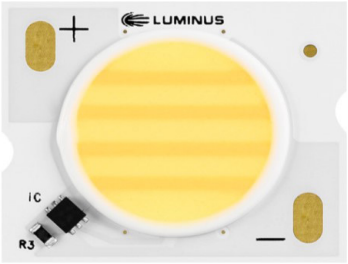
Generation 2 CDM-14 COB

Warm-Dimming White LED Arrays



Features

- High flux densities exceeding 2768 lm from a 14 mm LES for directional lighting
- Superb efficacies up to 125 lm/W at 3000K, minimum 90 CRI
- 100 % factory tested at 85°C hot operating conditions
- Excellent beam uniformity with 10° narrow spot optics
- Halogen like profile options
- CCT tune range options from 1800K and 2000K to 2700K and 3000K
- 3 step binning for each CCT provides accurate color representation.
- Proprietary IC circuit provides smooth and flicker free dimming even at low level.
- Robust package design guarantees long lifetimes in demanding operating conditions.

RoHS REACH

Table of Contents

Applications

- Spotlights/Track Lights
- Downlights
- Shop Lighting
- Hospitality Lighting
- Architectural and Specialty
- Residential Lighting
- Humancentric Lighting

Ordering Information

Ordering Part Numbers

The following table lists the products with typical flux and minimum flux measured at T_j = 85°C with 20 ms Pulse mode. The values at 25°C are calculated and shown for reference only.

CRI[1]	CCT	Output Flux (lm)[2]			Drive Current (mA)	Ordering Part Number[3]
		Typical (85°C)	Minimum (85°C)	Calculated Typical (25°C)		
>90	1800K	133	124	146	50	CDM-14-2718-90-36-DWZ1-F3-3 CDM-14-3018-90-36-DWZ1-F3-3 CDM-14-3020-90-36-DWZ1-F3-3
	2000K	138	129	152	50	
	2700K	2690	2502	2959	700	
	3000K	2768	2575	3045	700	

Notes:

1. Luminus maintains a +/- 2 % tolerance on CRI measurements.
2. Luminus maintains a +/- 6 % tolerance on flux measurements.
3. DWZ1 for Halogen dimming profile .

Part Number Nomenclature

All Luminus COB products are packaged and labeled with part numbers as outlined in the table on page 2. Luminus may include any smaller chromaticity bin that is contained in the larger bin as part of the ordered part. When shipped, each package will contain only a single flux and chromaticity bin. The part number designation is as follows:

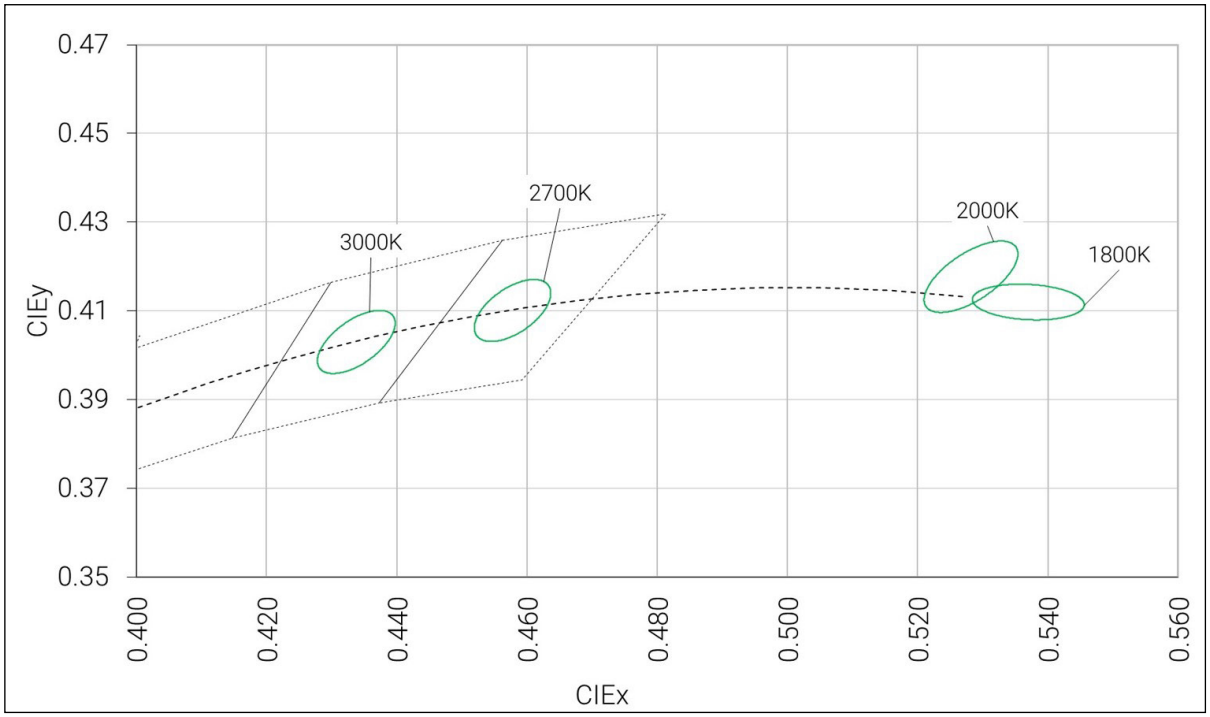
CDM	14	MMNN	XX	VV	QQPP	FG	W
Product Family	**LES[1]**	**CCT[2]**	**Minimum CRI[3, 4]**	**Typical Voltage**	**Package Configurator[5]**	**Flux Bin**	**Chromaticity Bin**
Chip on Board, Dimmable, Multi-die	14 mm LES diameter	See Note 2 below	90: CRI > 90	Volts (V)	DWZ1	See page 2	See page 4 for bins

Notes:

1. Light Emitting Surface (LES) Diameter.
2. Correlated Color Temperatures (CCT). MM corresponds to the main CCT and NN refers to the dimmed CCT.
   18 = 1800K
   20 = 2000K
   27 = 2700K
   30 = 3000K
3. Minimum Color Rendering Index (CRI).
4. R9 value of 90 CRI products is >50 with a tolerance of +/- 5 %.
5. DWZ1 is the configurator referring to Gen 2 Dimmable COB, 1 indicates a halogen-like dimming curve.

Binning Structure

Chromaticity Binning Diagram[1,2]



CCT	Center Point		Angle	3-step Bin	
	CIEx	CIEy	θ (°)	a	b
1800K	0.5370	0.4120	-5	0.0086	0.0040
2000K	0.5282	0.4177	49.9	0.0098	0.0045
2700K	0.4578	0.4101	53.7	0.0081	0.0042
3000K	0.4338	0.4030	53.2	0.0083	0.0041

Notes:

1. LED chromaticity is measured and binned at 85°C junction temperature with the V_f and I_f condition of 36 V, 700 mA respectively.

2. Luminus maintains a tolerance of ±0.005 on Chromaticity (CIEx, CIEy) measurement.

Absolute Maximum Ratings

Parameter		Symbol	Value	Unit
Forward Current	Maximum	$I_{f\,max}$	1800	mA
Power Dissipation	Maximum	$P_{D\,max}$	66.6	W
Operating Case Temperature	Maximum	T_C	105	°C
Junction Temperature	Maximum	T_j	140	°C

Note:

1. To prevent damage, do not exceed maximum operating conditions.

Characteristics[1,2,3]

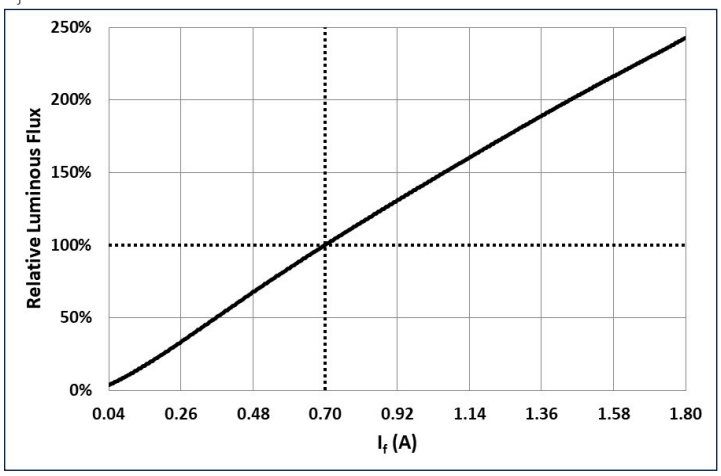
Parameter		Symbol	Value	Unit
Light Emitting Surface Diameter[4]		LES	13.7	mm
Forward Voltage - Warm White Mode (I_f =50 mA)	Minimum	$V_{f\,min}$	25.5	V
	Typical	$V_{f\,typ}$	27.5	
	Maximum	$V_{f\,max}$	29.5	
Forward Voltage - Cool White Mode (I_f =700 mA)[5]	Minimum	$V_{f\,min}$	31.0	V
	Typical	$V_{f\,typ}$	33.5	
	Maximum	$V_{f\,max}$	37.0	
Viewing Angle		$2\theta_{1/2}$	120	°

Notes:

1. All product operating specifications are subject to change without advance notice.
2. Device operation not recommended at drive currents less than 10% of 50 mA
3. Device measurements are taken with T_j = 85°C with 20 ms Pulse mode.
4. The LES diameter is defined consistent with industry practices and aligned to optical characteristics. Please use ray files for all optics designs.
5. Voltage is specified at typical forward current. For voltage at higher drive current, refer to performance graphs.

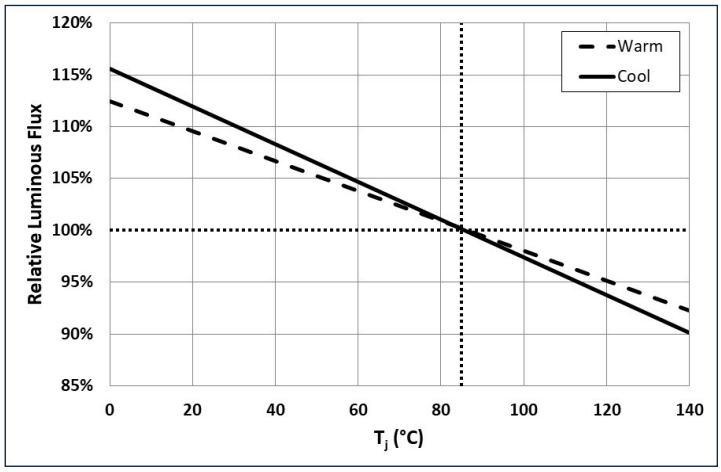
Relative Luminous Flux vs Forward Current

T_j = 85°C



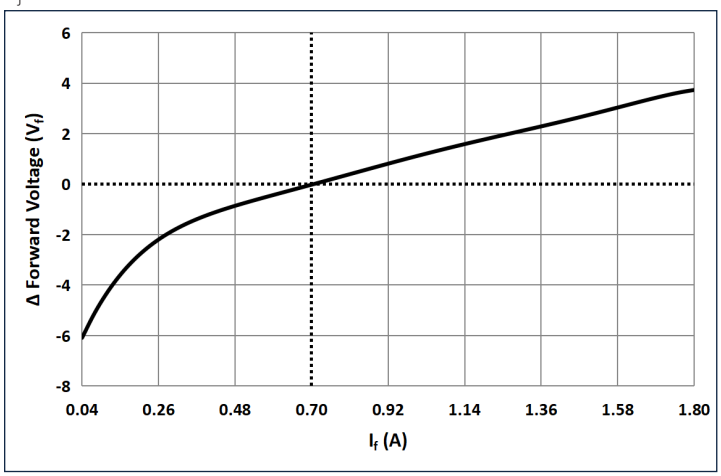
Relative Luminous Flux vs Temperature

I_f = 700 mA (Cool White), I_f =50 mA (Warm White)



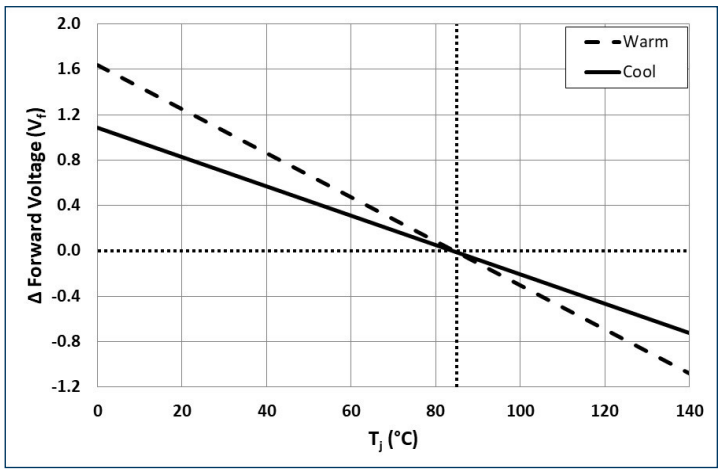
Forward Voltage vs Forward Current

T_j = 85°C



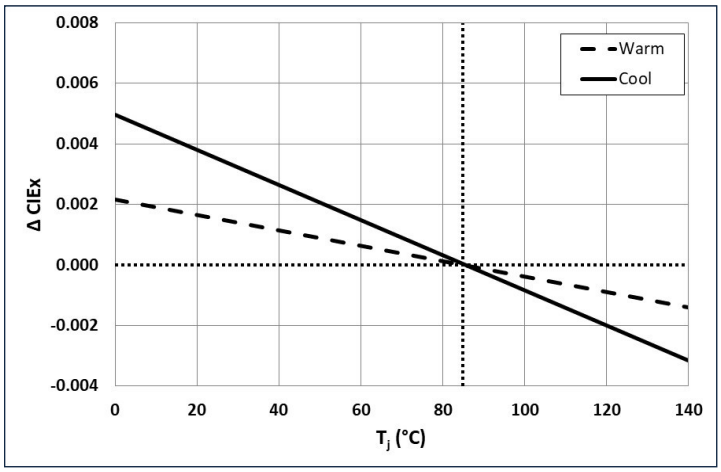
Forward Voltage vs Temperature

I_f = 700 mA (Cool White), I_f =50 mA (Warm White)



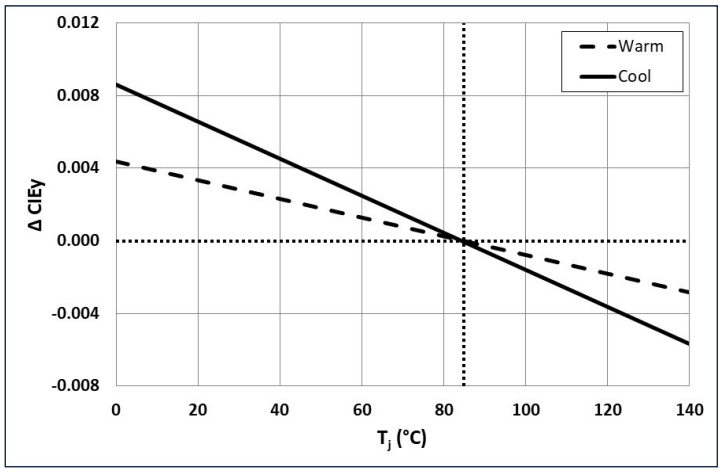
Relative Chromaticity vs Temperature

I_f = 700 mA (Cool White), I_f =50 mA (Warm White)



Relative Chromaticity vs Temperature

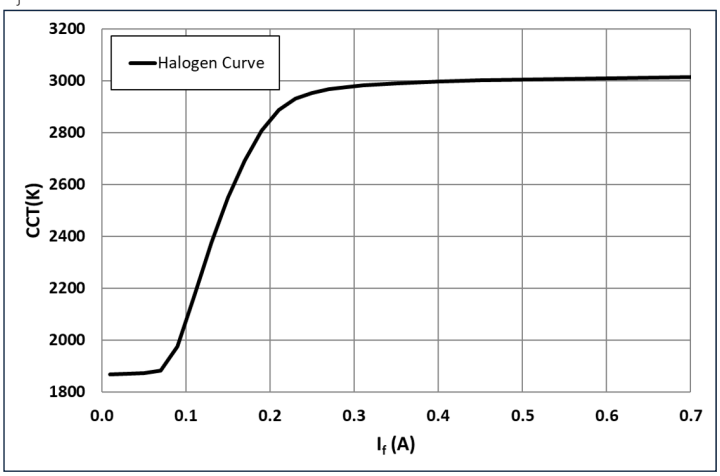
I_f = 700 mA (Cool White), I_f =50 mA (Warm White)



Dimming Profile

Dimming Profile (3018, 90CRI)

T_j= 85°C



Dimming Profile (3020, 90CRI)

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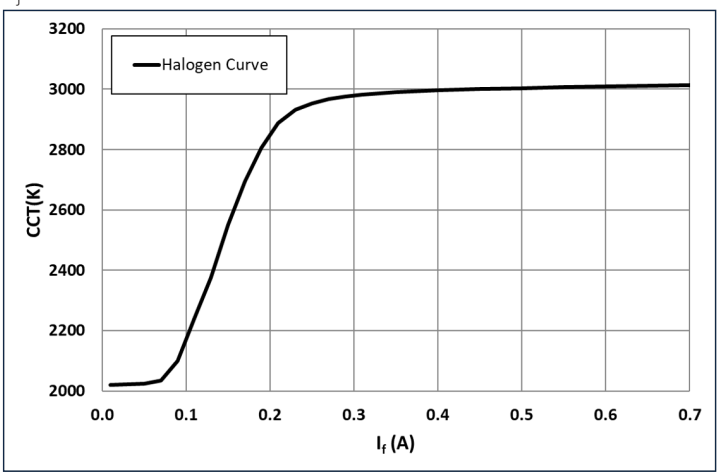
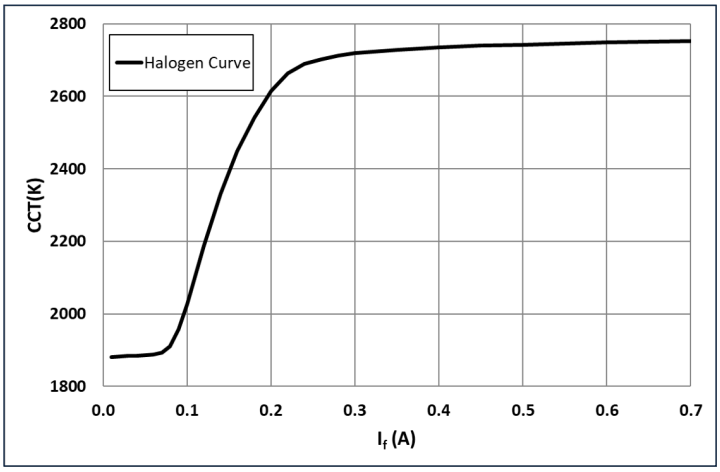


Dimming Profile (2718, 90CRI)

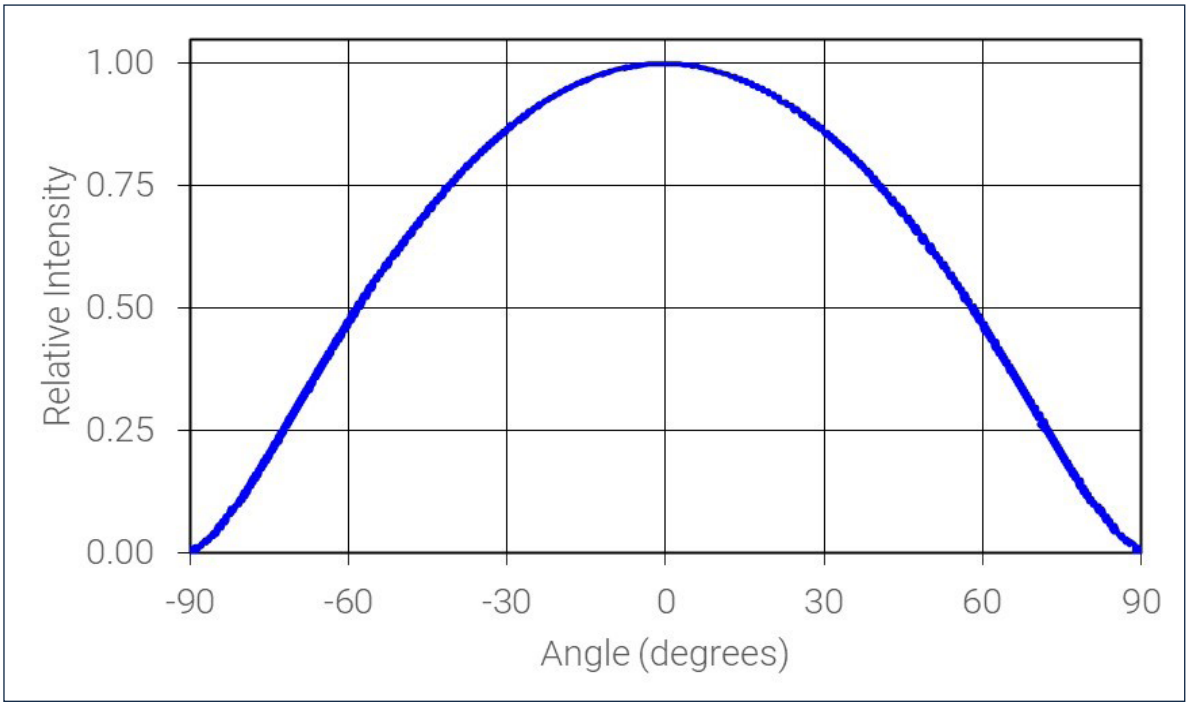
T_j= 85°C



Angular Distribution and Typical Spectrum

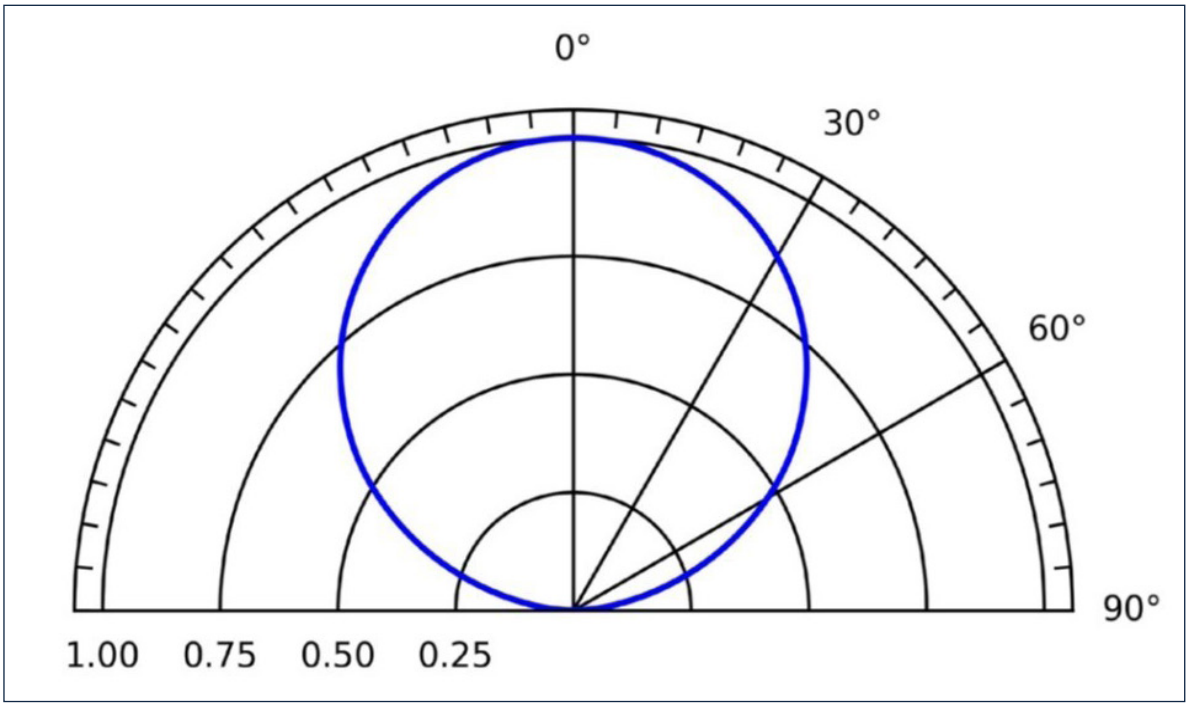
Typical Angular Radiation Pattern

T_j= 85°C with 20 ms Pulse mode



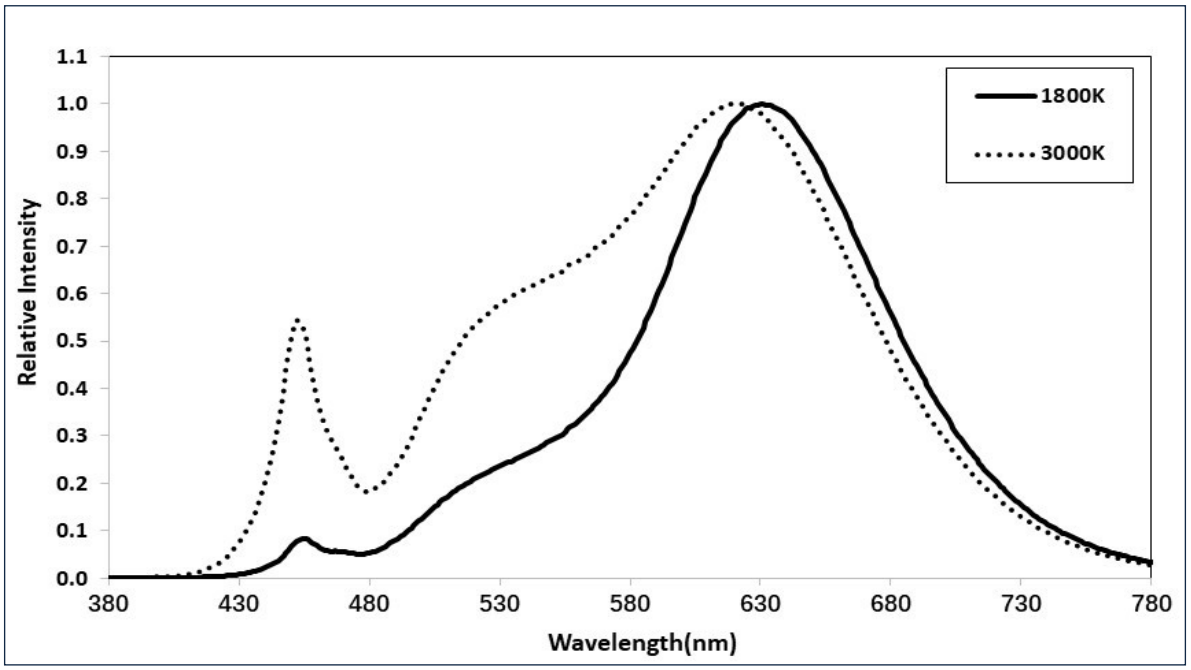
Typical Polar Radiation Pattern

T_j= 85°C with 20 ms Pulse mode



Relative Spectral Power Distribution

T_j= 85°C



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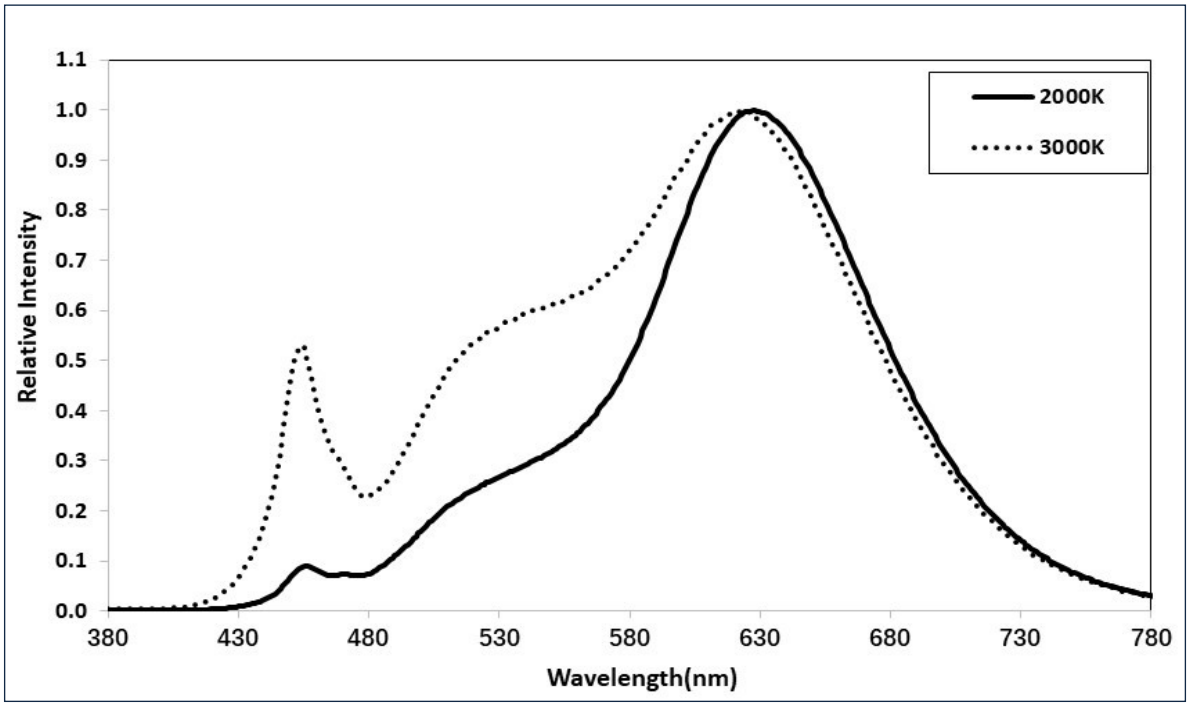
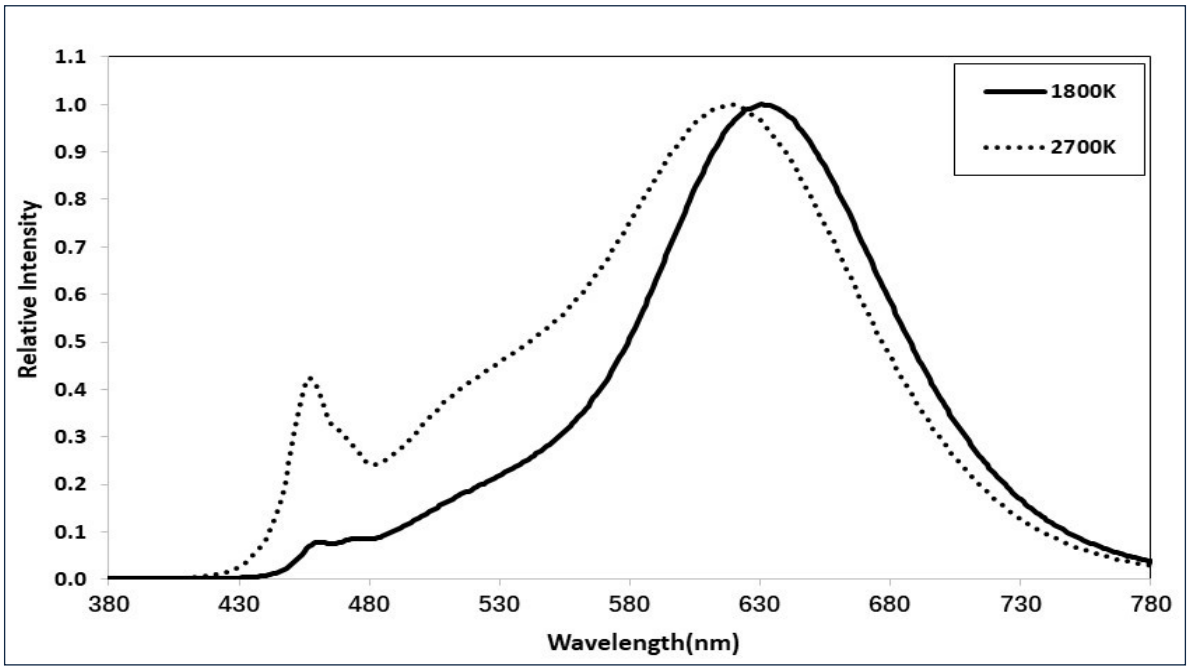
T_j= 85°C

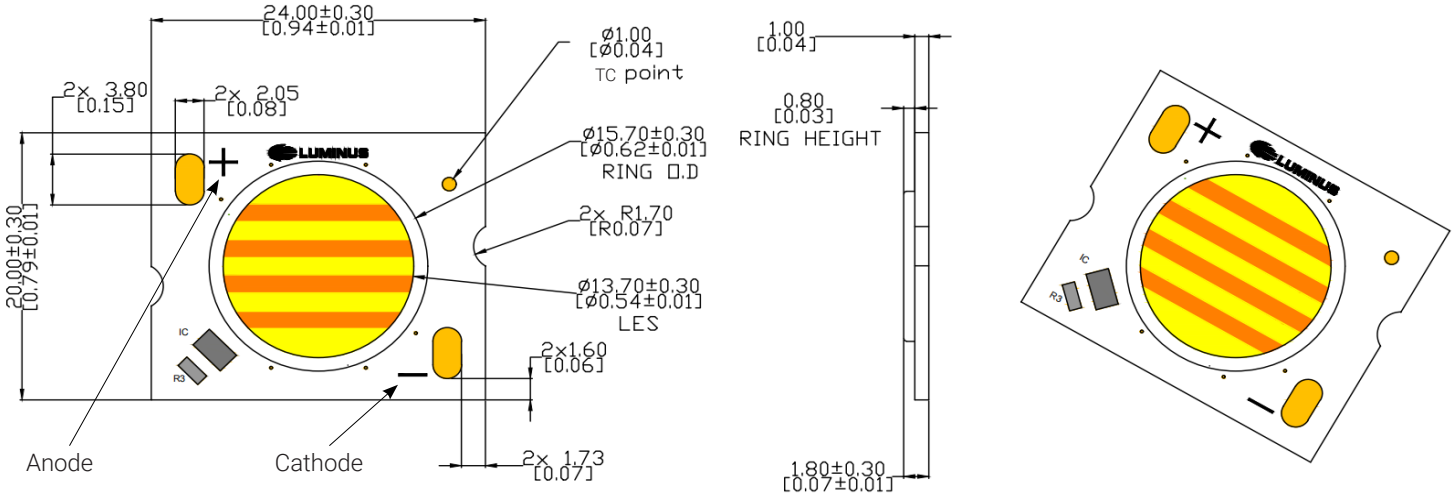


Relative Spectral Power Distribution

T_j= 85°C



Mechanical Dimensions



Note:

1. Unless otherwise specified, tolerance is ± 0.3 mm.

Shipping Tray Outline

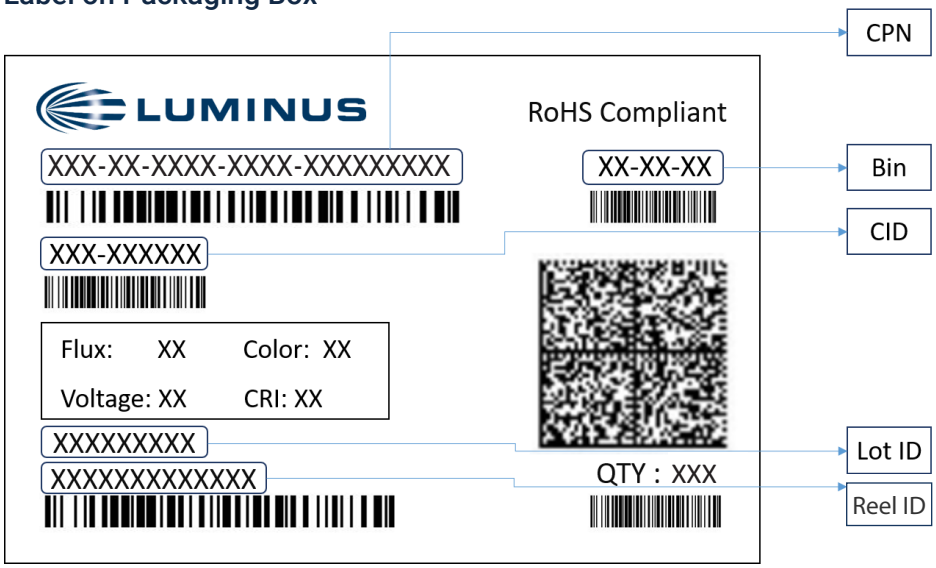
Packaging boxes

Packing Configuration:

1. 35 devices per tray, with a maximum stack of 5 trays per pack
2. Each pack is placed in anti-static moisture barrier bag.

Shipping Label

Label on Packaging Box



Label Fields:

- CPN: Luminus ordering part number
- CID: Customer's part number
- QTY: Quantity of parts per reel
- Flux: Bin as defined on page 2
- Voltage: NA
- Color: Bin as defined on page 4
- CRI: NA

Revision History

Rev	Date	Description of Change
01	11/12/2024	Initial release
02	01/06/2024	Update ordering part number,update characteristic and dimming profile plot, remove "DWZ2"