

GT-FC90X3-1.1



Product Description

Getian FC90 (flip chip technology led module) with outstanding projecting performance has been widely applied to stage lighting, Medical lighting, projector lighting, etc with ultimate cost performance and stability. Unique Technology and perfect raw materials combination of Getian and strict reliability tests (eg: temperature shock test; high temperature aging test etc) ensures its stability and excellent performance in heat conduction, CCT unity, light quality and super high light output.

Features

- High Power & lux density
- No gold wire encapsulation, High reliability
- Low thermal resistance: 0.24°C/W
- High temperature eutectic welding technique
- Small LES optimized for focused lighting purpose
- Equipped with temperature sensor and patented quick plug
- RoHS compliant

Application

- Entertainment Lighting
- Architectural lighting
- Decorative lighting
- Medical lighting
- Stage Light, Projector Light, Follow Spot, Beam light.
- Fiber-coupled Illumination

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Characteristics

Characteristics	Unit	Min	Typical	Max
Dimension L*W	mm		28*28	
Diameter of Luminous Area Φ	mm		6.66*6.66	
Beam Angle θ	deg.		120	
Color Temperature CCT	k	8000		8500
Luminous Efficacy	lm/w	70		80
Luminous Flux	lm	6300		7200
CRI	Ra		70	
Power Dissipation PD	W		90	
Forward Voltage	V	15		19
Current	mA		5500	
Operating Temperature Top	°C	-40		+60
Storage Temperature Tst	°C	0		60
Testing Point Tc	°C			
Junction Temperature Tj	°C			115
Thermal Resistance	°C/W		0.24	
Reverse Current	mA		Not designed for reverse operation	
ESD (HBM)	V		±2,000V HBM	

Coding Rules

Model	GT	FC	X	XX	X
Code	GT	FC	power	Emitting Color	Version
Meaning	Getian	FC:Flip chip technology products	90:90W	X1:2900-3200k X2:4000-4500K X3:8000-8500K	1.1: product version is 1.1

Specifications (Tc = 25 °C)

Standard If: 5500mA		Typical Vf: 17V		Power:90W	Thermal Resistance: 0.24°C/W	
Color	Color Temperature (K)		CRI Ra	15-19V @5500mA	Part Number	
	Min	Max		lm		
Cold white	8000	8500	70	6300-7200	GT-FC90X3-1.1	

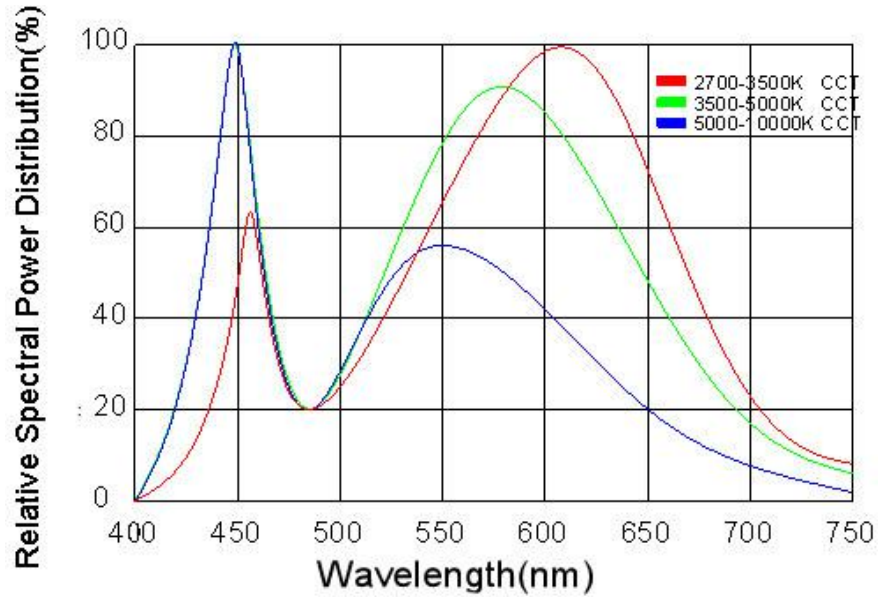
Notes:

Above charts include the most regular specs for Flip chip leds for reference. Please consult sales representative for specs that are not listed or please visit www.getiangroup.com.

Machine Tolerance $\pm 3\%$ on luminous flux.

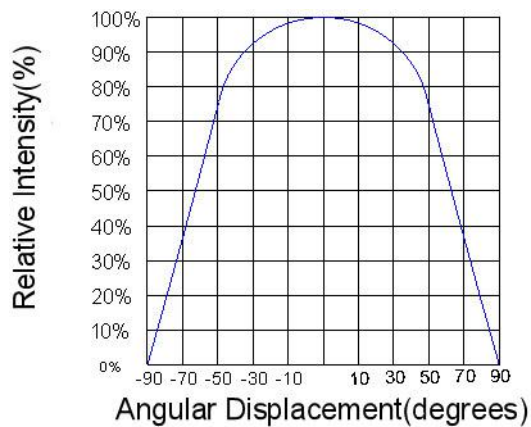
Spectral Features (Tc = 25°C)

CRI(Ra) 70Min

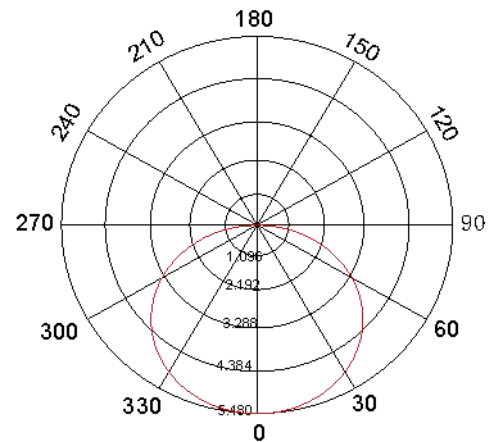


Typical Spatial Distribution (Tc = 25°C)

Typical Light Distribution Curve

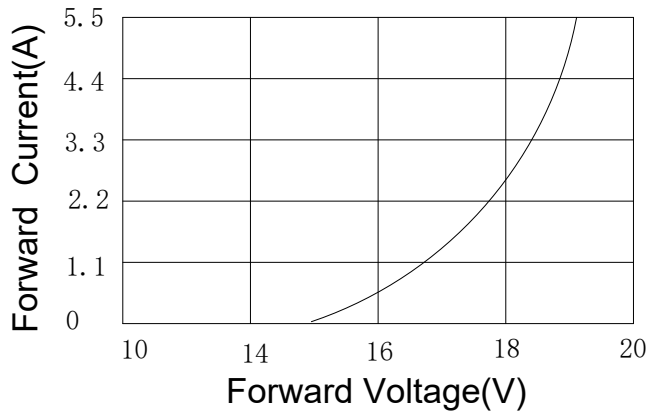


Typical Light-Emitting Angle Radiation Pattern

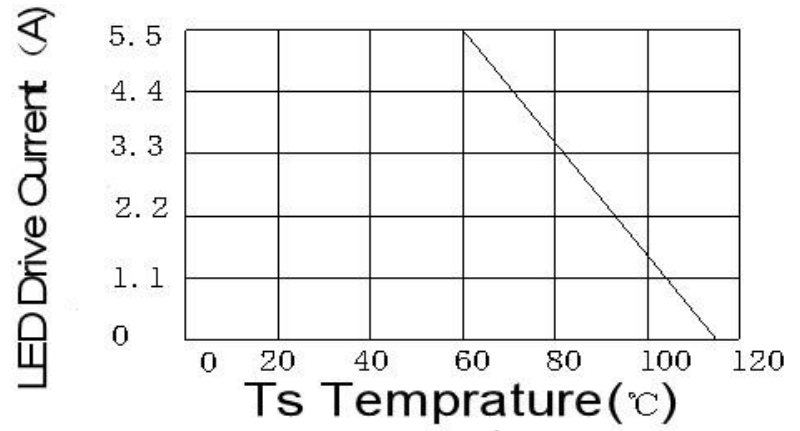


Electrical Features(Tc = 25°C)

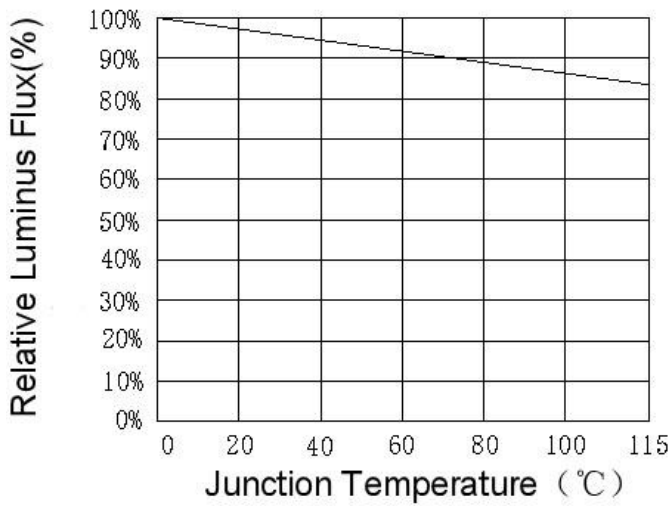
Forward Current VS Forward Voltage



Current Derating Curve

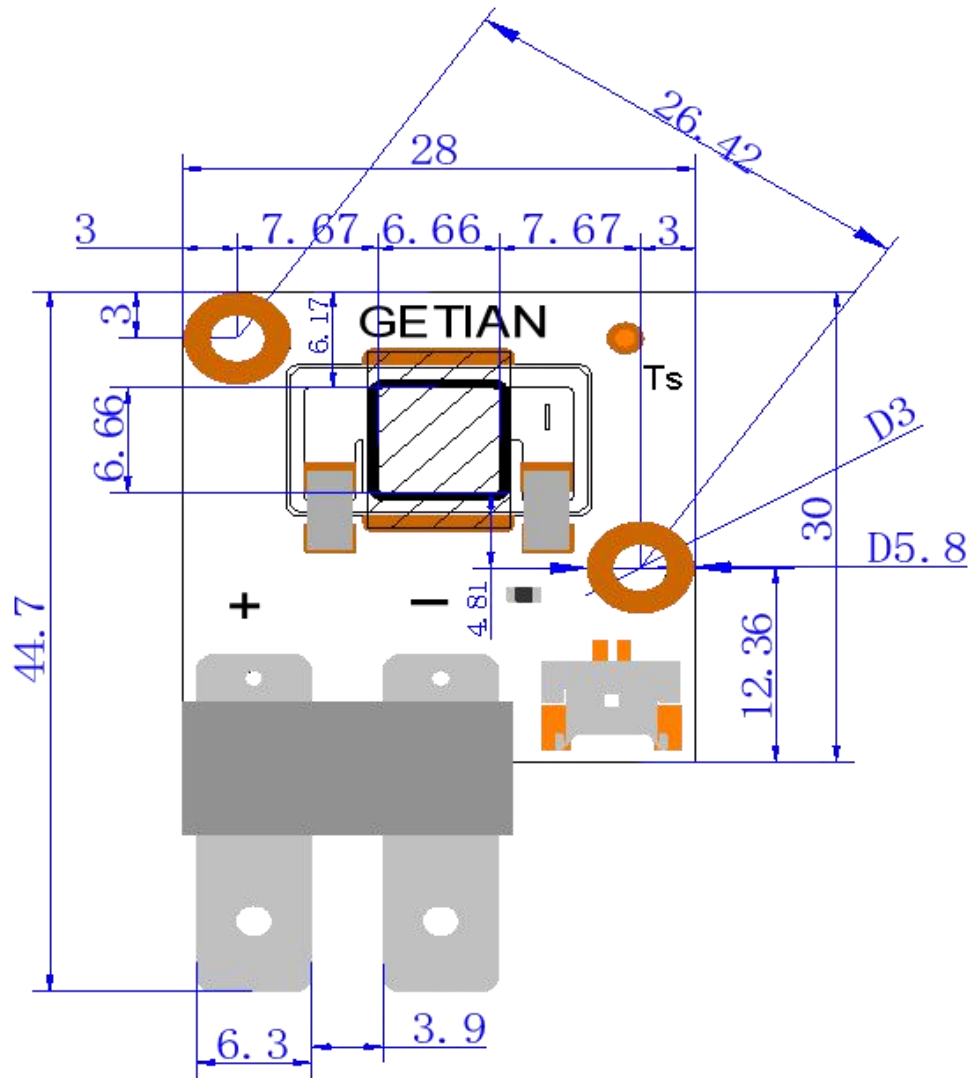


Relative Luminous Flux vs Junction Temperature



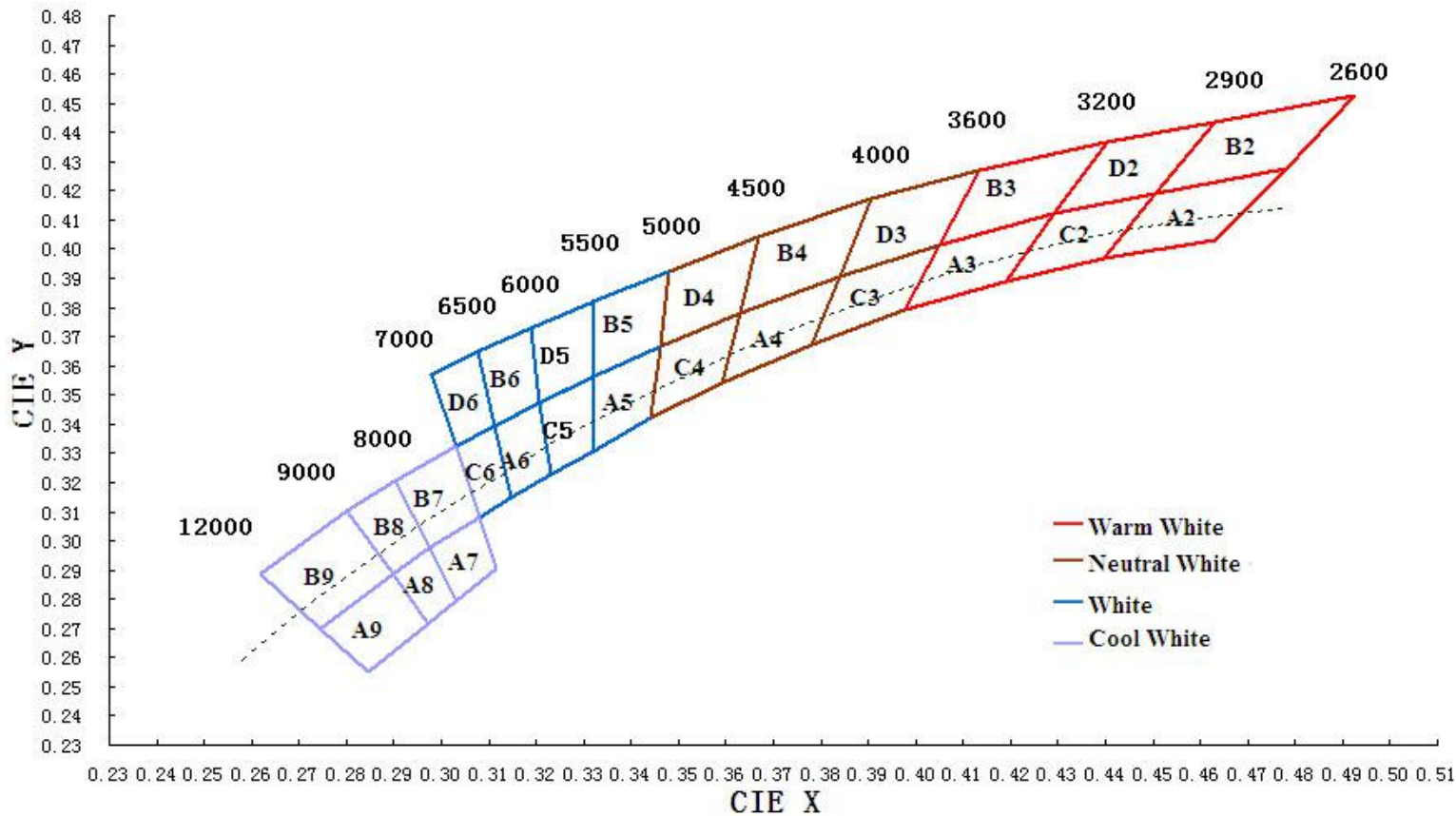
Dimensions (Unit:mm)

Tolerance +/-0.2mm



White Binning Information (1931CIE)

White Binning Information



Note:

The black line represents the blackbody locus on CIE 1931 graph

Reliability Tests

Test Items	Test Conditions
DC Aging	90W/IF=5500mA Ta=25°C×1000hrs
High Temperature Storage	100°C × 1000 hours
Low Temperature Storage	-40°C × 1000 hours
High Temp & Humidity	90W/IF=5500mA 85°C, 85 %RH for 1000 hours
Temperature Shock	-40°C × 30 minutes – +100°C × 30 minutes, 100 cycle
ESD (HBM)	2000V HBM/Time

Criteria for Judging LED Failure (Tc=25°C)

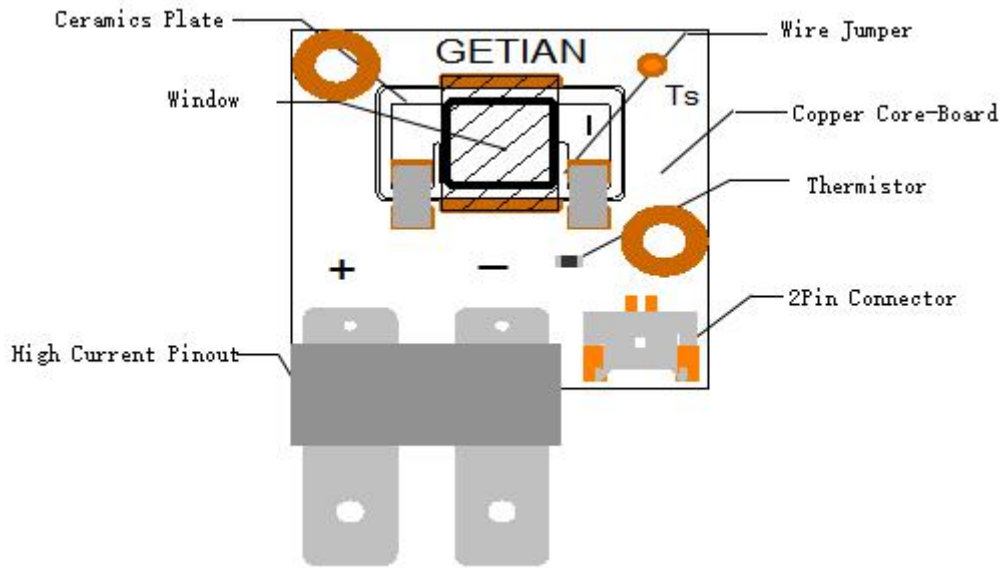
Items	Symbol	Test Conditions	Criteria for Judging LED Failure
Forward Voltage	VF	IF=5500mA	Initial Data±10%
Reverse Voltage	IR	VR=25V	IR≤50μA
Luminous Flux	φv	IF=5500mA	Average φv degradation≤30% Single LED φv degradation≤50%

U refers to max value; S refers to initial value.

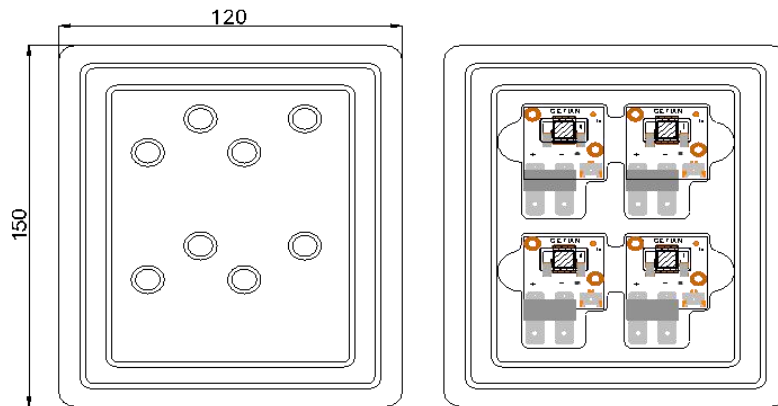
Notes: Judging criteria based on Tc=25°C.

Product Structure and Packaging (Unit:mm)

Product Structure



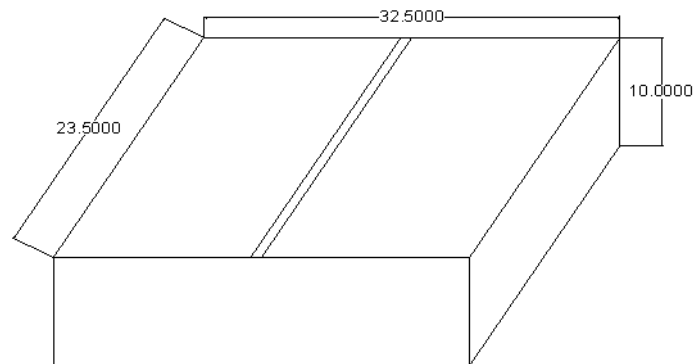
Packaging (Unit:mm)



Inner Pack

Packaging Details

Tray:4pcs/Tray



Outer Pack

Notes

Product Specifications

This is a product family data sheet without extra emphasis on a specific model. The specifications in the document refers to its general value under certain test conditions. Please consult sales representative or technical people if encounters specs that are not listed. (Tolerance should be considered).

Operation Tips

1. Please do not press emitting surface;
2. Please do not pour out products from trays or overlay them;
3. Keep the power supply lines 2-3mm striped and tin immersed;
4. Do not touch the emitting surface or the white dam by the soldering iron during soldering process;
5. Soldering time should be less than 5 seconds.;
6. Keep the soldering point clean and neat with no bulge, bend or cold-joint.
7. Instant test time less than 3 seconds.
8. Recommend to use thermal grease with conductivity >2.5.
9. Please keep the thermal grease inclusion-free;
10. Thermal grease spreading area should be a bit larger than the led substrate;
11. Thermal grease evenly spread with thickness about 0.1mm;
12. Place led flatly and do no push from side in case grease scraped;

Service Conditions

The products must be operated within the rated range of parameters. Constant current drivers are recommended.

ESD Protection

Statics or surge volt would cause LED failure. When using the products, we suggest wearing anti-static wrist strap or gloves. All devices, equipment and machinery must be grounded. Precautions should be taken to protect the products from the surge voltage generated by the devices. It is recommended to inspect each LED whether it is electrostatic damaged. Inspection can be done by a indicating lamp or low forward current test. The destroyed products shows different features, for example, the forward voltage becoming lower, or no light emission under low current.

Heat Dissipation

The thermal design of the end product is particularly important, please consider it seriously. Do avoid high temperature condensation on the product.

Cleaning

Recommend ethanol as the only clean solvent.

Others

The bright light emitted by LED may hurt the eyes. Do not look directly at the products when not wearing protective glasses. The strong irritant glare makes people feel uncomfortable and precautions should be taken during usage.