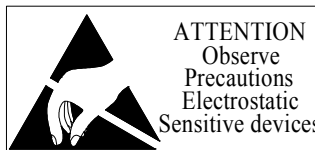
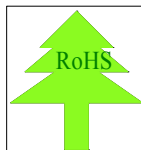


3W RGB LUXEON LED

Part No.: FP03RGB-SC01

Main descriptions:

- **Lambertian type: Φ 8.0×5.4mm**
- **Viewing angle:120°**
- **Power: 3W**
- **Emitting color: full color (red, green, blue)**
- **Mainly used in lighting area**



FCB Electronics

Address: Ann Arbor, Michigan USA

E-mail: fcb-electronics@hotmail.com

Part No.: FP03RGB-SC01

➤ **Features:**

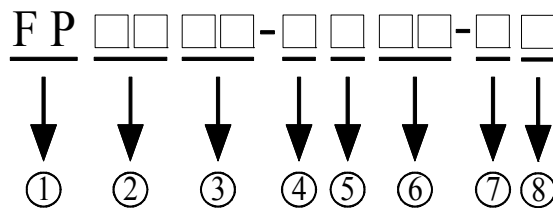
- ✧ Long operating life (up to 50,000 hours, depend on operation condition)
- ✧ More energy efficient than incandescent and most halogen lamps
- ✧ Low forward voltage operated
- ✧ Instant light (less than 100ns)
- ✧ No UV
- ✧ High ESD protection >4000V
- ✧ IR reflow soldering
- ✧ Lead (pb) free and RoHS compliance

➤ **Typical Applications**

- ✧ Reading lights
- ✧ Portable flashlight
- ✧ Architecture lighting and room lighting
- ✧ Illuminated advertising
- ✧ Emergency light
- ✧ Decorative and entertainment lighting
- ✧ Uplighters and Downlighters
- ✧ Bollards / Security / Garden lighting
- ✧ Indoor and Outdoor commercial lighting
- ✧ LCD backlights / Light guides/Automotive
- ✧ General lighting (Street lamp / Tunnel light / Floodlight, ect.)

➤ **Full Code of Power LED Series**

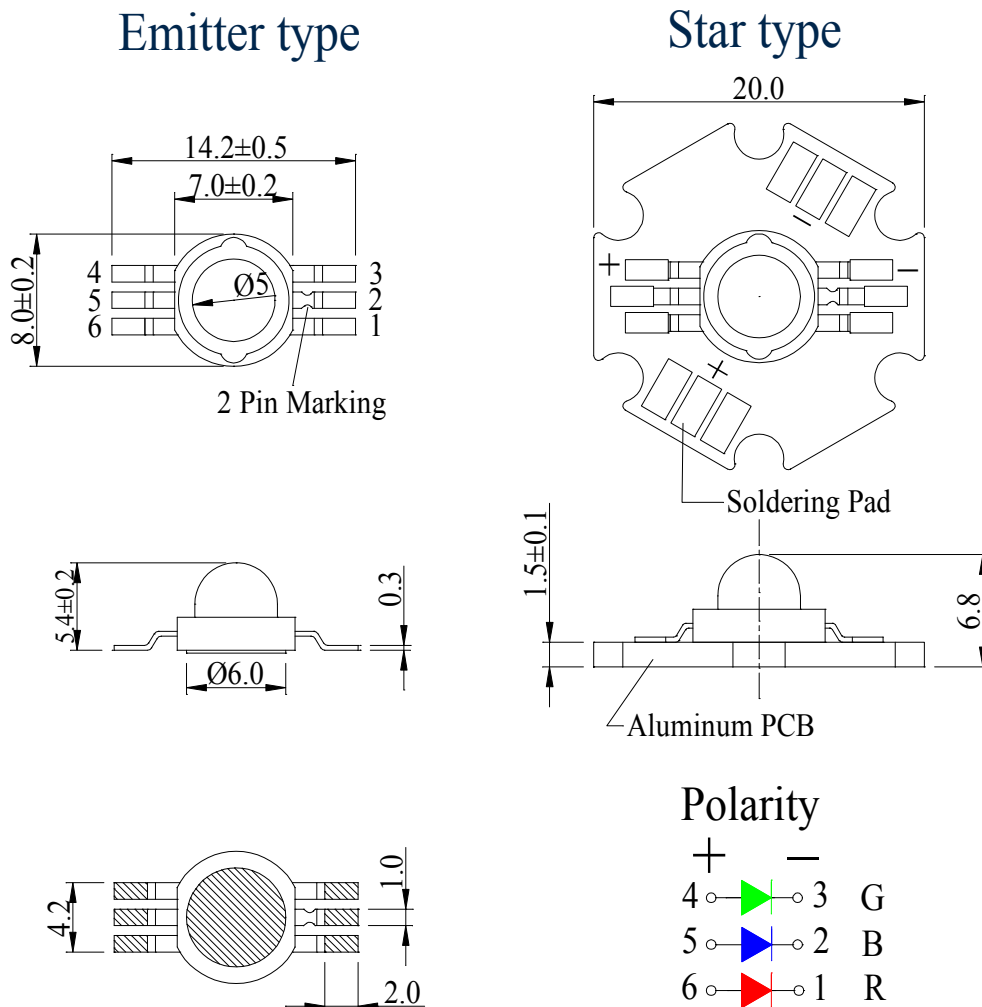
Full code form:



- Part number:
- 1: Company code (Power LED)**
 - 2: LED power (A1:0.5W, 01:1W, 03:3W, 05:5W, 10:10W)**
 - 3: Color**
 - 4: Type of bracket or basic board**
 - 5: Type of lens**
 - 6: Code for BOM sheet**
 - 7: Wavelength or color temperature**
 - 8: Grade of luminous intensity or flux**

Part No.: FP03RGB-SC01

➤ **Outline dimension:**



Part No.	Dice material	Encapsulation material	Lead frame	Lens color
FP03RGB-SC01	InGaN (blue and green color) AlGaInP (red color)	Silicone resin	Ag plating copper alloy	Water clear

Note:

1. All dimensions are in millimeter.
2. Tolerance is ± 0.1 mm unless otherwise noted.
3. Specifications are subject to change without notice.

Part No.: FP03RGB-SC01

➤ Absolute maximum ratings(Ta = 25°C)

Item	Symbol	Test condition	Absolute maximum ratings		Unit
			Min.	Max.	
Reverse Voltage	V _R	I _R = 10μA	5	—	V
Forward Current	I _F		—	350	mA
Power Dissipation	P _D	For blue/green color	—	1.4	W
		For red color	—	0.95	
Pulse Forward Current	I _{FP}	Duty≤1/10, 0.1ms Pulse Width	—	500	mA
Operating Temperature Range	T _{opr}	—	-30	+85	°C
Storage Temperature Range	T _{stg}	—	-40	+100	°C
Lead Soldering Temperature	T _{slid}	—	265°C for 5 Seconds		

➤ Electrical and optical characteristics (Ta = 25°C)

Item	Symbol	Test Condition	Value			Unit	
			Min.	Type	Max.		
Forward Voltage		V _F	I _F = 350mA	2.2	2.4	2.7	V
				3.2	3.4	3.8	
				3.2	3.4	3.8	
Reverse Current		I _R	V _R = 7V	—	—	10	μA
				—	—	50	
				—	—	50	
Dominate Wavelength		λ _D	I _F = 350mA	620	625	630	nm
				515	520	525	
				465	470	475	
Flux		—	I _F = 350mA	30	35	—	Lm
				40	45	—	
				8	12	—	
Viewing Angle	2θ _{1/2}	—		110	120	130	Deg.

Note:

1. θ_{1/2} is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
2. The V_F, Flux, and λ_D of the LED's are sorted in different BINs. V_F:0.2V/BIN, I_v:5Lm/BIN, λ_D:red/blue:5nm/BIN, green:3nm/BIN
3. Measurement allowance of flux is ±10%, V_F is ±0.05V, λ_D is ±1nm
4. The value of V_F, Flux and λ_D will be written in the package lable.

Part No.: FP03RGB-SC01

➤ Reliability

1. Test items and results

Test item	Standard test method	Test conditions	Note	Number of damaged
Reflow soldering	JEITA ED-4701 300 303	Tsld=235±5°C, 8sec	1time	0/10
Temperature humidity storage	JEITA ED-4701 100 103	Ta=60°C±5°C, RH=85%±5% RH	1000hrs	0/10
High temperature storage	JEITA ED-4701 200 201	Ta=100°C±5°C	1000hrs	0/10
Low temperature storage	JEITA ED-4701 200 202	Ta=-40°C±5°C	1000hrs	0/10
Steady state operating life	—	Ta=25°C, If=350mA	1000hrs	0/10
Steady state operating life of high humidity heat	—	Ta=60°C±5°C RH=85%±5% RH, If=350mA	500hrs	0/10
Steady state operating life of low temperature	—	Ta=-40°C±5°C, If=350mA	500hrs	0/10
Temperature cycle	JEITA ED-4701 100 105	-40°C~25°C~100°C~25°C 30min,5min,30min,5min	10 cycles	0/10

Note: 1. Reflow Soldering is the first test.

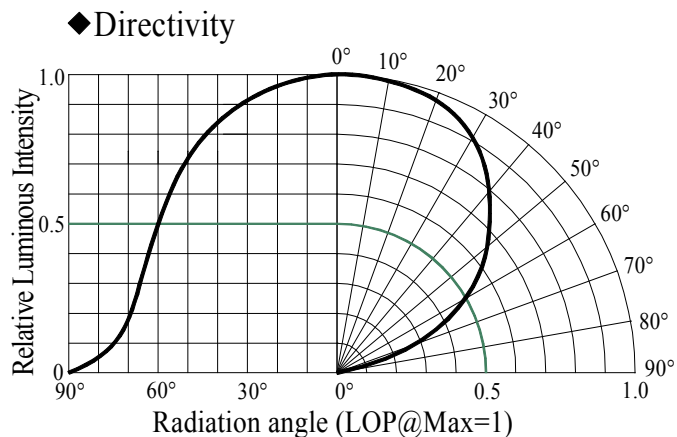
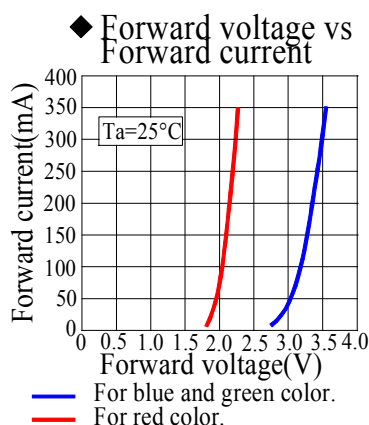
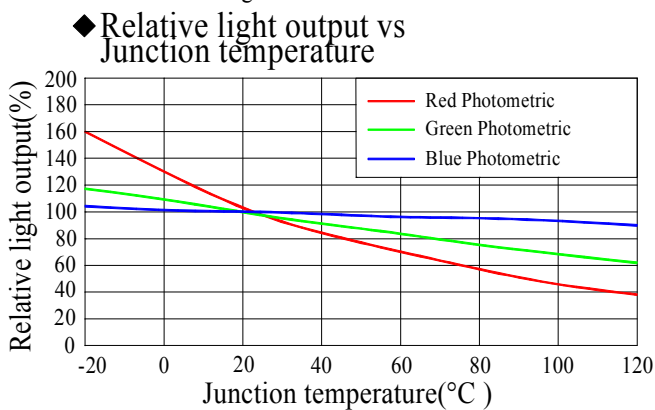
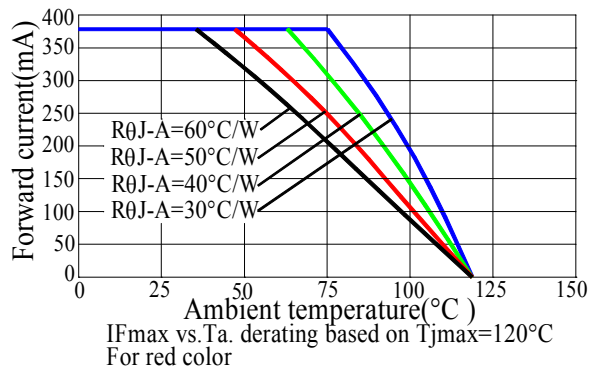
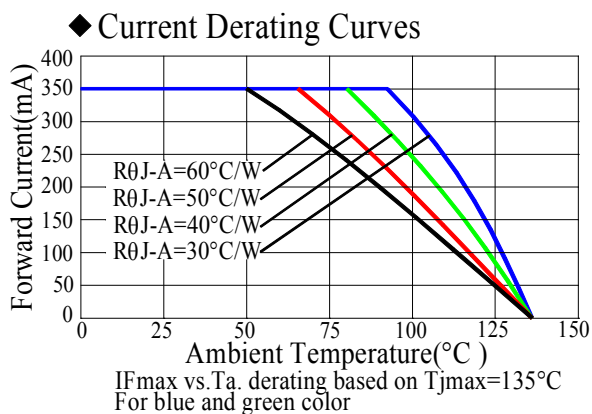
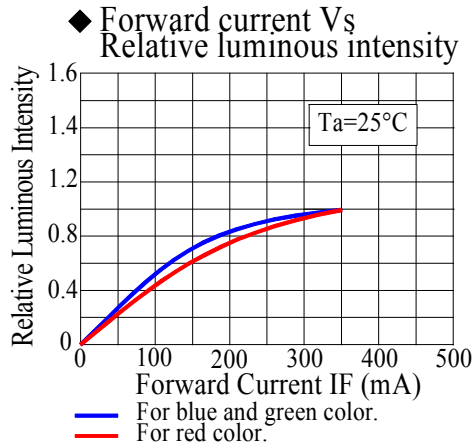
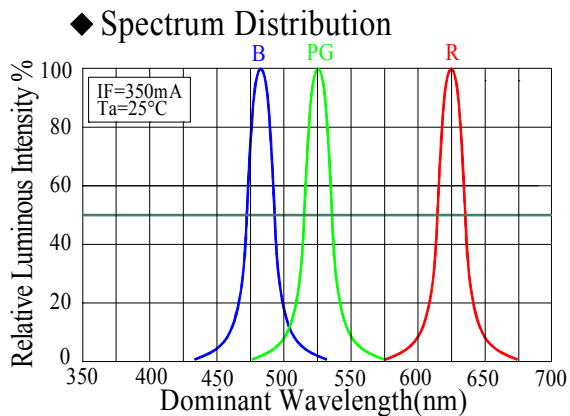
2. Criteria for judging the damage

Item	Symbol	Test conditions	Criteria for judgement	
			Min	Max
Forward voltage	V _F	If=350mA	—	F.V.*)×1.1
Reverse current	I _R	V _R =5V	—	F.V.*)×2.0
Luminous intensity	I _v	If=350mA	F.V.*)×0.7	—

*)F.V.:First value

Part No.: FP03RGB-SC01

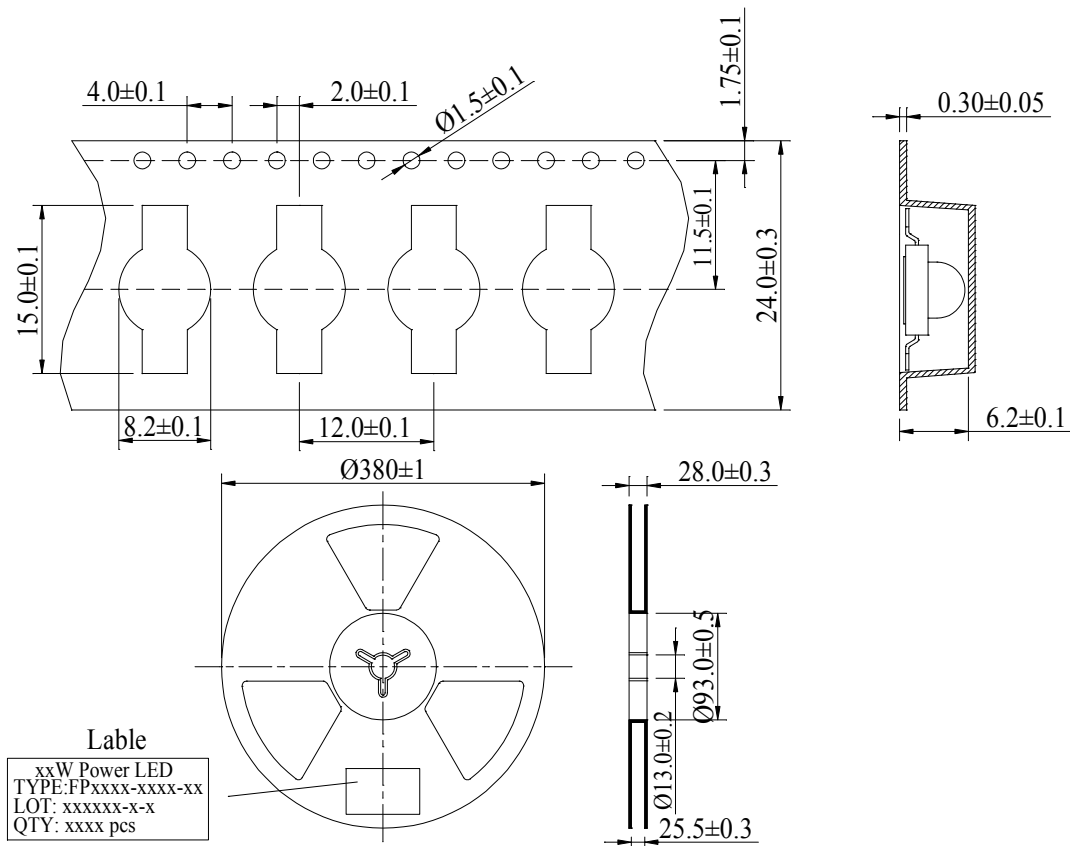
➤ Typical electrical/optical characteristic curves:



Part No.: FP03RGB-SC01

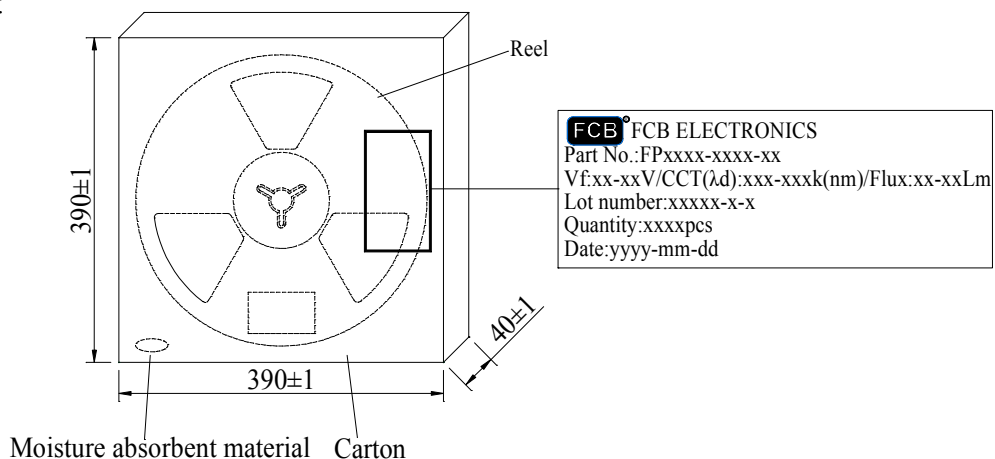
➤ **Packing specifications:**

Tape and reel:



- Note:**
1. All dimensions are in millimeter.
 2. The maximum packing sizes are 1000pcs/reel.

Inside packing box:



Outer packing box:

Package	Dimensions(nm)	No. of reel/Unit	Quantity
Carton box	L×W×H: 400×400×420	10 reel/box Max.	10000pcs Max.

➤ Cautions:

1. Static Electricity

1.1) The LED would be damaged by static electricity or surge voltage, especially green, blue and white color LED. It is recommend that a wrist band or an anti-electrostatic glove be used when handling the LED.

1.2) All devices, equipment and machinery must be properly grounded.

1.3) When inspecting the final products in which LED were assembled, it is recommended to check whether the assembled LED are damaged by static electricity or not. It is easy to find static-damaged LED by a light-on test or a V_F test at a lower current (below 1 mA is recommended).

1.4) Damaged LED will show some unusual characteristics such as the leak current remarkably increases, the V_F becomes lower, or the LED do not light at the low current.

2. Soldering

2.1) Solder with electric iron: it is recommend that 30W constant temperature iron be used when soldering. The temperature of the tip of the iron should be kept at 320°C or less. Soldering should be completed within three seconds one time.

2.2) Repairing should not be done after the LED have been soldered. When repairing is unavoidable, it should be confirmed beforehand whether the characteristics of the LED will be damaged by repairing.

2.3) The LED can be soldered by the reflow soldering method but should not be done more than two times.

2.4) When soldering, don't put stress on the lens during heating, and don't warp the circuit board after soldering.

2.5) Three minutes are necessary for LED to cool down to room temperature.

3. Cleaning

3.1) It is recommended that isopropyl alcohol be used as a solvent for cleaning the LED, but not more than three minutes. When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the resin or not (examples: acetone, etc.)

3.2) Do not clean the LED by the ultrasonic. When it is absolutely necessary, the influence of ultrasonic cleaning on the LED depends on factors such as ultrasonic power and the assembled condition. Before cleaning, a pretest should be done to confirm whether any damages to the LED will occur.

4. Heat Generation

4.1) Thermal design of the end product is very importance. Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the PCB board and the placement of the LED, as well as other components. It is necessary to avoid intense heat and operate within the maximum ratings given in this specification. While soldering, it is recommended to solder the twice dispelling heat equipment. Criteria: volume > 1.5mm(H) × 15mm(W) × 50mm(L), material: pure aluminum, and it's better to use the heat conductive adhesive. We suggest you to use the PCB of aluminum base to design the circuit.

4.2) Please decide on operating current volume according to LED ambient temperature and conduct heat release treatment.

5. Others

5.1) Generally, the electrodes and lead frames of the LED are silver plated copper alloy. The silver surface may be affected by the environments which contain the corrosive gases and so on. Please avoid conditions that may cause the LED to corrode, tarnish or discolour. This corrosion or discoloration may cause difficult soldering operations, It is recommended that the LED be used as soon as possible.

5.2) Please avoid rapid transitions in ambient temperature, especially in high humidity environment where condensation can occur.

5.3) Encapsulating resin is made from silicone, some types without lens outside. Don't press any strength on the silicone. This may be damaged the LED, even disconnection of the LED may occur.

5.4) Care must be taken to ensure that reverse voltage will not exceed the absolute maximum rating when using the LED with matrix drive.

5.5) The LED light output is strong enough to injure human eyes. Precautions must be taken to prevent looking directly at the LED with unaided eyes for more than a few second.

5.6) The LED described are intended to be used for ordinary lighting (such as lamps and lanterns, illumination, backlights). If you have special use or the request of use is higher, please consult with our sales staff in advance for information on the applications, we will offer the suitable products for you.

5.7) When defective LED are found, the user should inform our company directly before disassembling or analysis.

THE END