



L.T.F.

Color Tunable COB LED Series



**LTCOBi1616905727 Dual Channel
Color Tunable Chip on Board LED**

QLUX COB



Size	16mm x 16mm
LES	9 mm (OD)
Maximum Voltage	38V
Typical Power	≈ 12W
Typical Efficacy	≈ 96 lm/W
Channels	Dual
Tunable CCT	2200K-6600K
Typical CRI	90+
Maximum Lumens	≈ 1080 lm



RoHS



LTF's U.S. Patented QLUX Light Tune Series COB LEDs offer endless possibilities for lighting OEMs and designers. With industry leading adjustable CCT range, high efficacy, superior color rendering and best color over angle performance built into all QLUX LED light sources. Light Tune COBs let you dial in the perfect illumination for any architectural lighting application.

FEATURES

- Wide adjustable CCT range, ideal for human-centric lighting projects.
- Superior color rendering performance throughout CCT and dimming ranges.
- Excellent color uniformity and best color over angle with TIR optics.
- Customizable CCT and dimming curve options.
- Proven reliability; LM-80 9,000 hours completed.
- Cost effective.
- Low thermal resistance with long time reliability.
- Dial in vibrant, cool CCT light for tasks requiring focus and energy, or promoting wakefulness in night shift workers.
- Transition to warm, cozy ambient light, to avoid blue light exposure before sleep.

APPLICATIONS

- Human-centric lighting
- Circadian lighting
- Architectural lighting
- Spot lights
- Down lights
- Pendants

SPECIFICATIONS

Tunable CCT	Power	Current		Voltage		Luminous Flux	CRI	R9
		Warm If (mA)	Cool If (mA)	Warm Vf (V)	Cool Vf (V)			
Warm Channel Only - 2200K	10.6W	300mA	--	35.5V	--	746 lm	92	56
Cool Channel Only - 6600K	12.2W	--	335mA	--	36.5V	1079 lm	90	64



MECHANICAL SPECIFICATIONS

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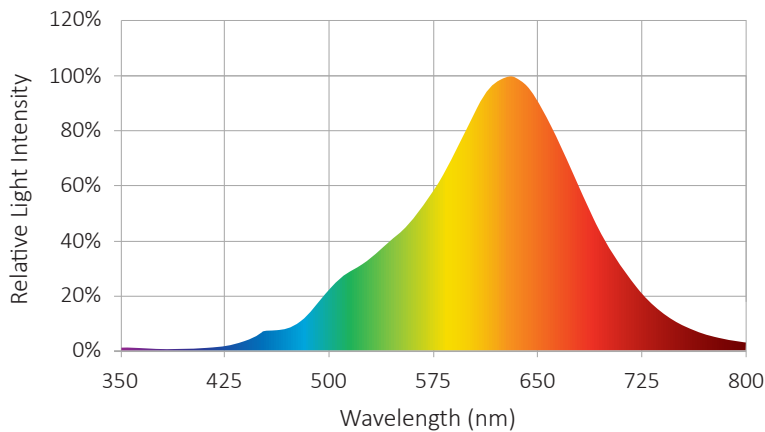
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SPECTRORADIOMETRIC CHARACTERISTICS

Warm Channel Only (300mA, No Dimming, $T_j=25^{\circ}\text{C}$)



CCT: 2239K

Luminous Flux: 745.77 lm

Efficacy: 70.4 lm/W

Nominal CCT: LED_2700K

$x_0=0.4590$ $y_0=0.4120$

Chromaticity Coordinates:

$x=0.5130$ $y=0.4319$ $u'=0.2867$ $v'=0.5431$

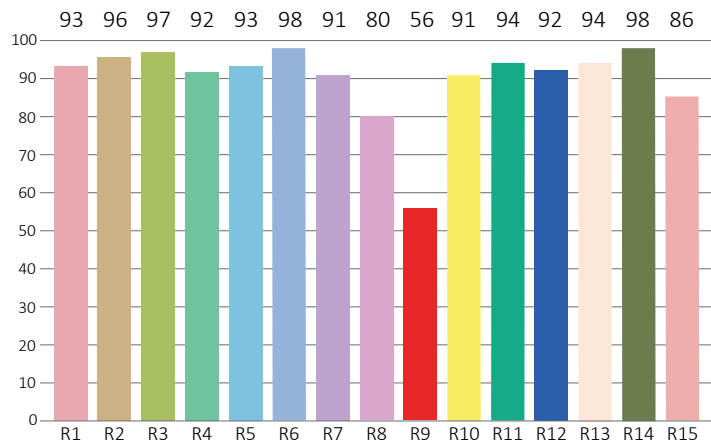
Chromaticity Difference: +0.00517Duv

Dominant Wavelength: 584.0 nm(E)

Peak Wavelength: 630 nm

CRI TEST RESULTS

Warm Channel Only (300mA, No Dimming, $T_j=25^{\circ}\text{C}$)



Color Rendering Index (CRI): $R_a = 92.4$

Colour Fidelity Index: $R_f = 87$

Gamut Index: $R_g = 88$

Purity: 0.8410

Color Ratio: $K_r=52.1\%$ $K_g=42.3\%$ $K_b=5.6\%$

Color Tolerance (SDCM): 29.3

Bandwidth: 123.4 nm

Radiant Flux: 2.9 W

Photosynthetically Active Radiation (PAR): 2.65W

Photosynthetic Photon Flux (PPF): 13.54 $\mu\text{mol/s}$

R1=93	R2=96	R3=97	R4=92	R5=93	R6=98	R7=91	R8=80
R9=56	R10=91	R11=94	R12=92	R13=94	R14=98	R15=86	



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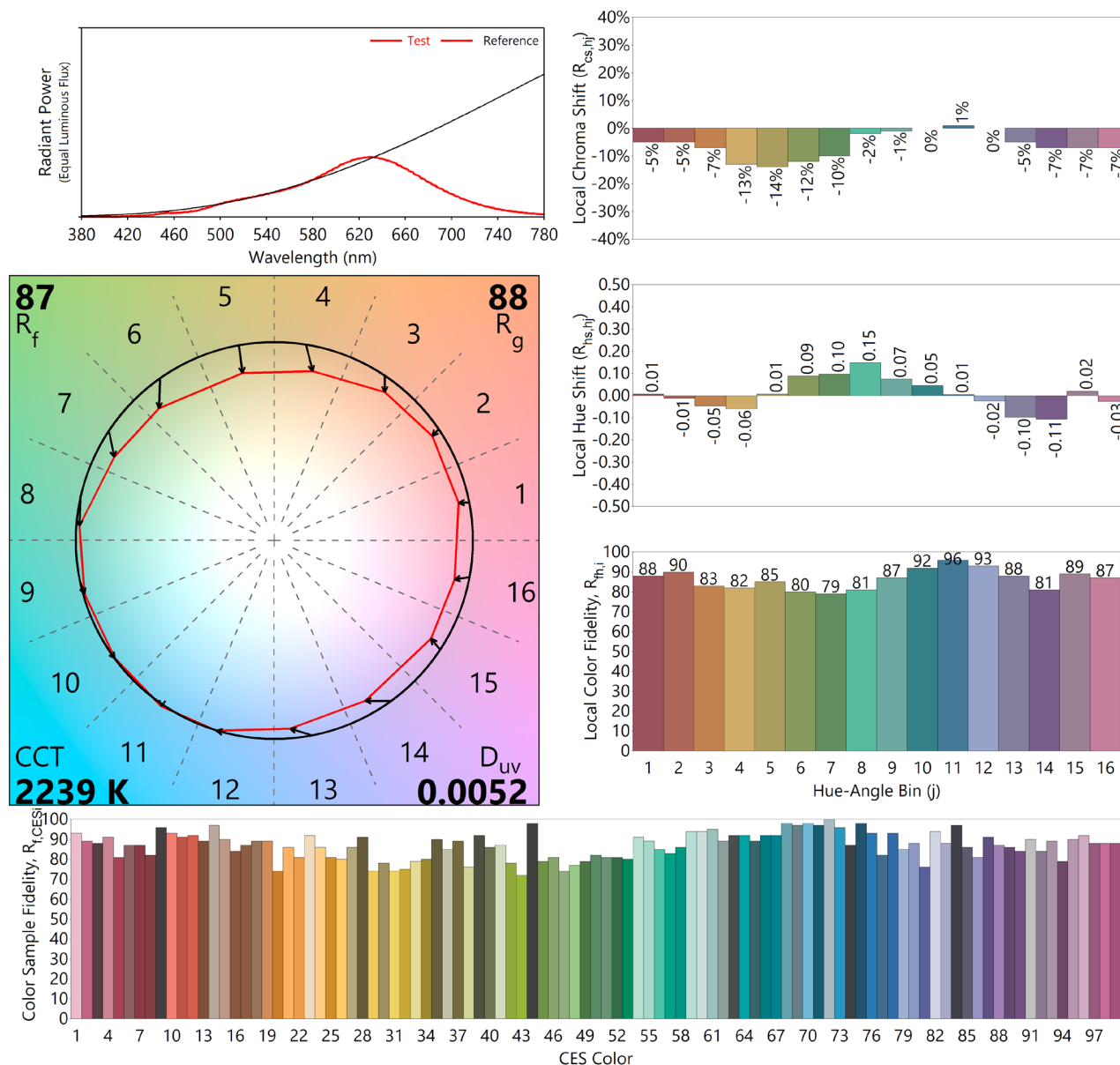
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IES TM30-18 COLOR RENDERING REPORT

Warm Channel Only (300mA, No Dimming, $T_j=25^\circ\text{C}$)





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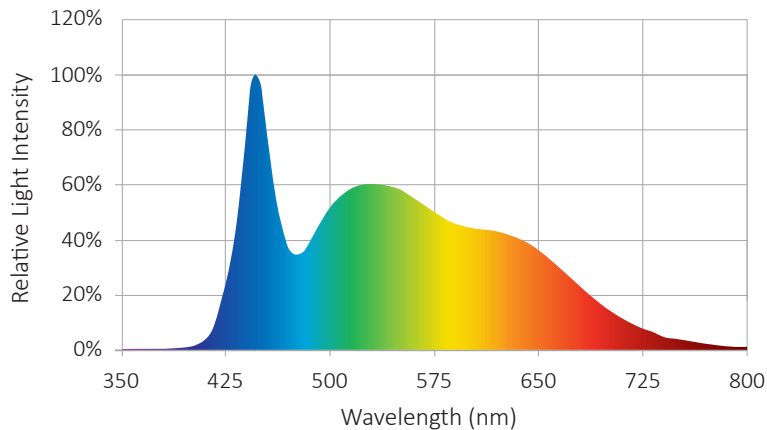
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SPECTRORADIOMETRIC CHARACTERISTICS

Cool Channel Only (350mA, No Dimming, $T_j=25^\circ\text{C}$)



CCT: 6648K

Luminous Flux: 1079.12 lm

Efficacy: 88.5 lm/W

Nominal CCT: LED_6500K

$x_0=0.3130$ $y_0=0.3770$

Chromaticity Coordinates:

$x=0.3092$ $y=0.3345$ $u'=0.1934$ $v'=0.4707$

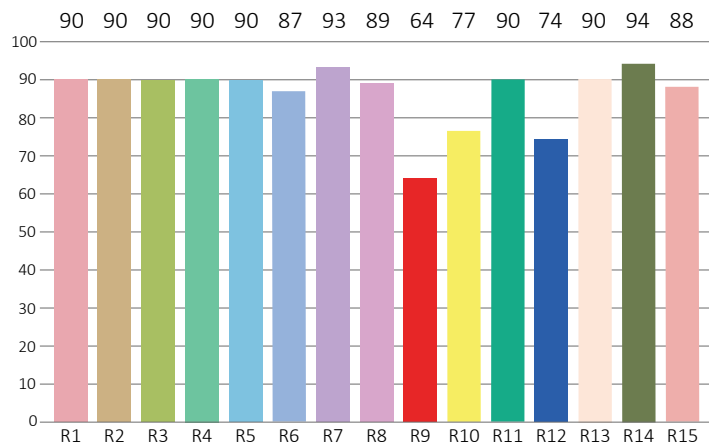
Chromaticity Difference: +0.00772Duv

Dominant Wavelength: 492.0 nm(E)

Peak Wavelength: 445.0 nm

CRI TEST RESULTS

Cool Channel Only (350mA, No Dimming, $T_j=25^\circ\text{C}$)



Color Rendering Index (CRI): $R_a = 89.7$

Colour Fidelity Index: $R_f = 89$

Gamut Index: $R_g = 99$

Purity: 0.0812

Color Ratio: $K_r=28.4\%$ $K_g=56.8\%$ $K_b=14.8\%$

Color Tolerance (SDCM): 2.8

Bandwidth: 28.8 nm

Radiant Flux: 3.804 W

Photosynthetically Active Radiation (PAR): 3.68W

Photosynthetic Photon Flux (PPF): 16.79 $\mu\text{mol/s}$

R1=90	R2=90	R3=90	R4=90	R5=90	R6=87	R7=93	R8=89
R9=64	R10=77	R11=90	R12=74	R13=90	R14=94	R15=88	



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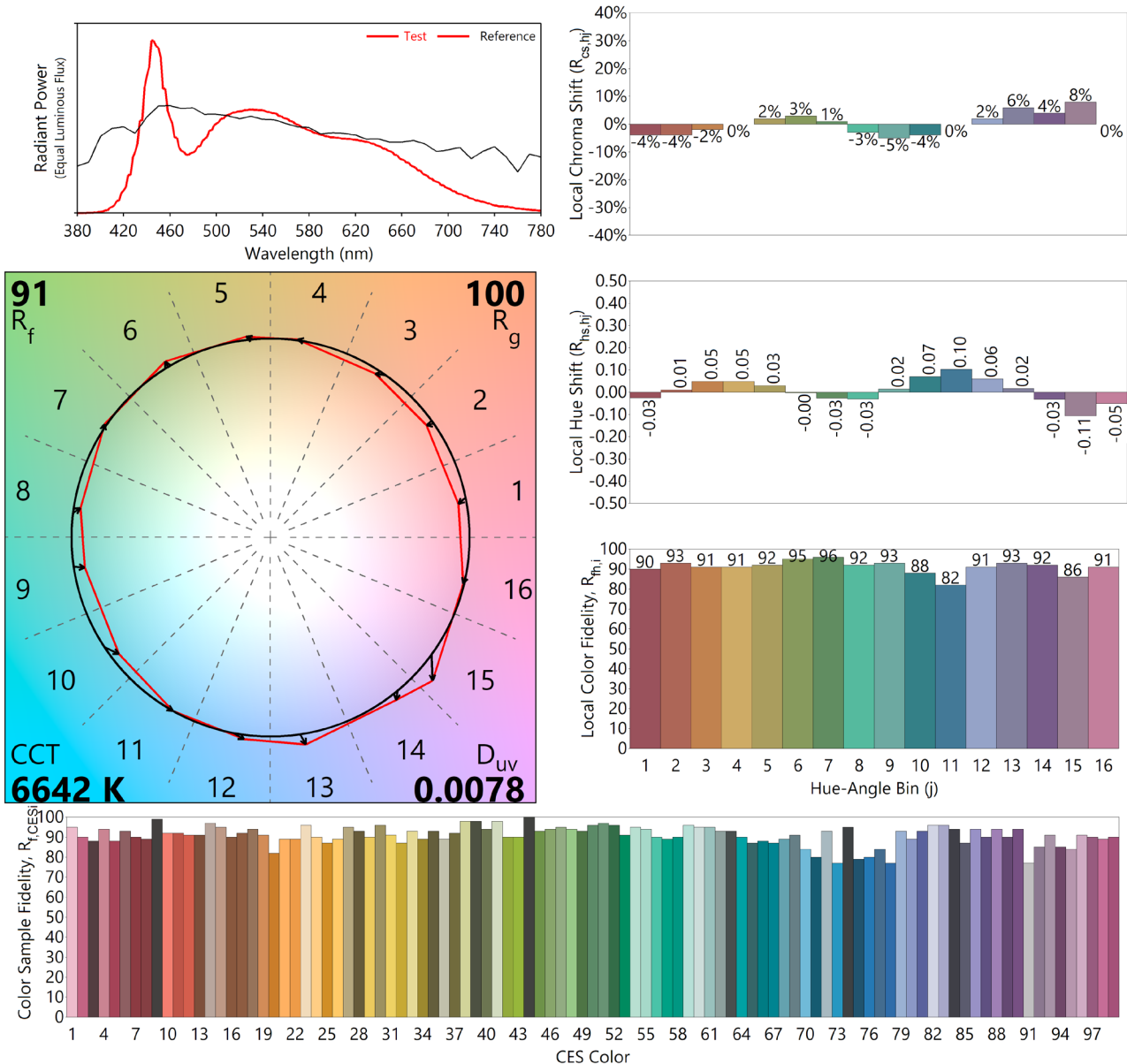
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Cool Channel Only (350mA, No Dimming, $T_j=25^\circ\text{C}$)



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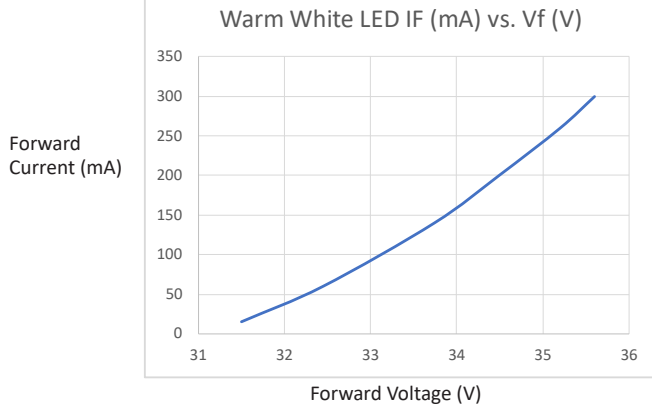
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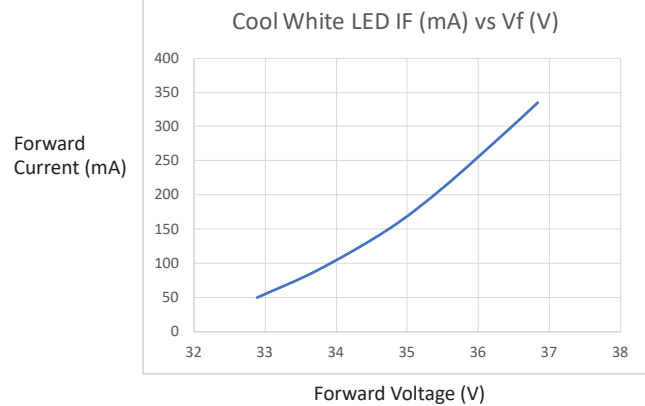
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PERFORMANCE CURVES

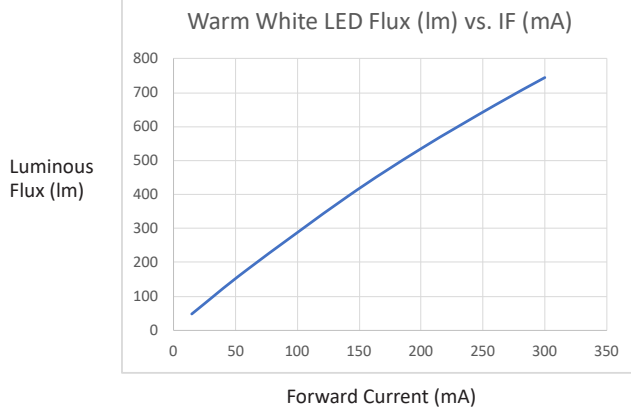
Test Condition: 25°C



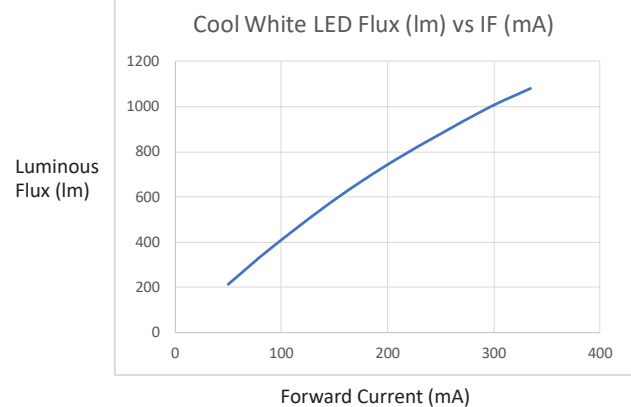
Test Condition: 25°C



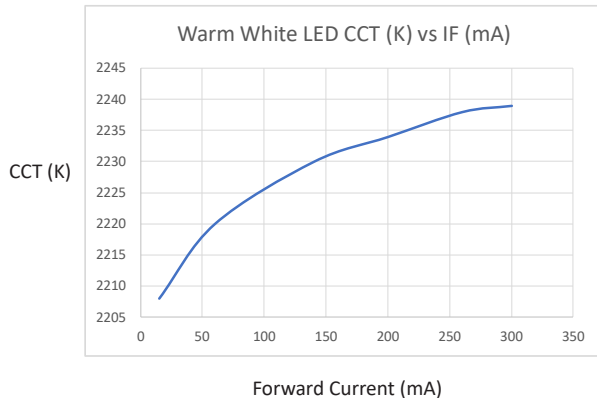
Test Condition: 85°C



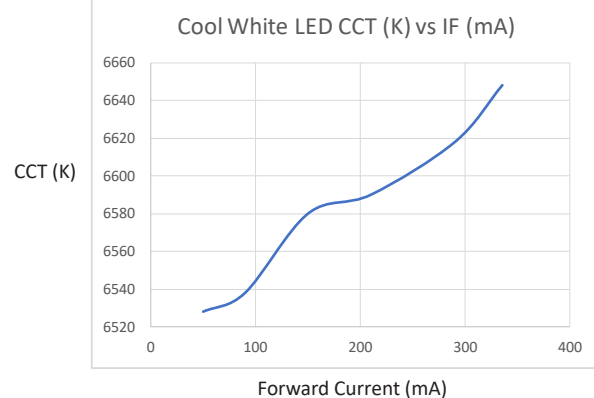
Test Condition: 85°C



Test Condition: 85°C



Test Condition: 85°C



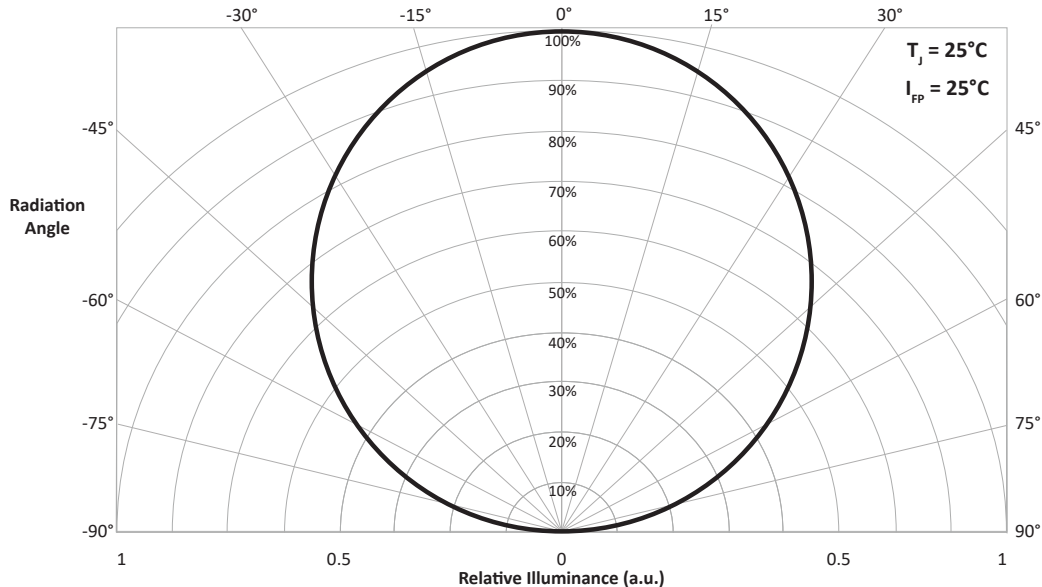
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POLAR RADIATION PATTERN



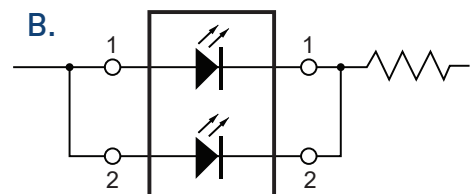
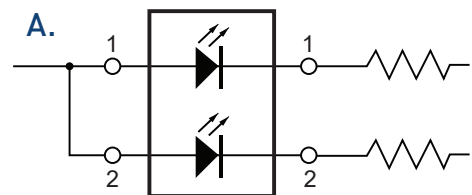
APPLICATION NOTES

Operating at a constant current per circuit is recommended.

If constant voltage operation is desired, the circuit shown in figure A is recommended.

The circuit shown in figure B is **not** recommended. In this configuration, normal variations in forward voltage characteristics may cause current to be unstable.

Dimming with pulse width modulation is recommended. Variations in current resulting from other methods of dimming may cause color shifting in the COB.



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PRECAUTIONS FOR USE

Caution: Do not touch or apply pressure to the light emitting surface (LES) of the COB. Doing so may damage the LED array.

Do not mount reflectors or optics in contact with the LES.

Contact with surfaces of the COB outside of the LES is acceptable for mounting optical devices.

Do not handle COB with bare hands - oils from skin may contaminate the light emitting surface and affect light output.

Apply thermal grease between COB and fixture housing / heat sink to ensure efficient dissipation of excess heat.

Electrostatic discharge (ESD) and excessive transient voltages may damage the COB. Take precautions such as grounded wrist straps and ESD mats when installing / handling the COB.

STORAGE CONDITION

Before opening sealed packaging:

- Temperature 5°-30°C
- Relative humidity less than 60%.

After opening:

- Temperature 5°-30°C
- Relative humidity less than 60%.
- Apply solder within one week of opening.
- LED should be kept in moisture proof foil bag with silica gel desiccant packet.

CHEMICAL COMPATIBILITY

Certain compounds can be absorbed by the resin that encapsulates the light emitting surface, potentially causing reactions that may reduce light output or physically damage the COB. The following compounds are not recommended for use with QLUX COBs:

- | | | |
|---------------|-------------------------|--------------------------|
| • Acetates | • Ethers | • Siloxanes, Fatty Acids |
| • Acetic Acid | • Cl, F or Br compounds | • Sodium Hydroxide |
| • Acrylates | • Liquid Hydrocarbons | • Sulfur Compounds |
| • Aldehydes | • Ketones | • Sulfuric Acid |
| • Amines | • Nitric Acid | • Toluene |
| • Benzene | • Phosphoric Acid | • Xylenes |
| • Dienes | • Potassium Hydroxide | |

CLEANING

Do not clean COBs with water, benzene and/or thinner. **Use isopropyl alcohol (IPA) only.** If another solvent is used, it may cause the LED package / resin to be damaged. Do not clean COBs with an ultrasonic cleaner.

To clean the COB, moisten a clean non-abrasive cloth with isopropyl alcohol, avoiding excess liquid / drips. Gently wipe COB surfaces (**Do not apply pressure to the light emitting surface**) to remove any dust, finger prints, etc..