

Cree® 5-mm Round LED

Model # LC503FBL1-15Q-A3-MT

Data Sheet

15-degree, 5-mm LED lamp in blue color with water-transparent lens and no stopper

Applications

- Advertising Signs
- Indicators
- LCD Back Lights
- Moving-Message Signs

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Items	Symbol	Absolute Maximum Rating	Unit
Forward Current	I_F	25	mA
Peak Forward Current ^{Note}	I_{FP}	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	100	mW
Operation Temperature	T_{opr}	-40 ~ +95	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
Lead Soldering Temperature	T_{sol}	Max. 260°C for 3 sec. max. (3 mm from the base of the epoxy bulb)	

Note: Pulse width ≤ 0.1 msec, duty $\leq 1/10$.

Typical Electrical & Optical Characteristics ($T_A = 25^\circ\text{C}$)

Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V_F	$I_F = 20$ mA	V		3.2	4.0
Reverse Current	I_R	$V_R = 5$ V	μA			100
Dominant Wavelength	λ_D	$I_F = 20$ mA	nm	465	470	480
Luminous Intensity	I_V	$I_F = 20$ mA	mcd	4180	11000	
50% Power Angle	2 $\theta_{1/2}$ H-H	$I_F = 20$ mA	deg		15	



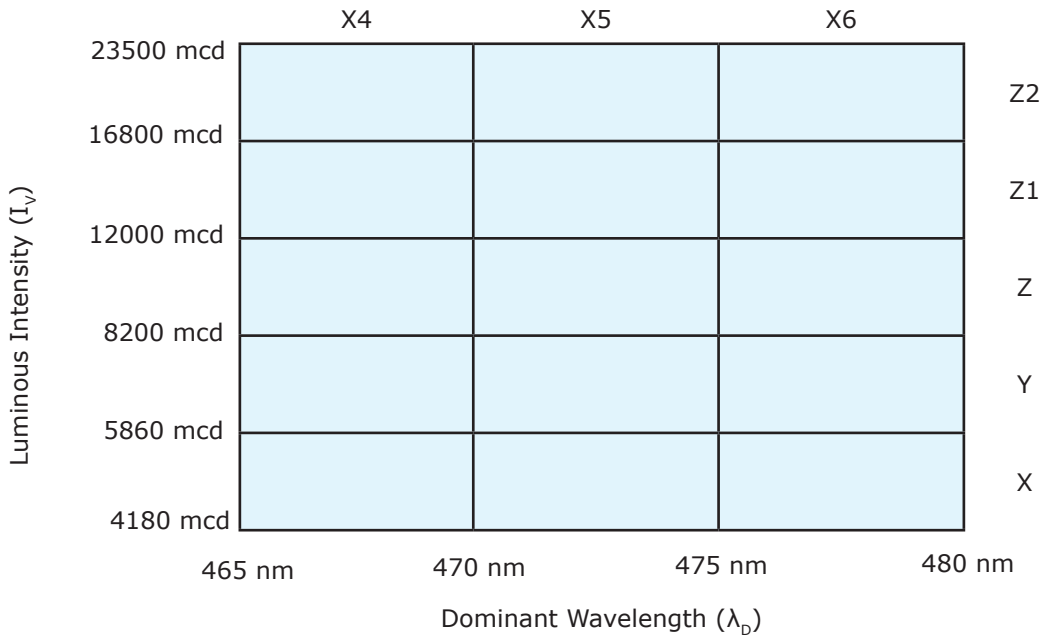
For part availability and ordering information please call Toll Free: 800.984.5337
 Website: www.marktechopto.com | Email: info@marktechopto.com

Standard Bins for LC503FBL1-15Q-A3-MT ($I_f = 20 \text{ mA}$)

Lamps are sorted to luminous intensity (I_v) and dominant wavelength (λ_d) bins shown.

Orders for LC503FBL1-15Q-A3-MT may be filled with any or all bins contained as below.

All luminous intensity (I_v) and dominant wavelength (λ_d) values shown and specified are at $I_f = 20 \text{ mA}$.



Forward Voltage (VF)

Rank	V7	V8	V9	V10	V11	V12
Voltage	2.8-3.0V	3.0-3.2V	3.2-3.4V	3.4-3.6V	3.6-3.8V	3.8-4.0V

*Majority VF bins are highlighted in Yellow

Important Notes:

1. All ranks will be included per delivery; rank ratio will be based on the dice distribution.
2. Pb content <1000 ppm.
3. Tolerance of measurement of luminous intensity is $\pm 15\%$.
4. Tolerance of measurement of dominant wavelength is $\pm 1 \text{ nm}$.
5. Tolerance of measurement of V_f is $\pm 0.05 \text{ V}$.
6. Packaging methods are available for selection; please refer to the "Cree LED Lamp Packaging Standard" document.
7. Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
8. Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

Graphs

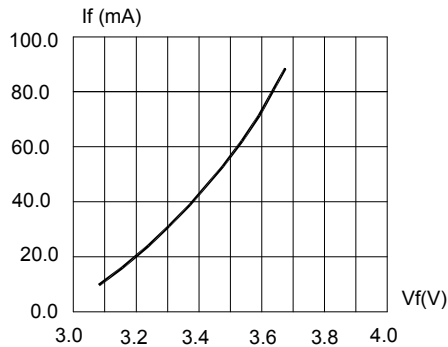


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

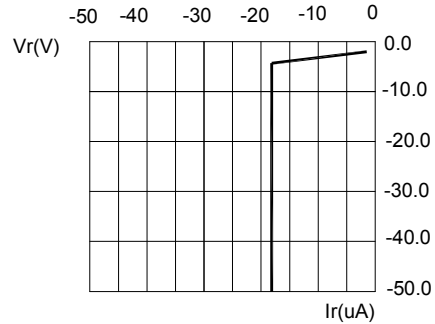


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE.

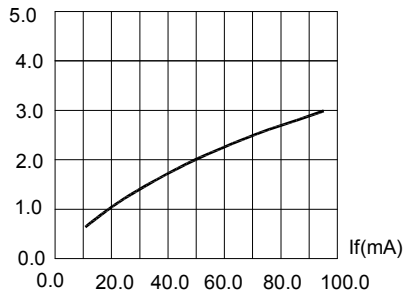


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

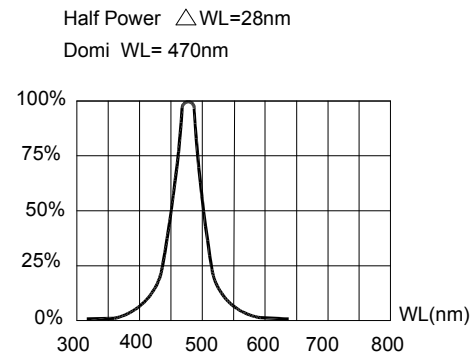


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

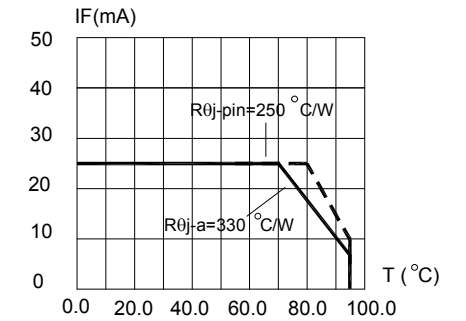


FIG.5 MAXIMUM FORWARD DC CURRENT VS. AMBIENT TEMPERATURE ($T_{jmax}=105\text{ }^{\circ}\text{C}$)

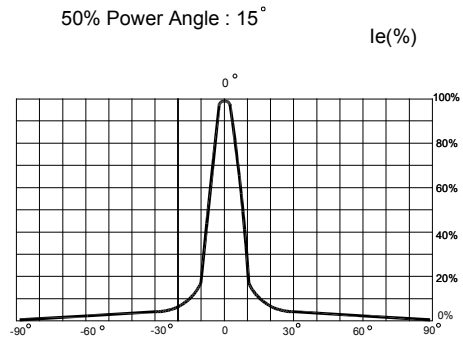


FIG.6 FAR FIELD PATTERN

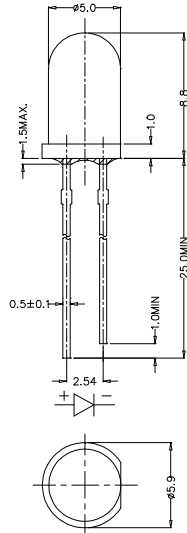
1. Cathode PAD Area (0.18 X 0.18inch²)
2. Height above nominal seating plane in inches(0.3inch)

Mechanical Dimensions

All dimensions are in mm. Tolerance is ± 0.25 mm unless otherwise noted.

An epoxy meniscus may extend about 1.5 mm down the leads.

Burr around bottom of epoxy may be 0.5 mm max.



Notes

RoHS Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.