

# DATA SHEET

PART NO. : ESS-RGB-CA

CUS NO. : 90725

REV : A / 0

Producer: \_\_\_\_\_ Auditor: \_\_\_\_\_ Approver: \_\_\_\_\_

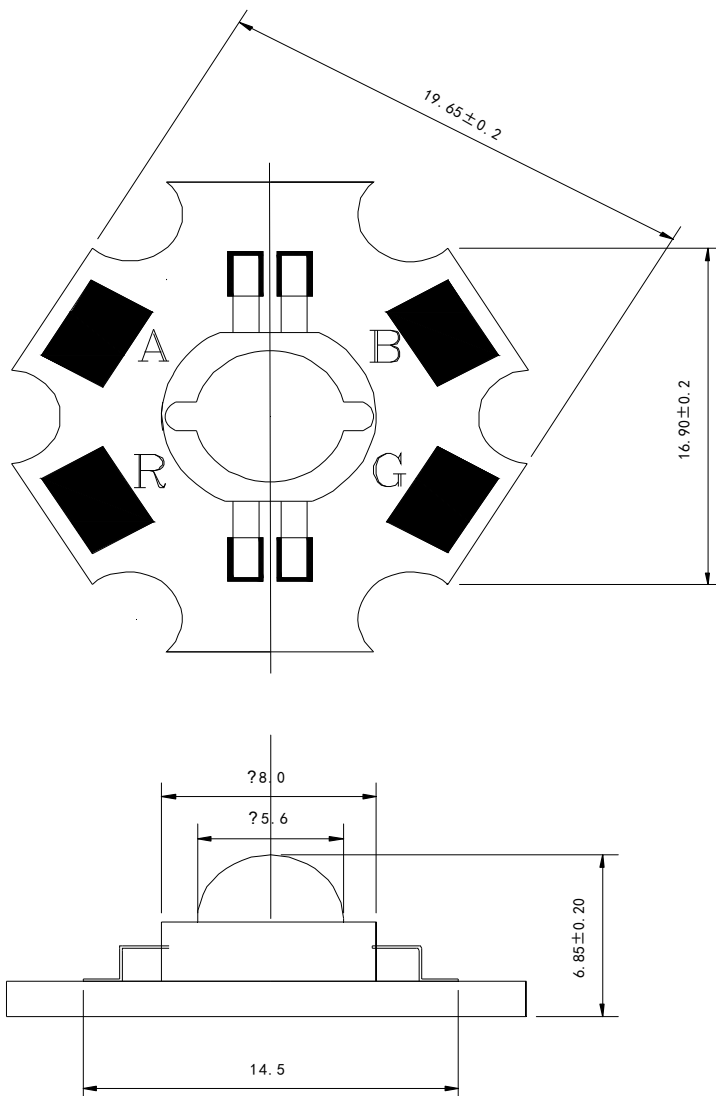
CUSTOMER'S APPROVAL : \_\_\_\_\_ DCC : \_\_\_\_\_

# High-Power LED

## ESS-RGB-CA

REV:A / 0

### ■ Package Dimensions



#### Notes:

1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.25\text{mm}$  (.020") unless otherwise noted.

### ■ Features :

- More energy efficient than incandescent and most halogen lamps
- low voltage operation
- Instant light
- Long operating life
- Anti UV

	High-Power LED	
	ESS-RGB-CA	REV:A / 0

Part NO.	LED Chip		LED Emitted Color	Lens Color	Description
	Material	Emitted Color			
ESS-RGB-CA	AlInGaP/GaP	Red	Red	Clear	Water Clear
	InGaN/GaN	Green	Green		
	InGaN/GaN	Blue	Blue		

## ■ Electrical/Optical Characteristics--White (At TA=25°C)

Parameter	Symbol	Conditions	Color	Min.	Avg.	Max.	Units
Luminous Flux	$\Phi$	$I_F=350\text{mA}$	R	40	45	50	lm
			G	75	80	85	
			B	12	15	18	
Dominant Wavelength	WD	$I_F=350\text{mA}$	R	620	--	625	nm
			G	520	--	525	
			B	460	--	465	
Forward Voltage	$V_F$	$I_F=350\text{mA}$	R	2.0	2.2	2.4	V
			G	3.0	3.3	3.6	
			B	3.0	3.3	3.6	
Reverse Current	$I_R$	$V_R=5\text{V}$	R/G/B	--	--	1	$\mu\text{A}$

## ■ Absolute Maximum Rating(At TA=25°C)

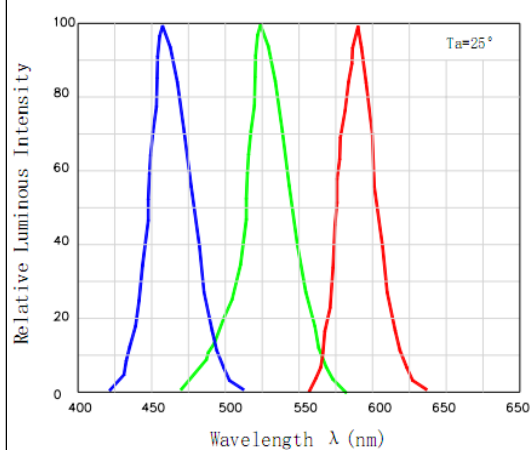
Parameter	Symbol	Ratings	Units
Power Dissipation	$P_D$	3	W
LED Junction Temperature	$T_J$	130	°C
Reverse Voltage	$V_R$	5	V
Operating Temperature Range	$T_{OPR}$	-30°C To +60°C	
Storage Temperature Range	$T_{STG}$	-40°C To +100°C	
Manual Soldering Temperature	$T_{SOL}$	350°C± 20°C For 3~5 Seconds	
ESD Sensitivity	ESD	5000V HBM	

# High-Power LED

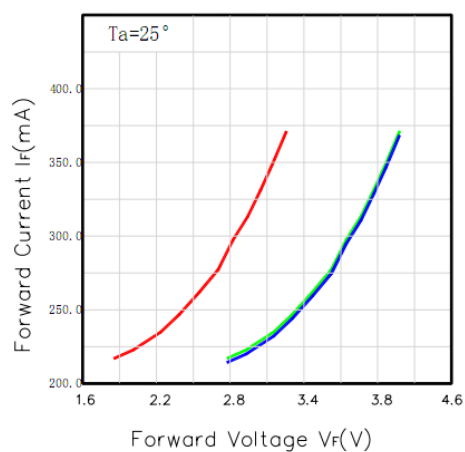
ESS-RGB-CA

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## Spectrum Distribution

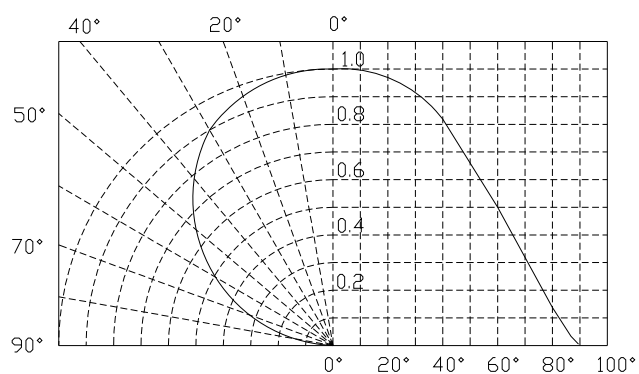


## $V_F$ - $I_F$ Characteristics



## Radiation Diagram

Diagram characteristics of radiation



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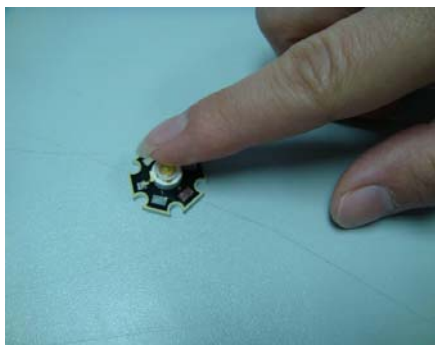
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## ■ Packing Specification

(1) Please do not press the lens



**Good**

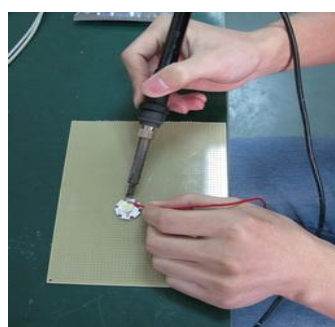


**Not allowed**

(2) Please wear anti-static wrist strap and gloves to prevent ESD damage when handing and soldering.



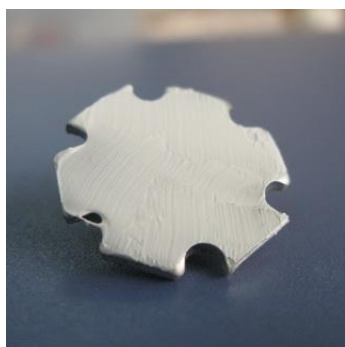
**Good**



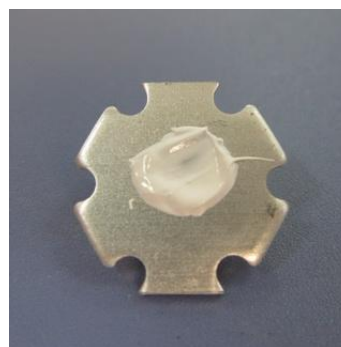
**Not allowed**

## Solder Paste Thickness

The choice of solder and the application method will dictate the specific amount of solder.



**Good**



**Not allowed**

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## ■ Reliability test standards

Test Item	REF. Standard	Test condition	Duration	Sample count	Accept
Temperature Cycle	JESD22-A104-A	-40℃~25℃~100℃~25℃ 30min,5min,30min,5min	100 cycles	22	0/22
Thermal shock	JESD22-A106	-40℃~100℃ 30min, 30min	100 cycles	22	0/22
High Temperature Storage	JEITA ED-4701 200 201	TA=100℃±5℃	1000 Hrs	22	0/22
Low Temperature Storage	JEITA ED-4701 200 202	TA=-40℃±5℃	1000 Hrs	22	0/22
Humidity Heat Storage	JIS C 7021 (1977)B-11	Ta=60℃ RH=85%	1000Hrs	22	0/22
Life test	JESD22-A108-A	Ta=25℃ If=350mA	1000Hrs	22	0/22
High humidity Heat life test	JESD22-A101	Ta=60℃ RH=85% IF=350mA	1000Hrs	22	0/22
Resistance to soldering Heat	JESD22-A113	IR soldering 245℃/10sec	1 time	22	0/22

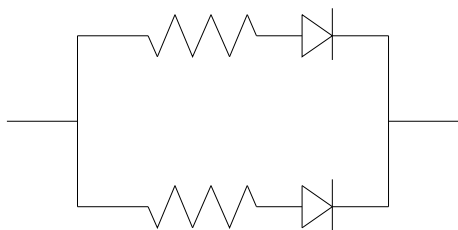
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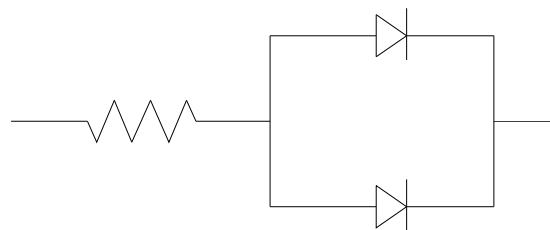
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### ■ High-Power Operating Note

1. High Power 350 series should be operated at 350 mA for ideal performance, but not more than 400mA.
2. High Power 350 series LED must be used in conjunction with heat-sinking devices. Soldering on Al PCB (Recommended PCB:  $\phi$  19.9mm 1.6t / two layers / 2.0 oz) with mid-connection point is another way to help heat dissipation. Thermal resistance for aluminum board must be less than 0.65  $^{\circ}\text{C}/\text{W}$ .
3. High Power products are sensitive to static, especially in Blue, Cyan, Green , White, Warm White. Operators must wear static wristband (wireless static wristband is prohibited) and be well grounded while working in the environment with an ionizing air blower. Anti-static requirement should be under ESD 8000V.
4. High Power products are fully tested and shipped in anti-static packaging.
5. A non-conductive heat-dissipating paste should be applied between High Power and heat-sinking device.
6. It is recommended to use a resistor to limit current flow. In a parallel connection, each LED string should be protected individually.



Yes



No