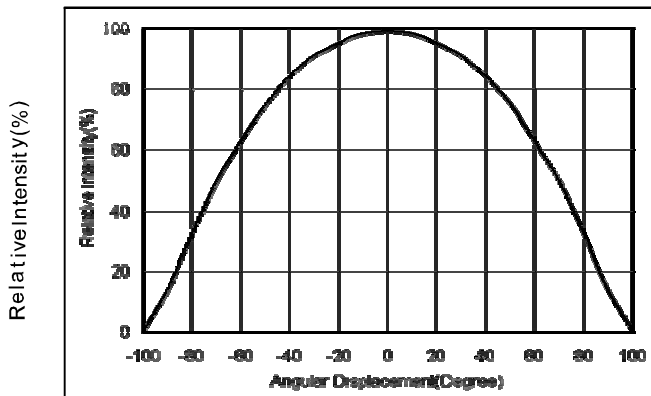
Lens Item	Part Name	Color	$\Delta V_F/\Delta T$		$R\theta_{J-B}$	
			Typ.	Units	Typ.	Units
	VAOL-SW1xAx-SA	White	-2	mV/°C	20	°C/W
	VAOL-SX1xAx-SA	Warm White	-2	mV/°C	20	°C/W
	VAOL-SR1xAx-SA	Red	-2	mV/°C	20	°C/W
	VAOL-SO1xAx-SA	Red Orange	-2	mV/°C	20	°C/W
	VAOL-SA1xAx-SA	Amber	-2	mV/°C	20	°C/W
	VAOL-ST1xAx-SA	True Green	-2	mV/°C	20	°C/W
	VAOL-SB1xAx-SA	Blue	-2	mV/°C	20	°C/W

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

Part Name	Color	$2\theta$ (Typ.)	Units
VAOL-SW1xAx-SA	White	130	Degrees
VAOL-SX1xAx-SA	Warm White	130	Degrees
VAOL-SR1xAx-SA	Red	120	Degrees
VAOL-SO1xAx-SA	Red Orange	120	Degrees
VAOL-SA1xAx-SA	Amber	120	Degrees
VAOL-ST1xAx-SA	True Green	150	Degrees
VAOL-SB1xAx-SA	Blue	150	Degrees

**Typical Radiation Pattern for**

**Lambertian**



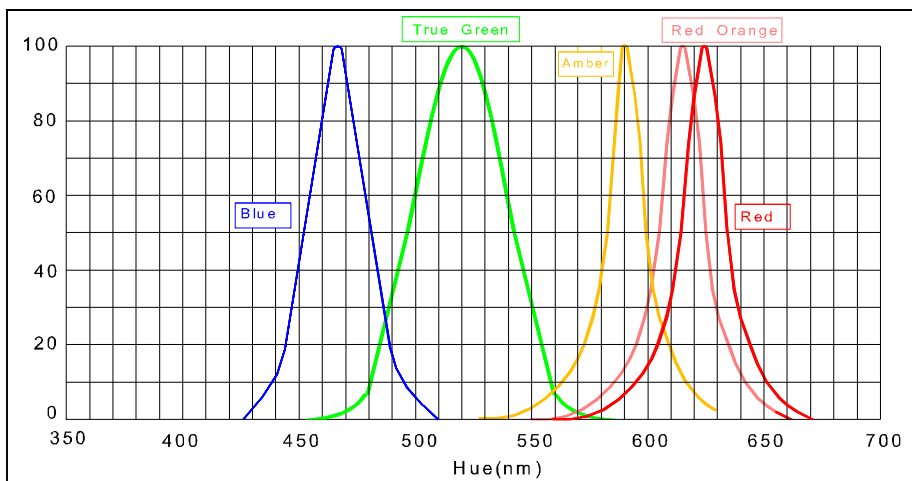
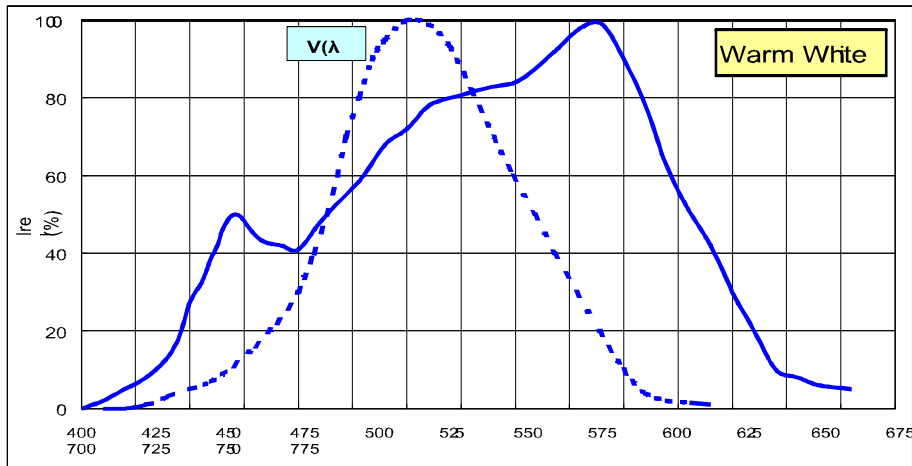
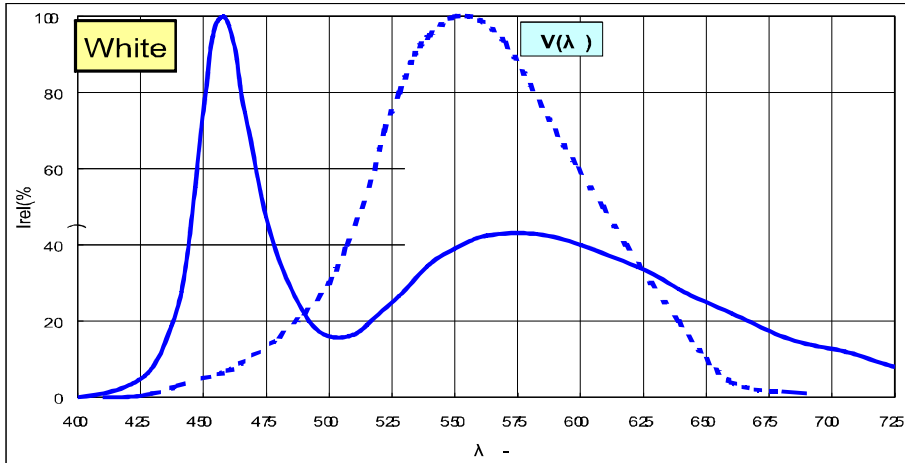
Specific binning requirements- please contact our home office

**Note**

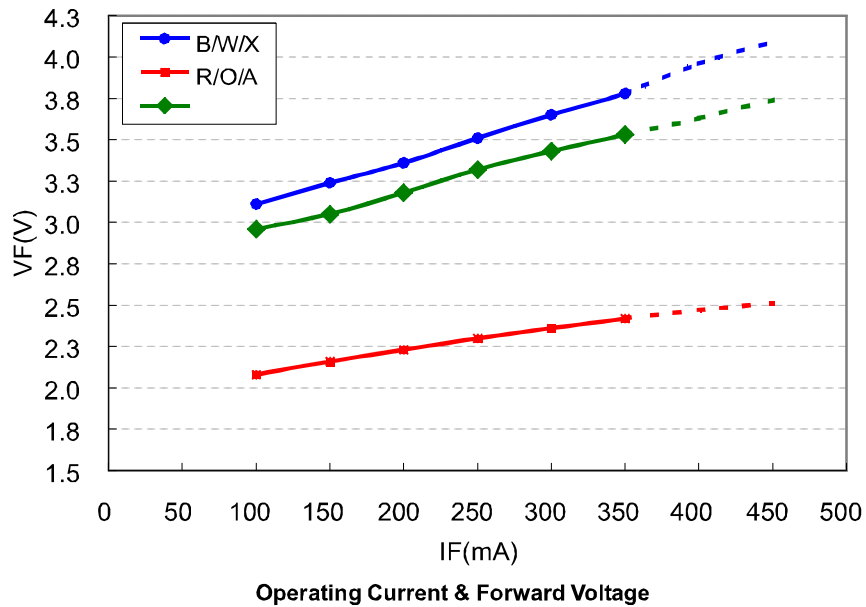
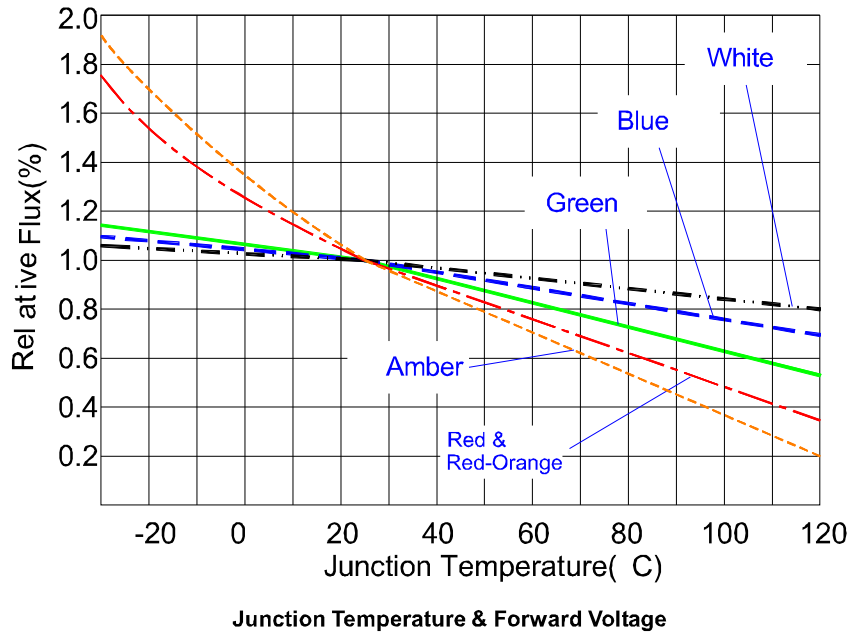
1. Flux is measured with an accuracy of  $\pm 10\%$ .
2. CCT selection acc. to CCT groups and an accuracy of  $\pm 200K$
3. Forward Voltage is measured with an accuracy of  $\pm 0.1V$
4. Wavelength is measured with an accuracy of  $\pm 0.5nm$
5. All white 、 warm white 、 True green and blue emitters are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



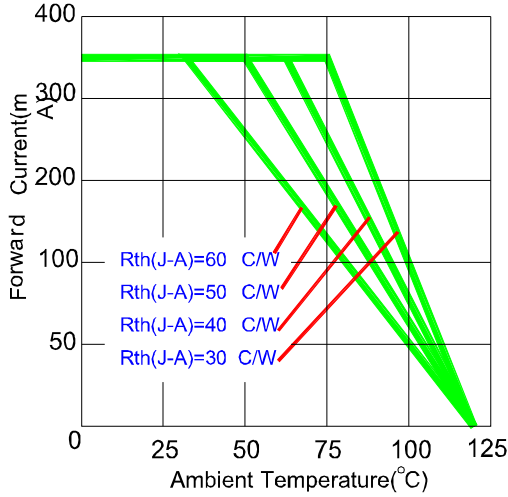
**Electrical & Optical Curves-Spectrum**



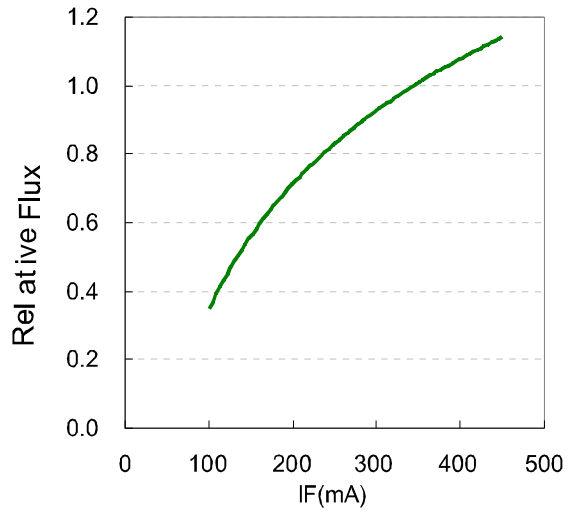
**Typical Optical and Electrical Curves**



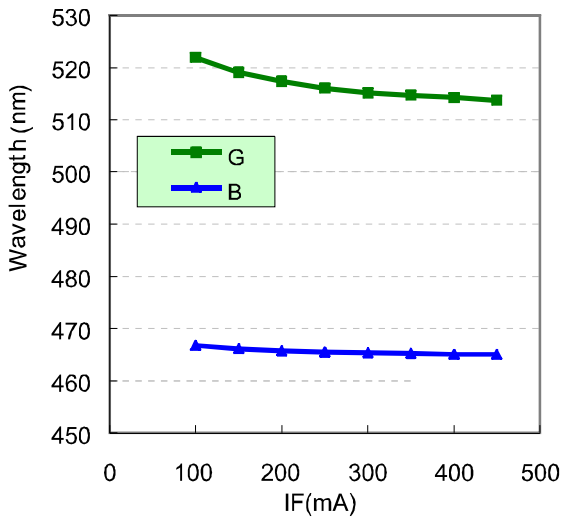
**Typical Optical and Electrical Curves**



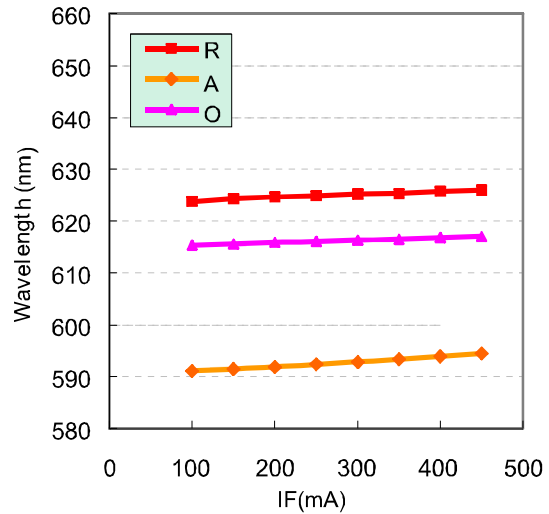
**Operating Current & Ambient Temperature**



**Forward Current & Luminous Flux**



**Forward Current & Wavelength**



**Package Specifications**

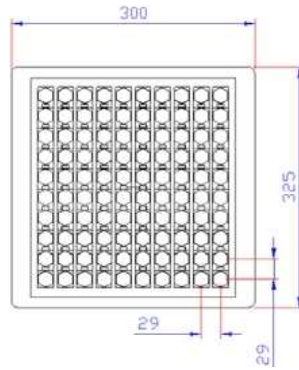
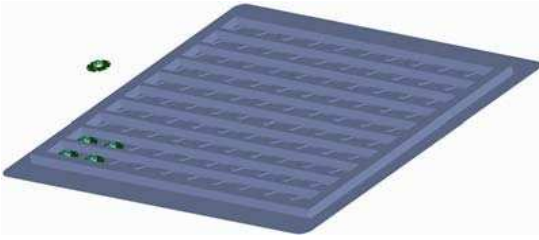


Figure 1: Tray

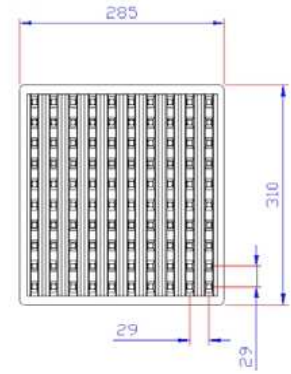


Figure 2: Cover

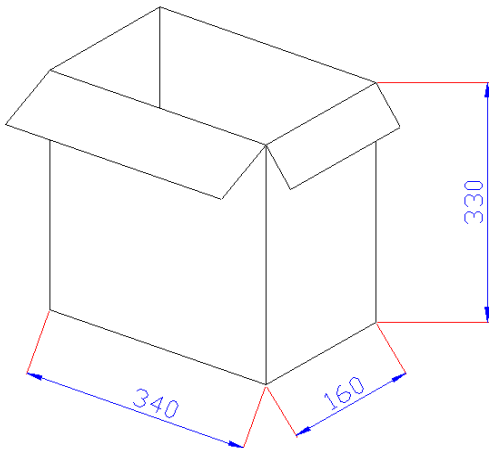


Figure 3: Inner box

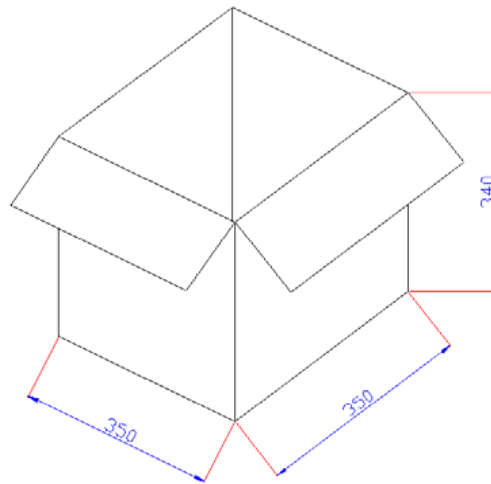


Figure 4: Outer box

**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.