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LCFOCUS LC-3FS3-P45

LCFOCUS 3W Full Spectrum LED Chip Instruction Manual

Model: LC-3FS3-P45

INTRODUCTION

This manual provides essential information for the safe and effective use of the LCFOCUS 3W Full Spectrum LED Chip. This high-power LED chip is designed for various lighting applications, particularly for plant growth, offering a full spectrum wavelength range of 400-800nm. Please read these instructions carefully before installation and operation.

SAFETY INFORMATION

- **Electrical Safety:** High power COB LEDs require constant current LED drivers. Ensure the power supply matches the recommended current and voltage specifications (700mA, 3.2V-3.6V DC). Incorrect power supply can damage the LED chip.
- **Heat Management:** These LEDs generate heat. A heat sink system is mandatory to maintain the working temperature below 60°C (140°F). Failure to do so will significantly reduce the lifespan of the LED.
- **Polarity:** Observe correct polarity when connecting the LED chip. Refer to the positive (anode +) and negative (cathode -) signs on the LEDs. Incorrect polarity will prevent the LED from lighting up and may cause damage.
- **Eye Protection:** Avoid direct exposure to the intense light emitted by the LED chip, especially the full spectrum light, as it can be harmful to the eyes.
- **Handling:** Handle LED chips with care to avoid electrostatic discharge, which can damage the components.

PRODUCT FEATURES

- Full Spectrum Wavelength: 400-800nm, ideal for plant growth.
- High Color Rendering Index (CRI): 90, providing natural light rendition.
- Power: 3 Watt, Warm White (2800-3200K) output.
- High Luminous Efficacy: 84 $\mu\text{mol}/(\text{m}^2\cdot\text{s})$ PPFD at 10cm height, 4890 LX at 10cm height, 180-200LM luminous flux.
- Wide Emitting Angle: 140 degrees for broad light distribution.

- Durable Construction: Features 45mil chips, double golden wire (99.99%), and a copper holder for enhanced reliability and lifespan.
- Long Lifespan: Up to 50,000 hours with proper heat management.

SPECIFICATIONS

Parameter	Value
Quantity	10 pieces / Pack
Brand	LCFOCUS
Power	3 Watt
Model Name	Full Spectrum-3
Emitting Color	Warm White (2800-3200K)
Wavelength	400-800NM
Recommended Current (IF)	700mA
Forward Voltage (VF)	3.2-3.6V DC
PPFD (Height: 10cm)	84 $\mu\text{mol}/(\text{m}^2\cdot\text{s})$
LX (Height: 10cm)	4890 lx
Luminous Flux (Φ)	180-200LM
CRI	90
Emitting Angle	140 degree
Construction	Double Golden Wire (99.99%), Copper Holder
Lifespan	50,000 Hours (with proper heat sink)
Operating Temperature	Less than 60°C (140°F)
Material	Copper
Item Weight	0.2 ounces (per 10 pcs)
Part Number	LC-3FS3-P45
UPC	768894084604

Absolute Maximum Ratings (TA=25°C)

Parameter	Symbol	Maximum Rating	Unit
Continuous Forward Current	IF	700	mA
Peak Forward Current (1/10 Duty Cycle, 0.1MS Pulse Width)	IFp	1000	mA
Reverse Voltage	VR	5	V
Power Dissipation	PD	3	W
Electrostatic Discharge	ESD	1000	V
Operating Temperature Range	TOPR	-25°C to +85°C	
Storage Temperature Range	TSTG	-35°C to +105°C	
Lead Soldering Temperature (3MM from TNE Base of the Epoxy Bulb)	TSOL	360°C	

Electrical / Optical Characteristics (TA=25°C)

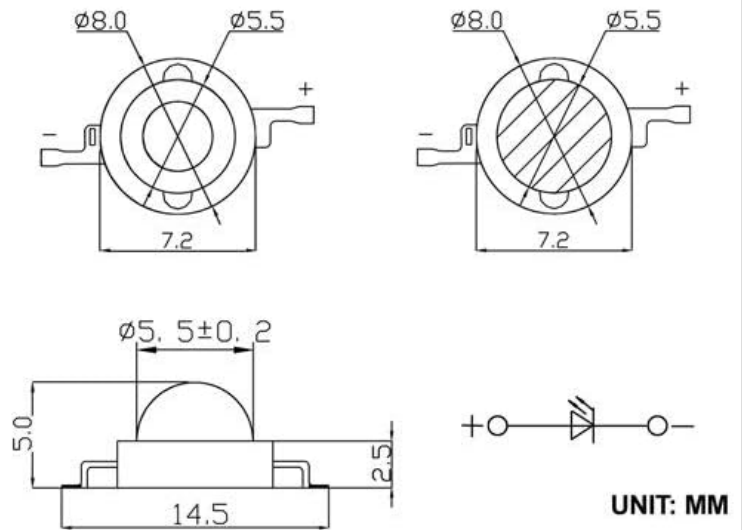
Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Forward Voltage	VF	3.2	3.4	3.6	V	IF=700mA
Luminous Flux	Φ	180	190	200	Lm	IF=700mA
Chromaticity Coordinates	X		0.43			IF=700mA
	Y		0.40			IF=700mA
Wavelength	WL	400		800	nm	IF=700mA
Reverse Current	IR	0		10	μA	VR=5V
Color-Rendering Index	CRI		90			
Viewing Angle	2θ1/2		140		Dge	IF=700mA
Recommend Forward Current	IF(REC)		700		mA	

LC-3FS3-P45

HIGH POWER LED CHIP

LCFOCUS

- * Power: 3 Watt
- * Name: Full Spectrum-3
- * Color: Warm White
- * TC: 2800-3200K
- * WL: 400-800NM
- * Lumen: 180-200LM
- * CRI: 90



ABSOLUTE MAXIMUM RATING @ TA=25°C

PARAMETER	SYMBOL	MAXIMUM RATING	UNIT
CONTINUOUS FORWARD CURRENT	IF	700	mA
PEAK FORWARD CURRENT (1/10 DUTY CYCLE, 0.1MS PULSE WIDTH)	IFP	1000	mA
REVERSE VOLTAGE	VR	5	V
POWER DISSIPATION	PD	3	W
ELECTROSTATIC DISCHARGE	ESD	1000	V
OPERATING TEMPERATURE RANGE	TOPR	-25°C to +85°C	
STORAGE TEMPERATURE RANGE	TSTG	-35°C to +105°C	
LEAD SOLDERING TEMPERATURE (3MM FROM THE BASE OF THE EPOXY BULB)	TSOL	360°C	

ELECTRICAL / OPTICAL CHARACTERISTIC @ TA=25°C

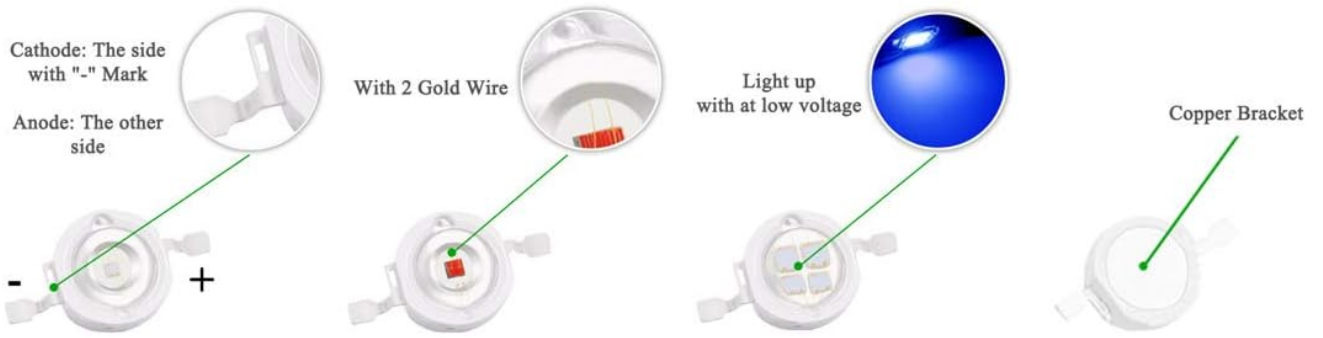
PARAMETER	SYMBOL	Min.	Typ.	Max.	UNIT	Test Condition
FORWARD VOLTAGE	VF	3.2	3.4	3.6	V	IF=700mA
LUMINOUS FLUX	Φ	180	190	200	Lm	IF=700mA
CHROMATICICTY COORDINATES	X		0.43		/	IF=700mA
	Y		0.40		/	IF=700mA
WAVELENGTH	WL	400		800	nm	IF=700mA
REVERSE CURRENT	IR	0		10	μA	VR=5V
COLOR-RENDERING INDEX	CRI		90		/	
VIEWING ANGLE	2Θ1/2			140	Dge	IF=700mA
RECOMMEND FORWARD CURRENT	IF(REC)			700	mA	

Image: Detailed specifications table and dimensional diagram for the LCFOCUS 3W LED chip, showing electrical and optical characteristics, and physical dimensions in millimeters.

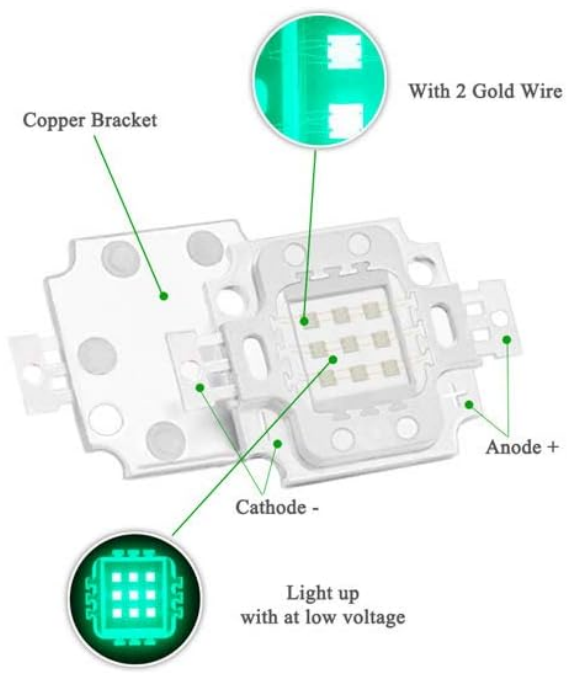
SETUP

1. **Prepare Components:** Gather your LCFOCUS 3W Full Spectrum LED chips, a suitable constant current LED driver (recommended 700mA output), a heat sink, thermal paste or adhesive, and appropriate wiring.
2. **Apply Thermal Management:** Apply a thin, even layer of thermal paste or adhesive to the back of the LED chip and firmly attach it to a heat sink. Ensure good contact for efficient heat dissipation. This step is critical for the longevity of the LED.
3. **Identify Polarity:** Locate the positive (anode +) and negative (cathode -) markings on the LED chip. These are typically indicated on the chip's base.
4. **Wire Connections:** Connect the positive terminal of the LED chip to the positive output of the constant current LED driver. Connect the negative terminal of the LED chip to the negative output of the LED driver. Ensure all connections are secure and insulated.
5. **Multiple Chips (Series/Parallel):** If connecting multiple chips, ensure your LED driver can handle the total forward voltage and current. For series connections, sum the forward voltages. For parallel connections, sum the currents. Always use a constant current driver.

▼ 1W / 3W / 5W



▼ 10W



▼ 20-100W

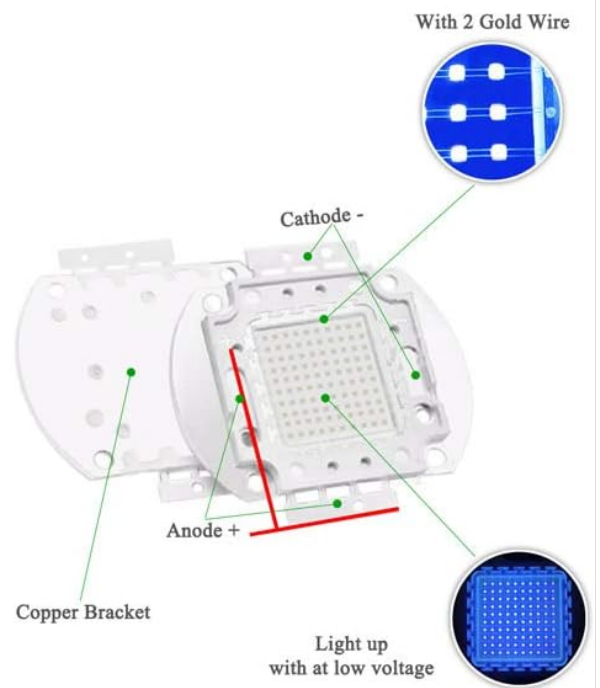


Image: Illustrative wiring diagrams for various LED chip wattages, highlighting the cathode, anode, gold wire connections, and copper bracket for proper installation.

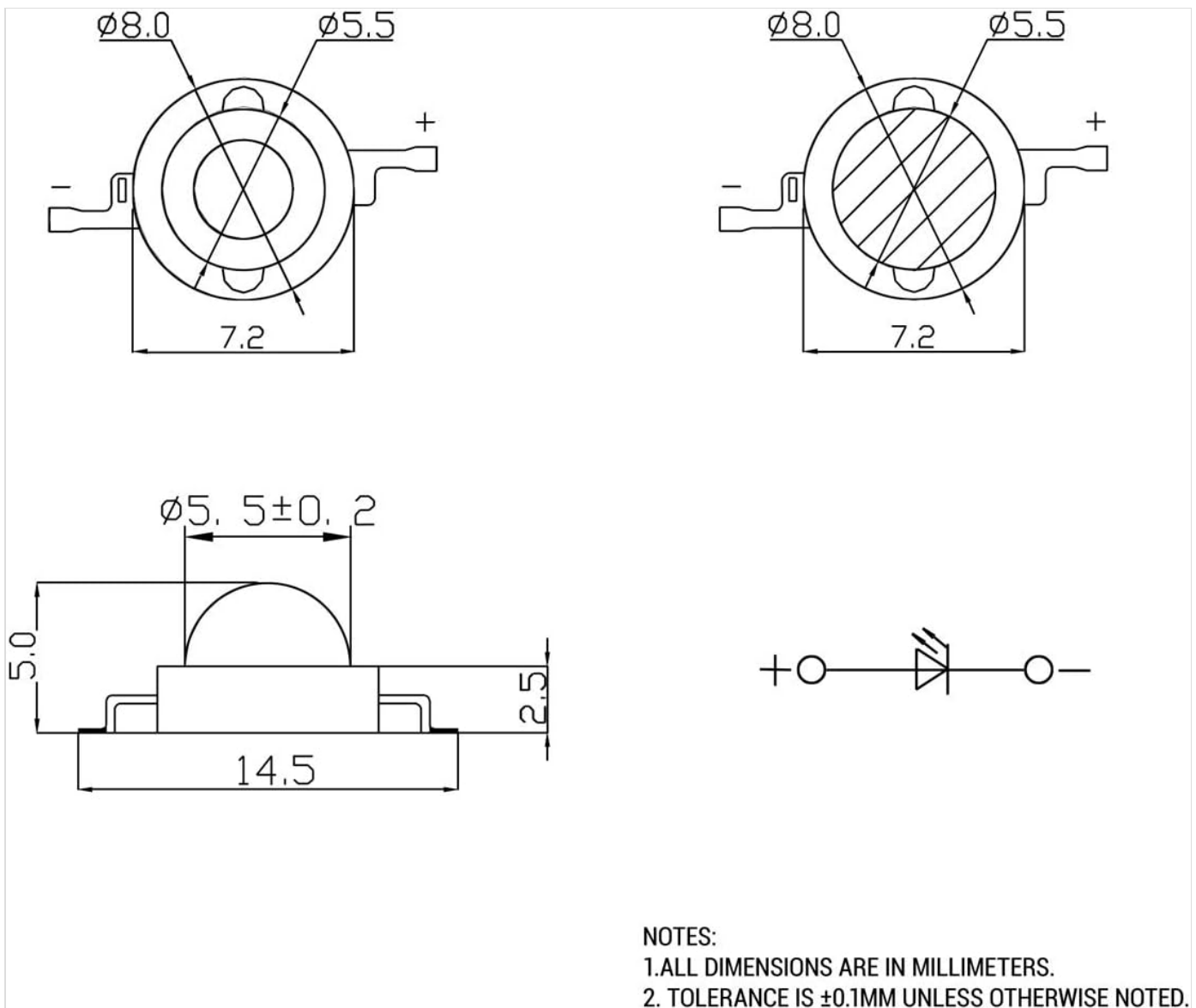


Image: Technical drawing showing the precise dimensions of the LCFOCUS 3W LED chip in millimeters, useful for custom fixture design and integration.

OPERATING INSTRUCTIONS

Once the LED chip is properly installed with a heat sink and connected to a constant current LED driver, it is ready for operation.

- **Power On:** Turn on the power supply to the LED driver. The LED chip should illuminate immediately.
- **Monitor Temperature:** Periodically check the temperature of the heat sink. If it feels excessively hot to the touch, ensure proper ventilation and that the heat sink is adequately sized for the application. The working temperature should not exceed 60°C (140°F).
- **Light Output:** The full spectrum light is designed to support plant photosynthesis. Adjust the distance from the plants based on their specific light requirements and the intensity desired.

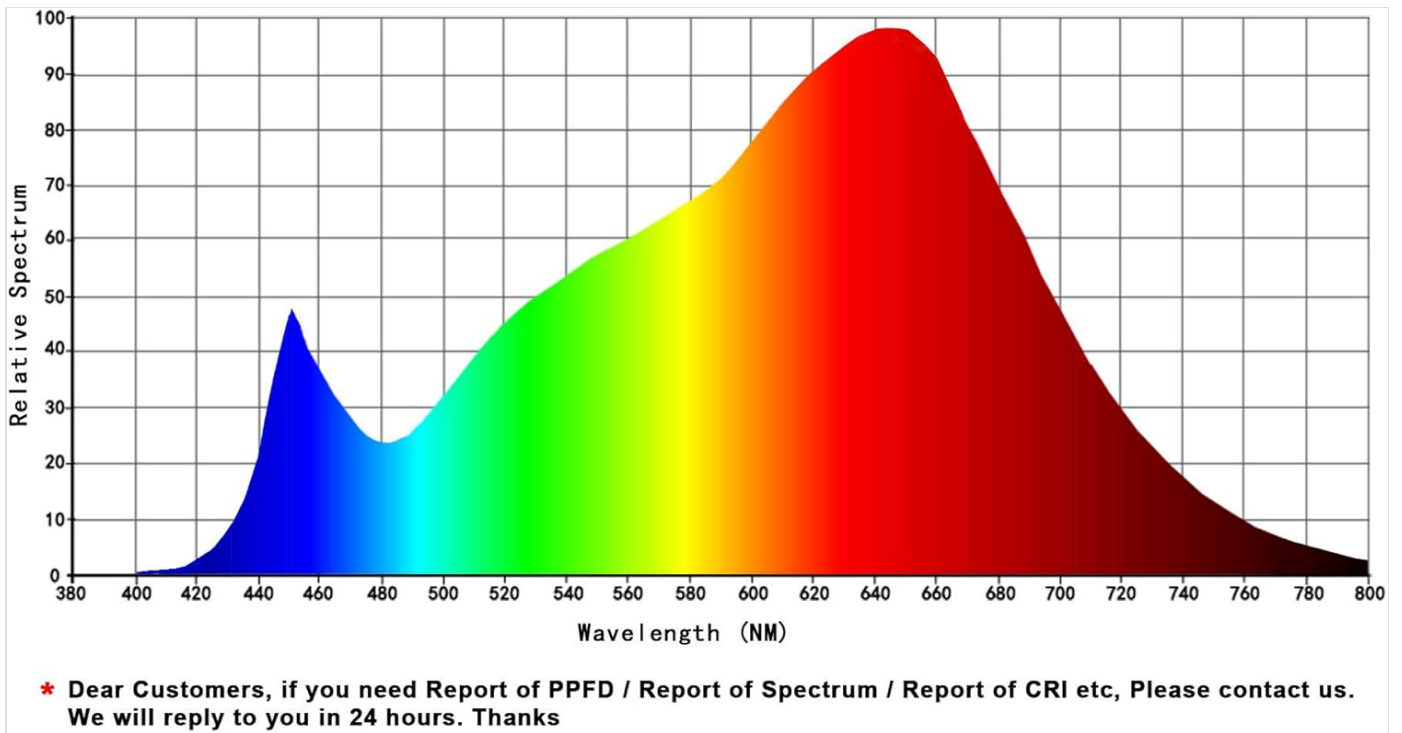


Image: Graph illustrating the relative spectral power distribution of the LCFOCUS Full Spectrum LED chip, indicating strong output across the 400-800nm range, beneficial for plant growth.

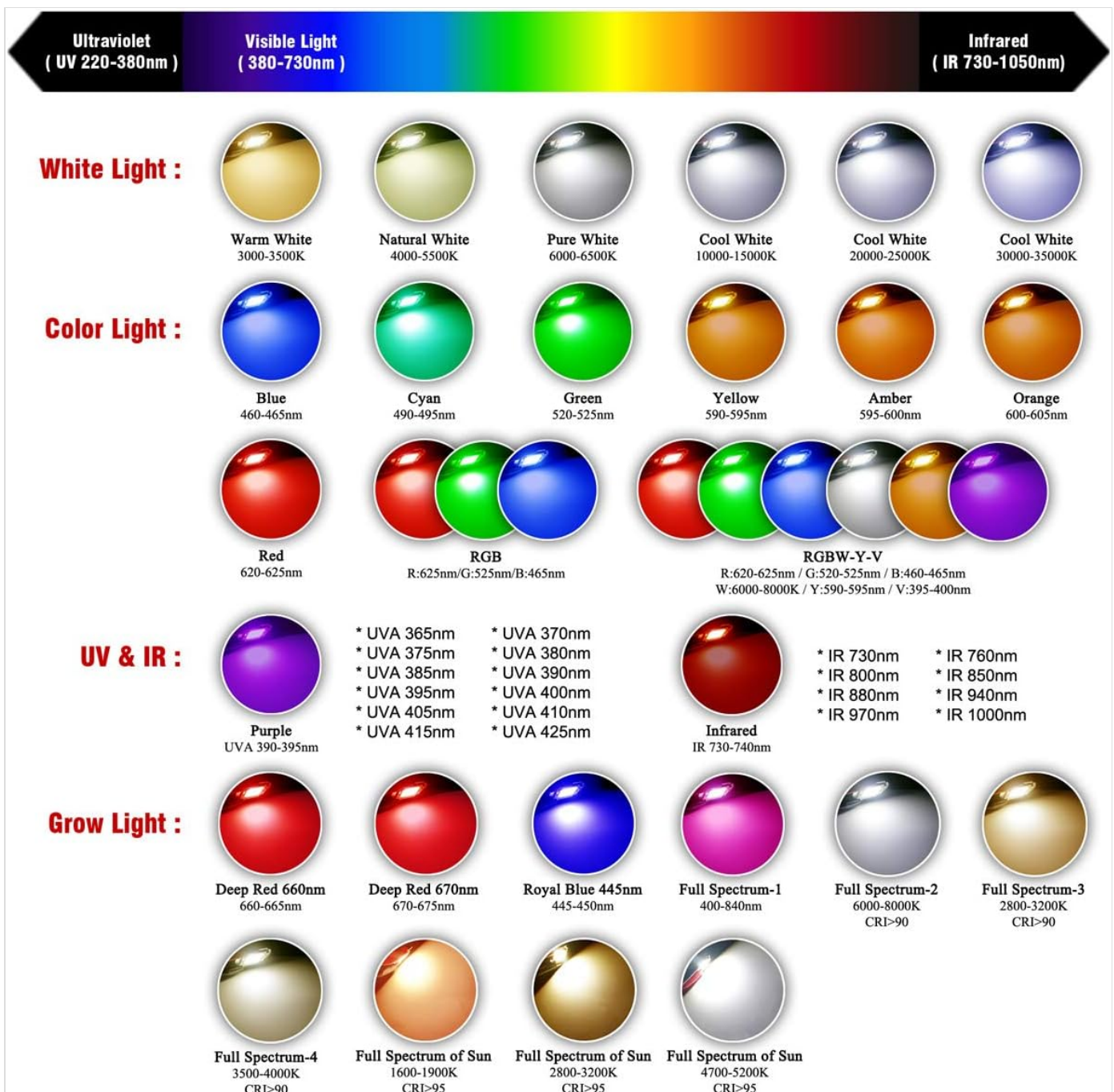


Image: Comprehensive chart showcasing different LED light colors and spectrums, including warm white, natural white, pure white, cool white, various color LEDs, UV, IR, and several full spectrum configurations, providing context for the product's spectrum.

MAINTENANCE

- **Cleaning:** Ensure the LED chip and heat sink are free from dust and debris. A clean surface allows for optimal light output and heat dissipation. Use a soft, dry cloth for cleaning. Do not use abrasive cleaners or solvents.
- **Heat Sink Inspection:** Regularly inspect the heat sink for any obstructions to airflow. Ensure it remains securely attached to the LED chip.
- **Wiring Check:** Periodically check all wiring connections for signs of wear, corrosion, or looseness. Ensure insulation remains intact.

TROUBLESHOOTING

- **LED Not Lighting Up:**
 - Check power supply: Ensure the constant current LED driver is receiving power and is functioning correctly.

- Check polarity: Verify that the positive and negative terminals of the LED chip are connected correctly to the driver.
- Check connections: Ensure all wires are securely connected and there are no breaks in the circuit.
- Check LED driver specifications: Confirm the driver's output current and voltage match the LED chip's requirements.

- **LED Dim or Flickering:**

- Insufficient current: The LED driver may not be supplying enough current.
- Overheating: Check the heat sink. If the LED is overheating, it may reduce output or flicker as a protective measure.
- Faulty connection: Inspect wiring for intermittent contact.

- **Short Lifespan:**

- Overheating: The most common cause. Ensure the heat sink is adequate and working temperature is maintained below 60°C.
- Overcurrent/Overvoltage: Using an incorrect power supply can severely shorten the LED's life.

WARRANTY AND SUPPORT

LCFOCUS products are manufactured to high-quality standards. For specific warranty details, please refer to the purchase documentation or contact your retailer. For technical support or inquiries, please reach out to LCFOCUS customer service through the official channels provided at the point of purchase.

