
Cree LED Components
CXA2011 Presentation
Presenter
Date
CREE

Introduction

Purpose

- Provide an Overview of Cree's XLamp CXA2011 Array

Objective

- Explain where the CXA2011 fits in Cree's portfolio of components
- Discuss CX2011's features and benefits
- Highlight targeted applications for the CXA2011

Content

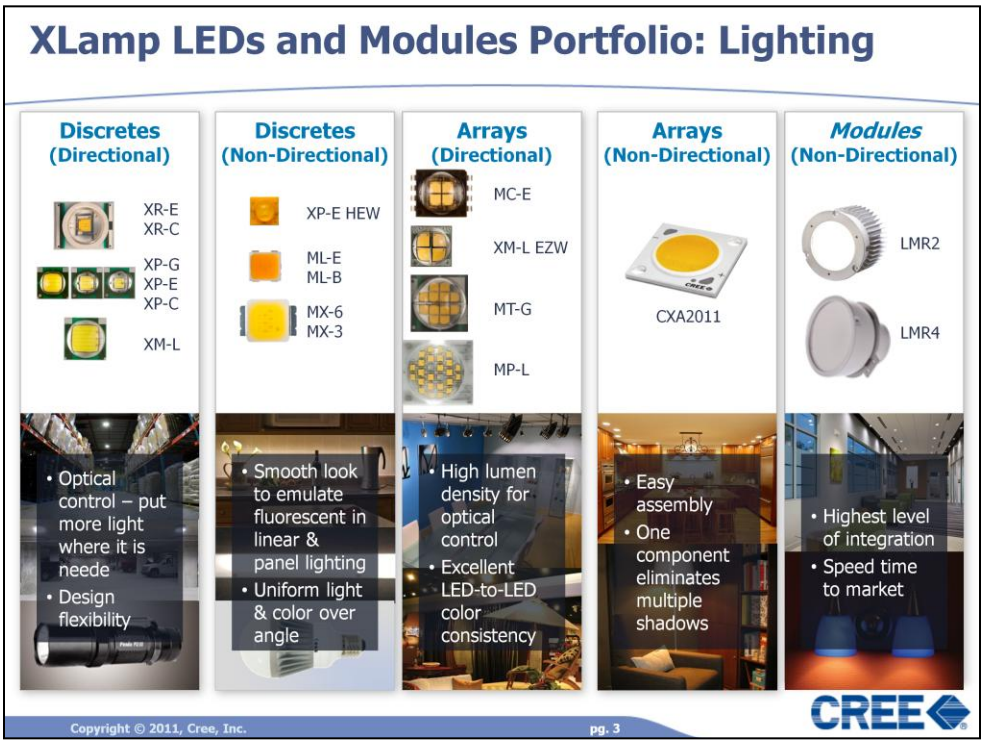
- 15 slides

Content

- 10 Minutes

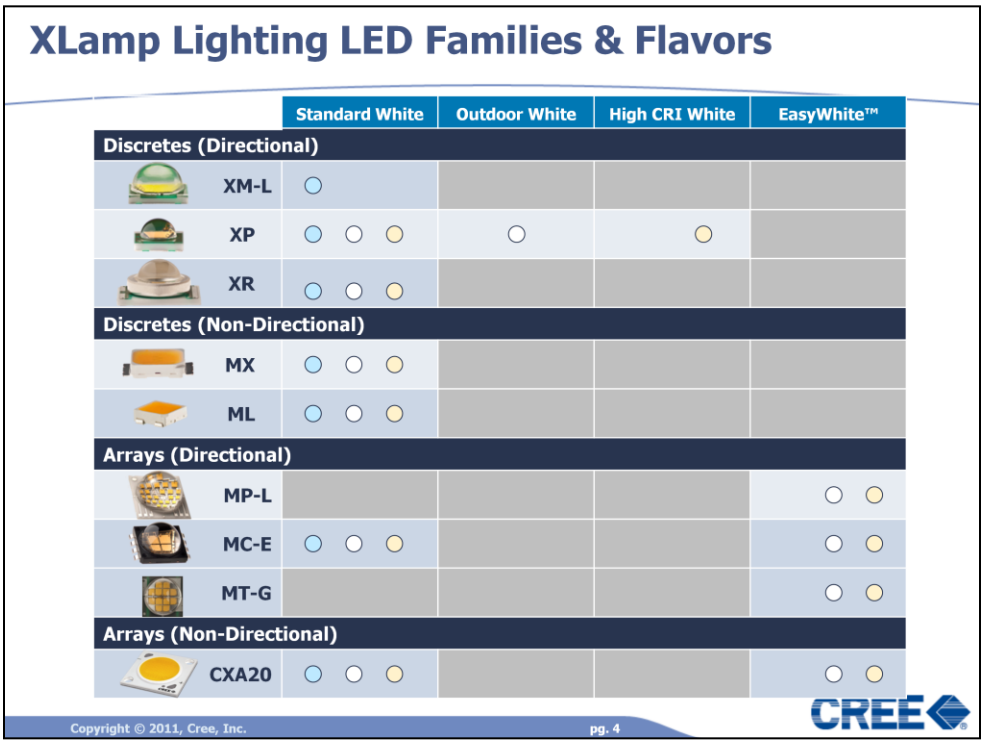
CXA2011

Welcome to the Cree XLamp CXA2011 product training. This product training module will introduce the Cree XLamp CXA2011, discuss the product's features and benefits as well as highlight the targeted applications for the CXA2011.

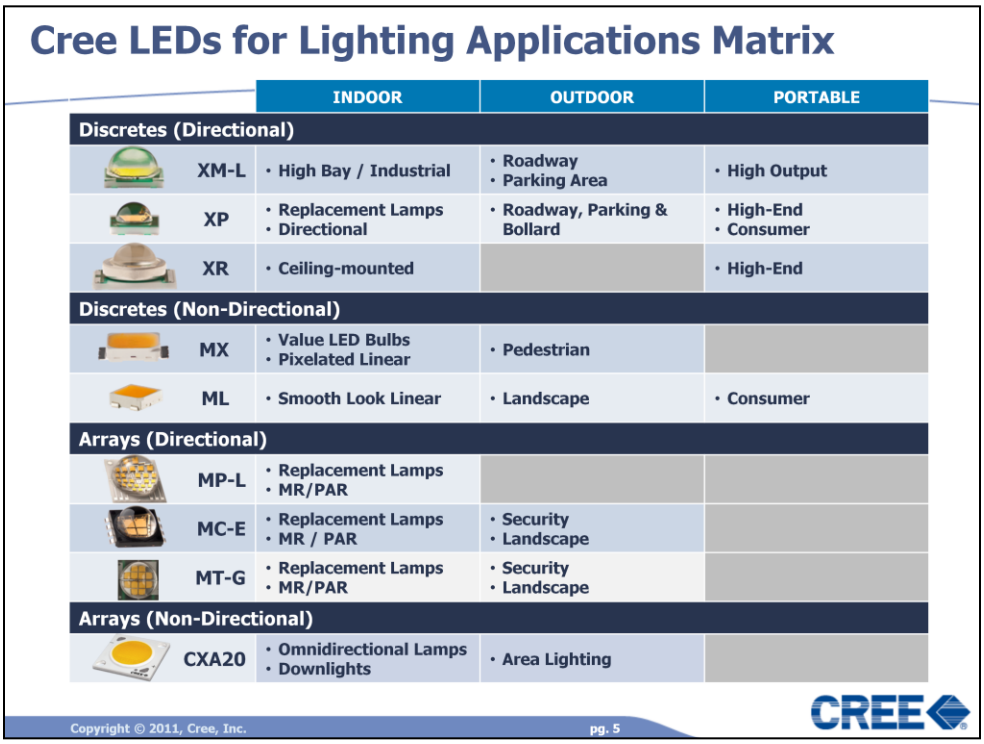


This is an overview of Cree's Portfolio of Lighting Class LED Components for General Lighting Applications. As you can see the CXA2011 is Cree's First Non-Directional Array. Cree's entry into the non-directional LED array sector has delivered the industry's the most flexible and highest performing LED array. The CXA2011 delivers the widest operating range of luminous flux, the broadest level of chromaticity choices and color consistency, the widest range supporting 3rd-party products and the highest levels of efficacy for mid-range LED arrays

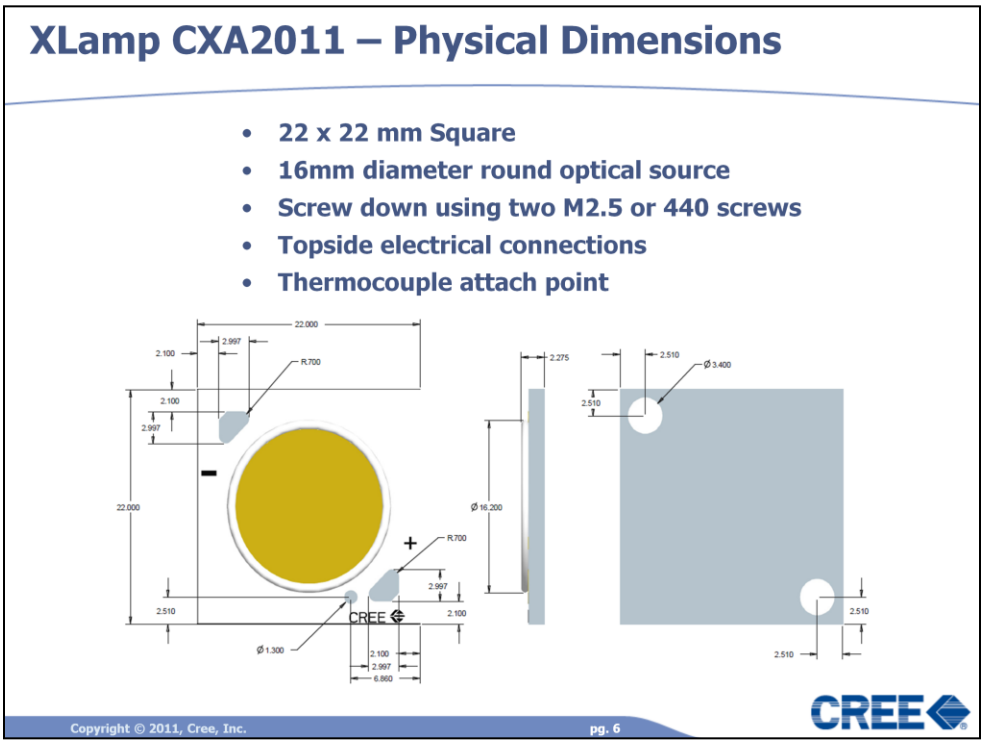
The CXA2011 is easy to use and makes assembly simple and straight forward. In addition, as a single component, it provides a single light source, eliminating multiple shadows that occur when utilizing multiple components that provide multiple light sources.



This slide details again where the CXA2011 fits in Cree's Portfolio of Component Solutions, the broadest portfolio of lighting products in the marketplace. CXA2011 is available in both Standard White and EasyWhite™ Configurations come in Cool Neutral and Warm Color Temperatures. The CXA family of LED arrays are binned at 85° C for chromaticity and flux; the flux bins are NEMA SSL-3 2011 standard flux bins; chromaticity bins are either EasyWhite 2-step or 4-step bins or ANSI standard quarter bins all at 2700K, 3000K, 3500K, 4000K, and 5000K CCT. This characterization and binning data offers unprecedented chromatic choice and consistency. The CXA2011 is the first LED array to provide data for chromatic shift over temperature and current, allowing fixture designers new levels of lighting predictability and control.



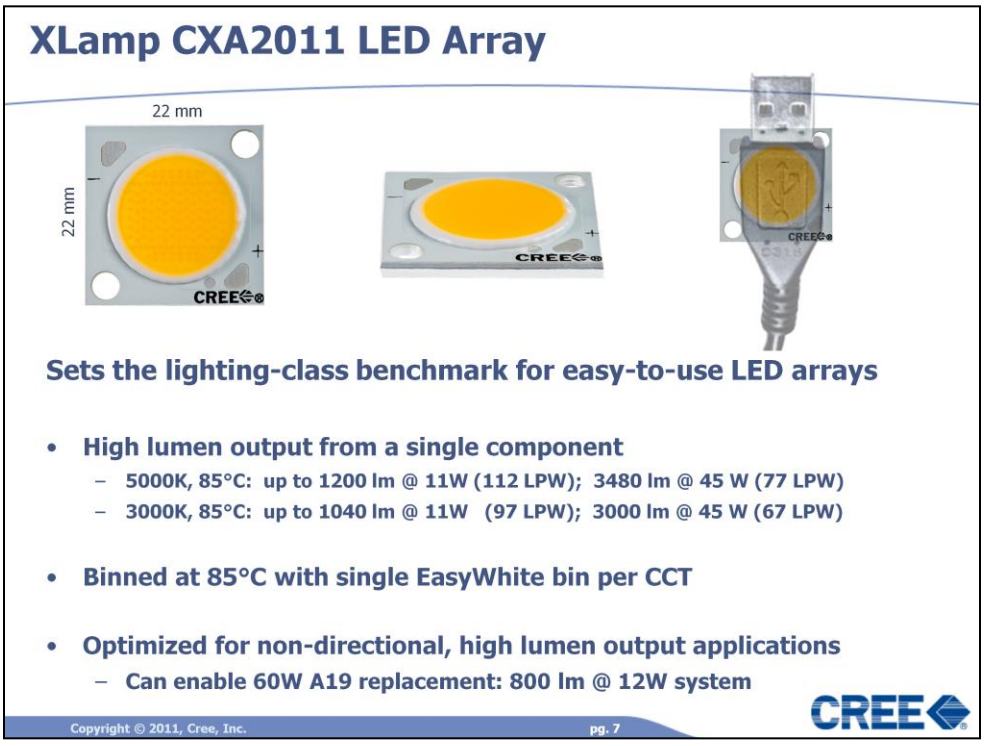
The CXA2011 is an extremely versatile component and can thus be used in several different lighting applications. CXA2011 can be used in indoor applications such as omni directional lamps of various levels of light output. In addition, the CXA2011 is well-suited for typical downlight applications such as pendants and recessed fixtures and the array configuration makes the CXA2011 very easy to use. Finally the CXA2011 is versatile enough to also be well suited for Outdoor Area Lighting applications such as Coach Lights and Wall Packs. Depending on drive current and system design, the CXA2011 can deliver 500-2500 system lumens from a single part.



This slide highlights the mechanical dimensions of the CXA2011. The 22mm X 22mm square package is a relatively small package, compared with other products on the market with comparable light output. The 16mm round optical source is also quite small, relative to the light output of the package. This adds to the versatility of the component.

The topside electrical connections, the easy to find thermo couple attach point, and standard sized screw holes make the CXA20 easy to use when designing and assembling your lighting solution.

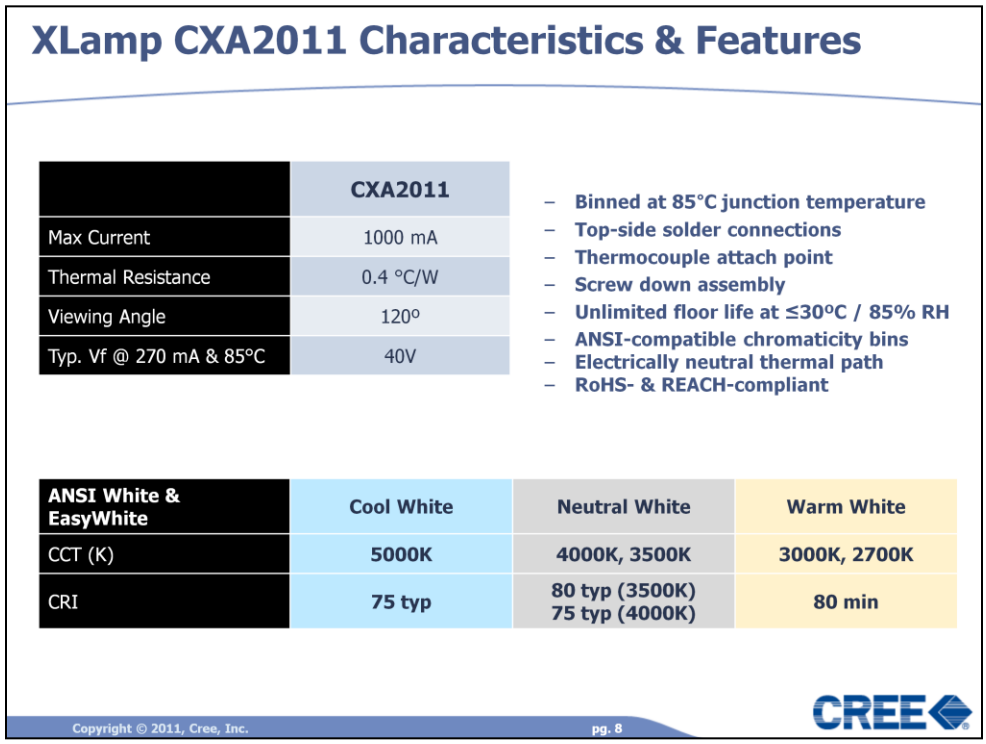
Non-directional arrays are the simplest to use LED product. They are large enough to be handled manually. Reflow soldering, the dominant circuit wiring technology for LEDs, is not required. Instead these arrays have on-top solder-pads, allowing for hand assembly or the use of modular holders. The LEDs are typically held in place with screws and thermal transfer is accomplished through back-of-the-package conduction. In contrast, directional and non-directional discrete LEDs are often much smaller, require the use of pick and place machines as well as reflow soldering for both thermal transfer and circuit completion, both fairly sophisticated circuit board production techniques.



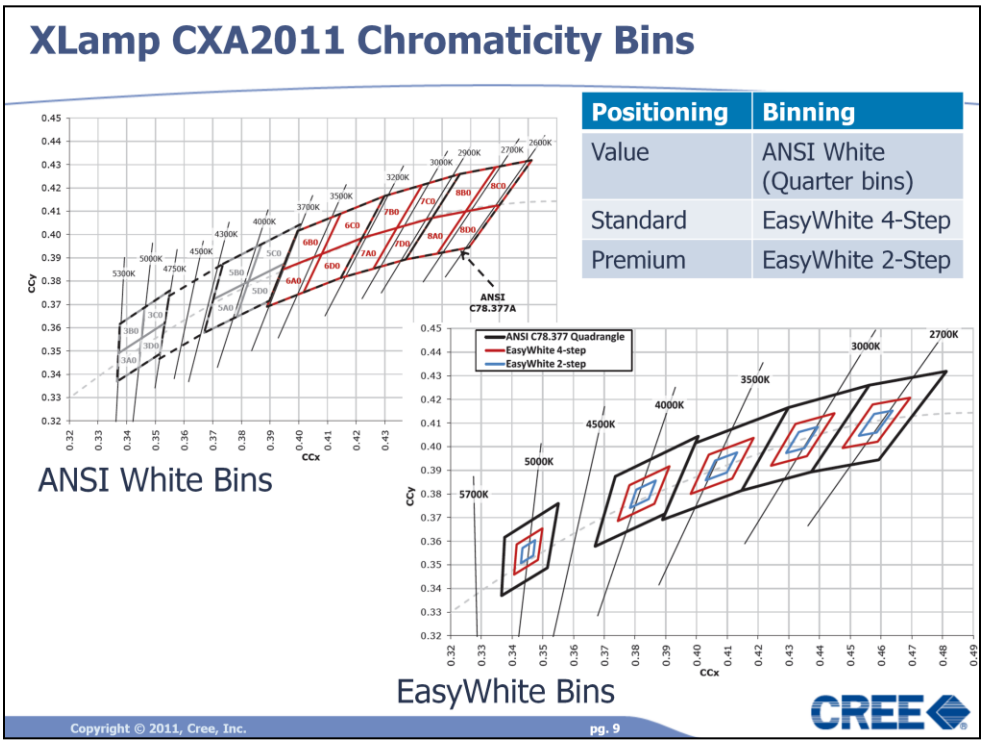
The CXA2011 LED Array is truly setting the lighting-class benchmark when it comes to LED arrays. The CXA2011 is unrivaled when it comes to light output and sets the standard in both cool white and warm white Lumens Per Watt for an LED Array. At 5000 Kelvin, Binned at 85 Degrees Celsius, the CXA2011 can produce up to 1200 lumens @ 11 Watts or 112 Lumens Per Watt. In addition, driven harder at 45 Watts the CXA can produce up to 3480 lumens at 5000 Kelvin. Again this speaks to the versatility of the single component.

At 3000K, a warm incandescent-like color temperature, binned at 85 Degrees Celsius the CXA2011 can produce up to 1040 lumens at 11 Watts or 97 Lumens Per Watt. In addition, driven harder at 45 Watts the CXA2011 can produce up to 3000 lumens at 3000 Kelvin. This also demonstrates the versatility of the CXA2011

The image on the top right shows the CXA2011 overlaid on the standard USB plug to give you an idea of the compactness of the product.



To reiterate CXA2011 will be available in Cool White, Neutral White and Warm White in both ANSI White Color Bins and EasyWhite 2-Step and 4-Step Bins and includes all of the quality features you would expect from a Cree XLamp component including an electrically neutral thermal path, an unlimited floor life at ≤30ºC / 85% RH and RoHS & Reach Compliance.



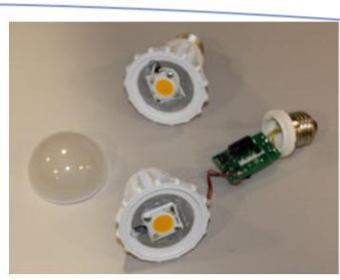
This slide spells out the binning schemes for the CXA2011. As you can see, we offer value, standard and premium binning options, with the EasyWhite 2-step bins the tightest bins available in the marketplace.

Here are some photos of the CXA2011 retrofitted in some of the applications where it is particularly well suited.

Application: 800 lm A19 Non-Standard Bulb

Design Target:

- 800 lm, 3000K CCT
- 85% optical efficiency
- 90% electrical efficiency
- Tsp = 85°C
- 13W maximum power



LED			System		
Model	#	Current	Lumens	Power	Efficacy
CXA2011	1	290 mA	**800 lm**	12.8 W	63 LPW

One particularly good application for the CXA2011 is for a non-standard A-19 Bulb. The CXA2011 , assuming 85% optical efficiency and 90% electrical efficiency can provide 800 lumens at less than 13 Watts. This is an efficacy of 63 Lumens Per Watt. Getting these kinds of results from a single component makes for a simple and cost effective solution for this application.

Application: ENERGY STAR 6" Downlight

Design Target:

- 3000K CCT
- 85% optical efficiency
- 85% electrical efficiency
- Tsp = 85°C
- 35 lm/W minimum

LED			System		
Model	#	Current	Lumens	Power	Efficacy
CXA2011	1	400 mA	**1070 lm**	19 W	56 LPW
	1	650 mA	**1600 lm**	33 W	49 LPW
	1	950 mA	**2060 lm**	49 W	42 LPW

Another target application that demonstrates the flexibility of the CXA2011 is the 6 Inch Downlight. A CXA2011 in Warm White (3000K), assuming 85% optical efficiency and 85% electrical efficiency can produce between 1000 and 2000 lumens at various drive currents and still meet the 35 lumens per watt Energy Star Requirement. At 400 mA, given the parameters outlined previously, the CXA2011 can produce 1070 lumens utilizing 19 Watts of power for an efficacy of 56 lumens per watt. In addition, given the same parameters, the CXA2011 at 650 mA can produce 1600 lumens utilizing 33 watts of power for an efficacy of 49 lumens per watt. Finally the CXA2011, with 85% optical efficiency and 85% electrical efficiency, at 950mA can produce 2060 lumens at 49 watts for an efficacy of 42 lumens per watt. This shows the versatility of this single component.

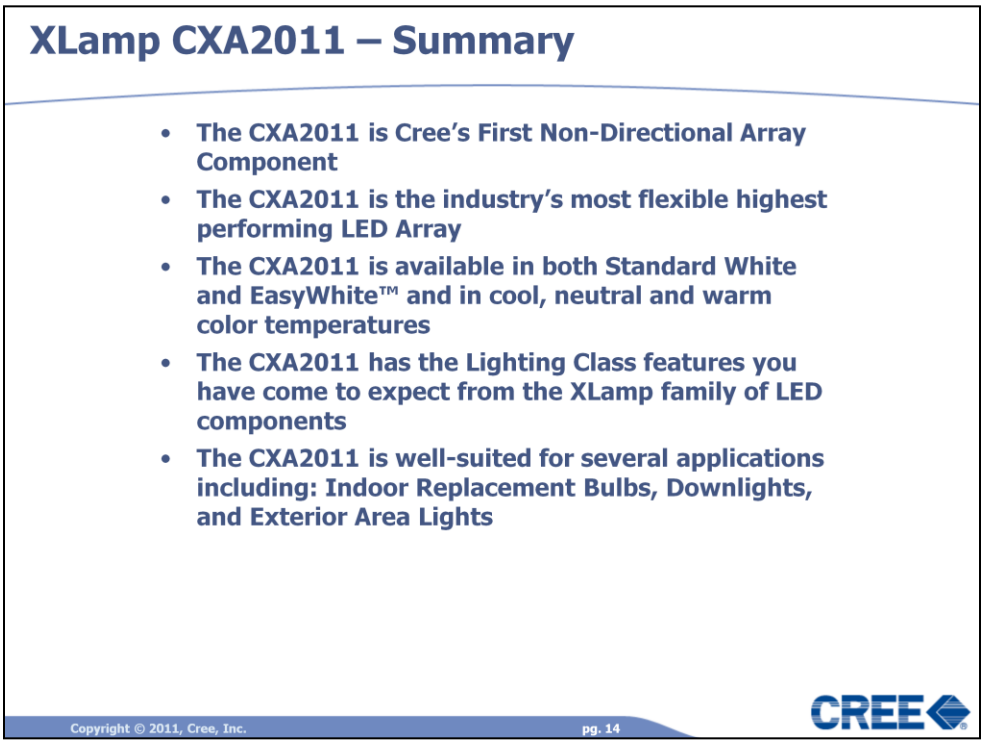
Application: Commercial Wall Pack

Design Target:

- 5000K CCT
- 80% optical efficiency
- 82% electrical efficiency
- Tsp = 65°C

LED			System		
Model	#	Current	Lumens	Power	Efficacy
CXA2011	1	350 mA	**1100 lm**	18 W	62 LPW
	1	750 mA	**2020 lm**	40 W	50 LPW
	1	1000 mA	**2430 lm**	54 W	44 LPW

The final target application that demonstrates the flexibility of the CXA2011 is the Commercial Wall Pack. These are the fixtures you see typically lighting the exterior of buildings attached to the wall of the building. A CXA2011 at a 5000 Kelvin temperature, assuming 80% optical efficiency and 82% electrical efficiency and a Tsp of 65 degrees Celsius can produce between 1100 and 2400 lumens at various drive currents up to 1A. At 350 mA given the parameters outlined previously, the CXA2011 can produce 1100 lumens utilizing 18 Watts of power for an efficacy of 62 lumens per watt. In addition, given the same parameters, the CXA2011 at 750 mA can produce 2020 Lumens utilizing 40 watts of power for an efficacy of 50 lumens per watt. Finally the CXA2011, with 80% optical efficiency and 82% electrical efficiency, at 1000 mA can produce 2430 lumens at 54 watts for an efficacy of 44 lumens per watt. Again this shows the versatility of what can be done with this single component.



In summary: The CXA2011 is Cree's First Non-Directional Array Component

The CXA2011 is the industry's most flexible highest performing LED Array

The CXA2011 is available in both Standard White and EasyWhite™ and in cool, neutral and warm color temperatures

The CXA2011 has the Lighting Class features you have come to expect from the XLamp family of LED components

The CXA2011 is well-suited for several applications including: Indoor Replacement Bulbs, Downlights, and Exterior Area Lights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