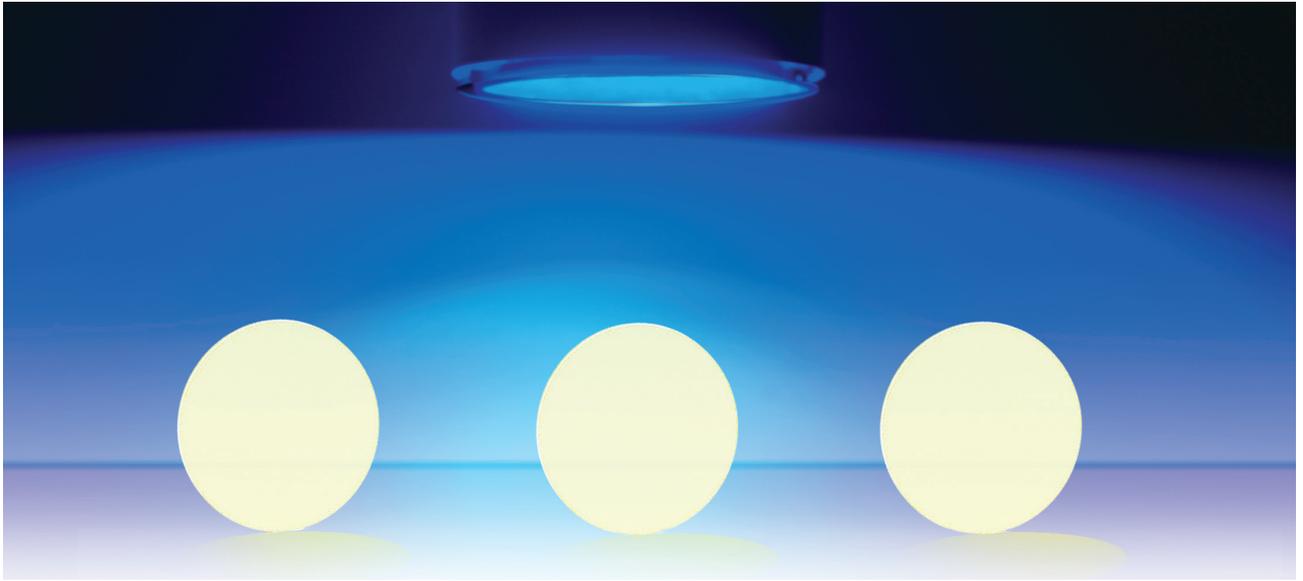


DATASHEET

Intematix ChromaLit™ XT *Remote Phosphor Light Source*



Features & Benefits

- High operating temperature/high lumen output
- Off-state Neutral Color
- Meets V0 flammability requirement and UV resistant
- Up to 30% higher system efficacy compared to conventional LED lighting designs
 - Improves system performance and lowers cost
- Powered by radiant energy from blue LEDs, lasers and OLEDs
- Streamlined supply and production of luminaires
 - One blue light engine required. Change CCT/ CRI with Chromalit
- Glare-free and uniform light quality
- High CRI
- Consistent color matching

Applications and Uses

- Downlights
- High bay and industrial lighting
- Outdoor area lighting
- Spots and Floods
- Track lighting
- High-temperature and high-intensity applications
- LED modules
- Entertainment lighting
- Task lighting

TABLE OF CONTENTS

Product Nomenclature	3
Optical and Performance Characteristics	4
Relative Spectral Distribution	6
Intensity Distribution	7
Performance Characteristics	8
Mechanical Characteristics	9
Maximum Ratings and Reliability Ratings	10
Packaging Specifications	11
Company Information	12

Product Nomenclature

The part number designation for the CL series is explained as follows:

CL-xxx-yyyy-zz

Where:

X—Designates first digit in CRI followed by the first two digits in CCT

Y—Designates dimension

Z—Designates product family (PC for Polycarbonate substrate/XT for Glass substrate)

Example:

CL-830-R75-XT represents ChromaLit 80CRI, 3000K CCT, 75mm Round, XT product family

Optical and Performance Characteristics¹

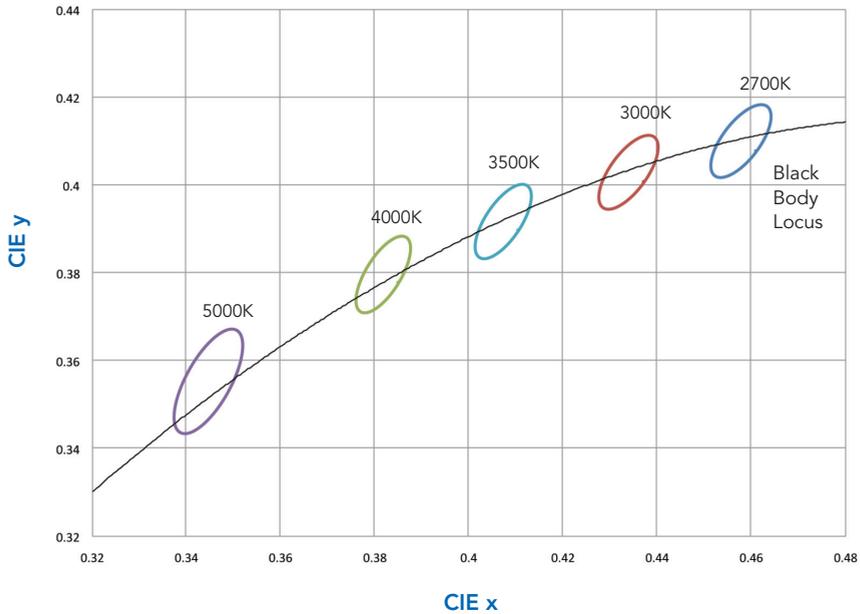
Color Designation	CCT ² (K)	Color Consistency ³		CRI ⁴	Viewing Angle Full Width Half Max	Conversion Efficacy ⁵ (lm/W _{rad}) at 25° C	
		MacAdam Ellipses	CCT (K)			Minimum	Typical
CL-827	2700	3-step	±70	80	115	180	190
CL-927	2700	3-step	±70	90	115	150	160
CL-830	3000	3-step	±90	80	115	187	197
CL-930	3000	3-step	±90	90	115	155	165
CL-835	3500	3-step	±110	80	115	195	205
CL-840	4000	3-step	±120	80	115	205	215
CL-750	5000	4-step	±170	70	115	222	232

Notes:

- Performance based on reference design. Please refer to application note for details on reference design. Intematix maintains a tolerance of ±7% on luminous flux, radiant watt and measurements. Intematix maintains a tolerance of 0.5 SDCM on color consistency measurements.
- Correlated color temperature**
- Color Consistency** is dependent on the AVERAGE dominant wavelength of blue LED source. ChromaLit maintains color consistency within a 3-step MacAdam Ellipse given a uniform blue LED source with a constant average wavelength. 2.5nm (±1.25nm) of average blue LED wavelength variation will provide 4-step MacAdam Ellipses of color consistency. Values are approximate, please refer to bin diagram on the following page for exact bin definition.
- Minimum Color Rendering Index** rating is based on reference design using blue LEDs with average dominant wavelength of 455nm. Please refer to page 8 for more information on performance characteristics over wavelength.
- Conversion Efficacy** is the luminous flux (white light) output per radiant watt of blue light input to ChromaLit. W_{rad} is the radiometric power measured in watts. Conversion efficacy is rated based on reference operation and dominant blue LED wavelength of 455nm (peak wavelength of 450nm).

Optical Characteristics (Continued)

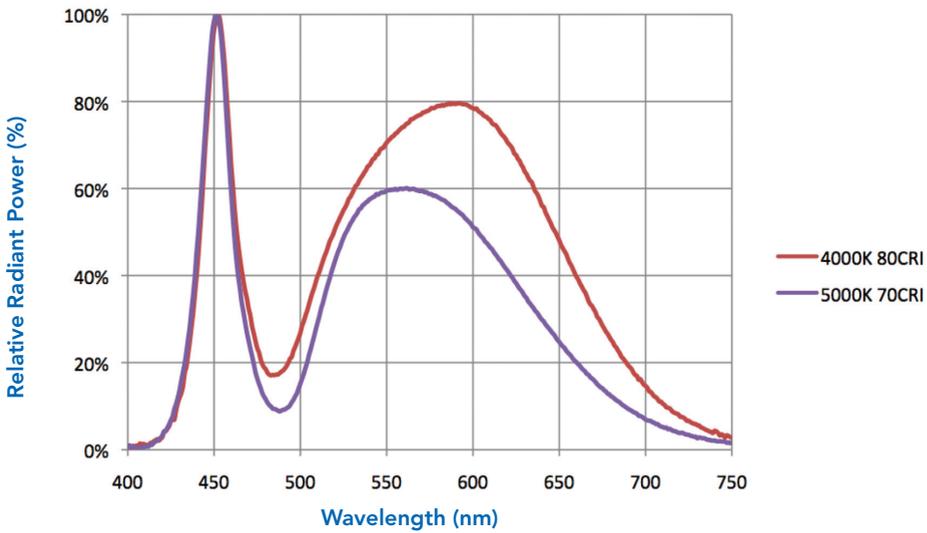
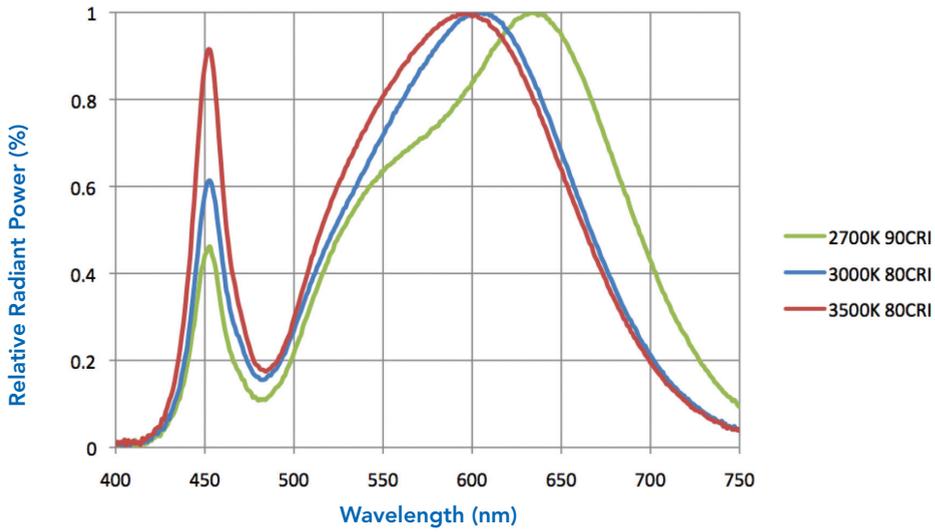
ChromaLit Binning Diagram



Center Points

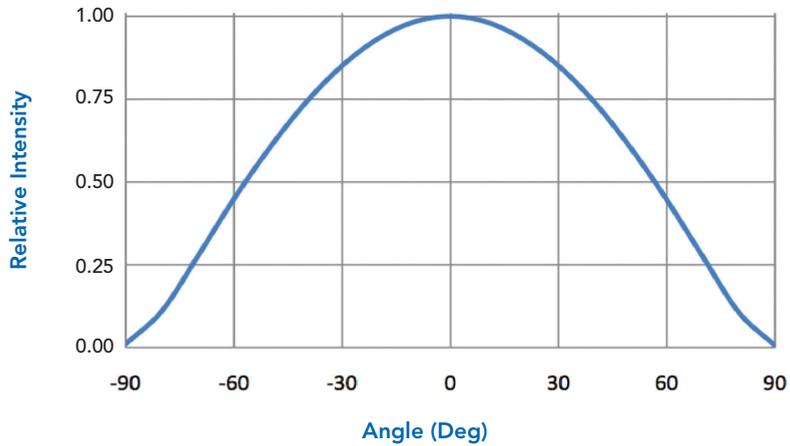
CCT	x	y
2700K	0.4578	0.4101
3000K	0.4338	0.403
3500K	0.4073	0.3917
4000K	0.3818	0.3797
5000K	0.3447	0.3553

Relative Spectral Power Distribution



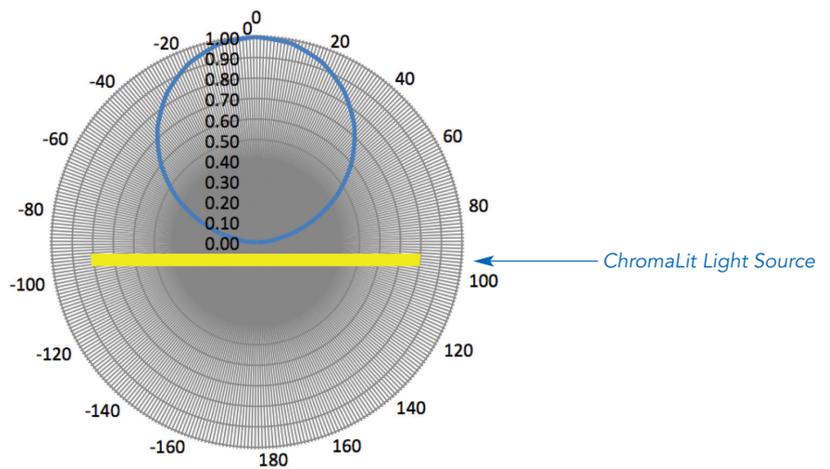
Intensity Distribution

Luminous Intensity Distribution Diagram¹



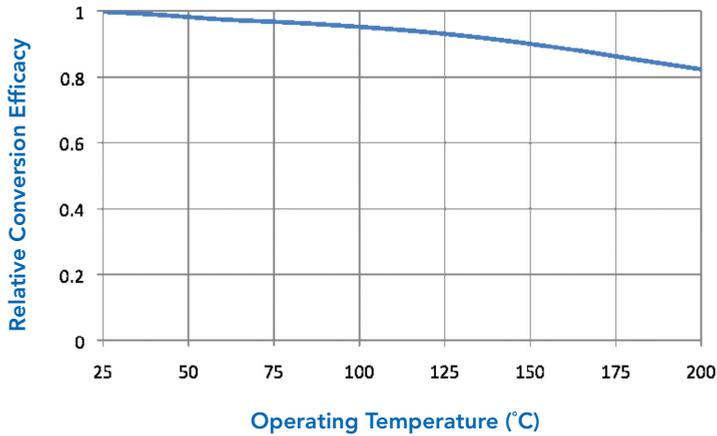
¹Intensity distribution pattern is characterized using CL-830-LR-XT products and reference design.

Luminous Intensity Polar Diagram

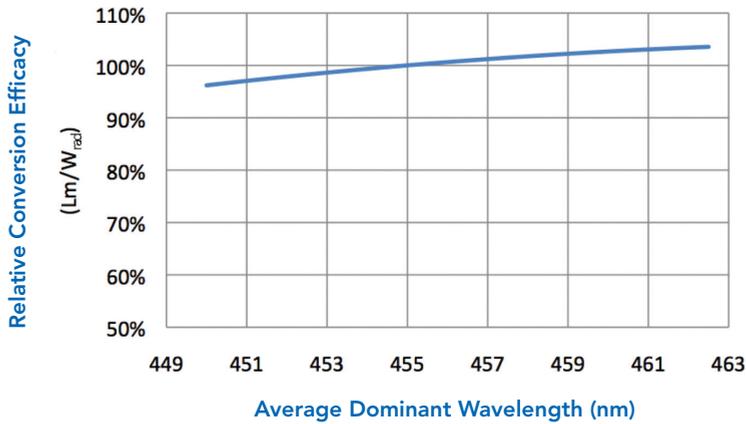


Performance Characteristics

Relative Conversion Efficacy vs. Operating Temperature



Relative Conversion Efficacy over Wavelength¹

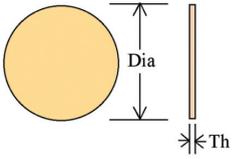


¹Relative conversion efficacy does not reflect performance of blue LED over dominant wavelength.

Relative CIE Chromaticity Shift over Wavelength

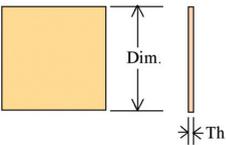
	Average Dominant Wavelength				
	450nm	452.5nm	455nm	457.5nm	460nm
Δ CIE X Coordinate	-0.003	-0.002	0	0.001	0.001
Δ CIE Y Coordinate	-0.014	-0.007	0	0.005	0.008

Mechanical Characteristics



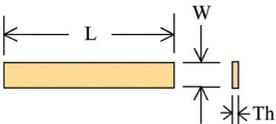
ChromaLit Round*

Dimension Designation	Diameter ¹ (mm)	Diameter (in.)	Example Application	Typical Lumen Output(lm) ²
R23	22.5	0.9	Spot	500
R34	34.0	1.3		1100
R45	45.0	1.8	Flood	2000
R62	61.5	2.4	Downlight	3700
R75	75.0	3.0	Area Lighting	5500
R100	100.0	3.9		10000



ChromaLit Square*

Dimension Designation	Dimensions L X W (mm) ¹	Dimensions L X W (in.)	Example Application	Typical Lumen Output(lm) ²
S65	65.0 x 65.0	2.6 x 2.6	Spot	5300
S95	95.0 x 95.0	3.7 x 3.7	Downlight Area Lighting	11300



ChromaLit Linear*

Dimension Designation	Dimensions L X W (mm) ¹	Dimensions L X W (in.)	Example Application	Typical Lumen Output(lm) ²
L152	152.5 x 22.5	6.0 x 0.9	Task/Linear/	5000
L225	305.0 x 22.5	12.0 x 0.9	Panel Lighting	10000

* Product performance based on reference design. Product specifications subject to change

1. Typical dimension tolerances for length, width, and diameter are ± 0.7 mm. Phosphor dimension and mechanical dimension are equivalent.
2. Typical lumen output is a recommended range based on typical application for a 3000K CCT, 80 CRI lighting system operating below maximum temperature specification. On a relative basis, lower CCTs/higher CRIs operate at lower lumen output and higher CCTs/lower CRIs may have higher lumen output. Max temperature and thus system lumens may vary widely depending on thermal management used.

Additional Mechanical Characteristics

Characteristic	Value
Thickness	2.4mm ±0.2mm
Substrate	Glass (Low Iron Soda Lime)
Orientation	Glossy side out, Matte side facing LED
Coefficient of Thermal Expansion	$9.3 \times 10^{-6}/^{\circ}\text{C}$

Irregularities may occur at edge of parts. These do not affect part performance.

Absolute Maximum Ratings

Description	Maximum Value
Maximum operating temperature	180°C
Minimum operating temperature	-40°C
Max storage temperature	180°C
Minimum storage temperature	-40°C
Response time to full light output	<10µs

Reliability and Environmental Ratings

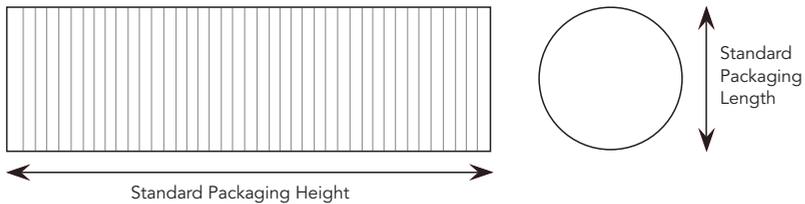
Description	Typical Values
Temperature/Humidity (non-condensing)	60° C at 90%
Flammability	V0
RoHS	RoHS Compliant

Packaging Specifications

Product will be shrink-wrapped according to the following specifications. Product will be separated by non-abrasive material.

Dimension Designation	Standard Packaging Increment (EA)	Standard Packaging Length (mm)	Standard Packaging Height (mm)
R23	50	23	125
R34	50	34	125
R45	50	45	125
R62	50	62	125
R75	20	75	50
R100	20	100	50
S65	20	65	50
S95	20	95	50
L152	10	152	25

Packaging Illustration



DRAWING NOT TO SCALE

Please contact a sales representative to request a demonstration kit and for full product details.
For more information contact ChromaLit@Intematix.com.

Company Information

Intematix Corporation is a materials development innovator, providing customizable, patented phosphors that serve as the foundation for high quality, energy efficient LED light. Intematix products enable attractive, vivid color quality, superior consistency, uniformity and stability. Headquartered in Fremont, California, Intematix maintains R&D, manufacturing, business and support operations in the United States, Asia and Europe.

To learn more about the company, please visit www.intematix.com

INTEMATIX

46430 Fremont Boulevard • Fremont, CA 94538

Tel: +1 (510) 933-3300 • Fax: +1 (510) 668-0793

chromalit@intematix.com

www.Intematix.com