

Introduction

Purpose

- Provide an Overview of Cree's XLamp MC-E

Objective

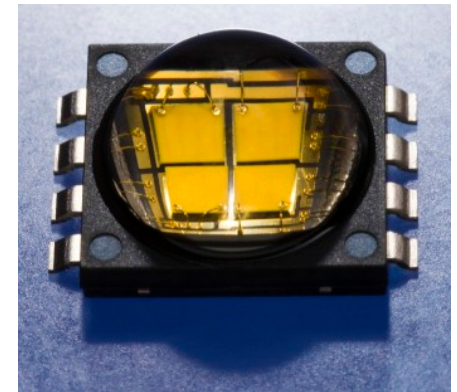
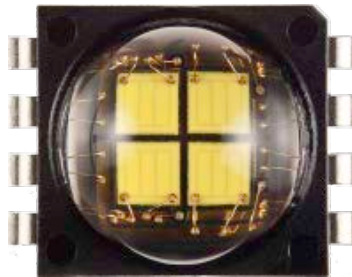
- Give a brief summary of MC-E's performance
- Highlight Target Applications for MC-E
- Detail the Features & Characteristics of MC-E
- Review MC-E order codes and bin structure
- Detail the benefits of individually addressable LEDs
- Detail the Specs of MC-E Dynamic White
- Review MC-E Lifetime Performance

Content

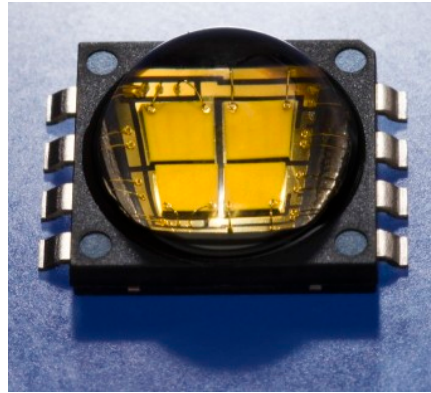
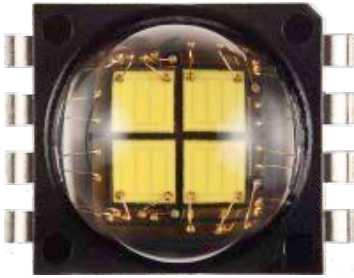
- 16 slides

Content

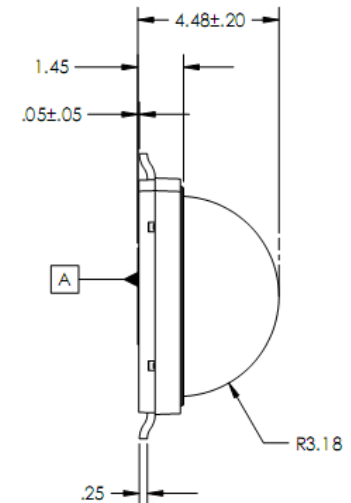
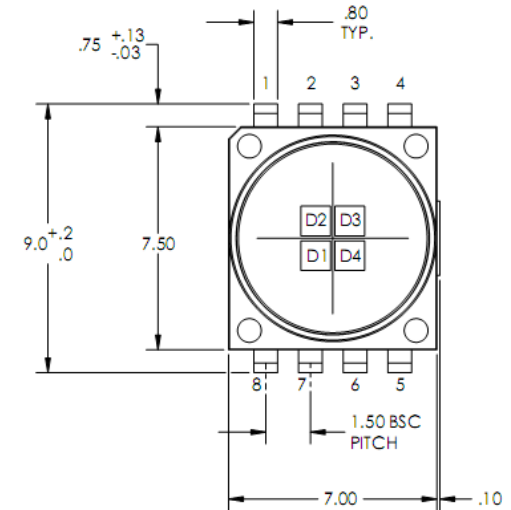
- 10 Minutes



XLamp MC-E White & EasyWhite



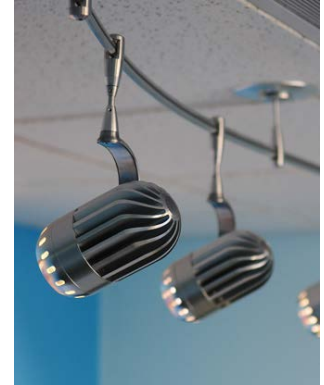
- **Available in EasyWhite chromaticity bins**
 - Eliminates chromaticity bins, recipes and mixing
- **Reduces LED system complexity**
 - Fewer LEDs, fewer optics
- **Ideal LED replacement for 20W-35W halogen**
 - MR-, PAR- type bulbs, track lights, pendants
 - Up to 560 lm @ 10W (3000K)



XLamp MC-E White & EasyWhite Applications

20W-35W Halogen Replacement

- MR- & PAR-type LED lamps
- Track, pendant, accent lighting



Outdoor Lighting

- Roadway
- Parking lot




High-End Portable

- High-output torch & spot
- Bike lights



XLamp MC-E White Characteristics

| | |
|--------------------|--|
| | MC-E  |
| Max Current | 700 mA (per LED) |
| Thermal Resistance | 3 °C/W |
| Viewing Angle | 110° |
| Typ. Vf @ 350 mA | 3.2 V (per LED) |

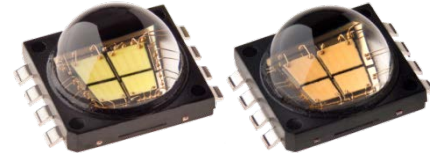
- ANSI-compatible chromaticity bins
- Individually addressable LEDs
- Electrically neutral thermal path
- ENERGY STAR approved lumen maintenance
- Reflow solderable JEDEC J-STD-020C compatible
- RoHS- & REACH-compliant

| Standard White | Cool White | Neutral White | Warm White |
|----------------|------------------|-----------------|-----------------|
| CCT (K) | 10,000K – 5,000K | 5,000K – 3,700K | 3,700K – 2,600K |
| CRI (typ) | 75 | 75 | 80 |

| EasyWhite | Neutral White | Warm White |
|-----------|---------------|--------------|
| CCT (K) | 4000K, 3500K | 3000K, 2700K |
| CRI (typ) | 80 | 82 |

XLamp MC-E White

Standard Order Codes



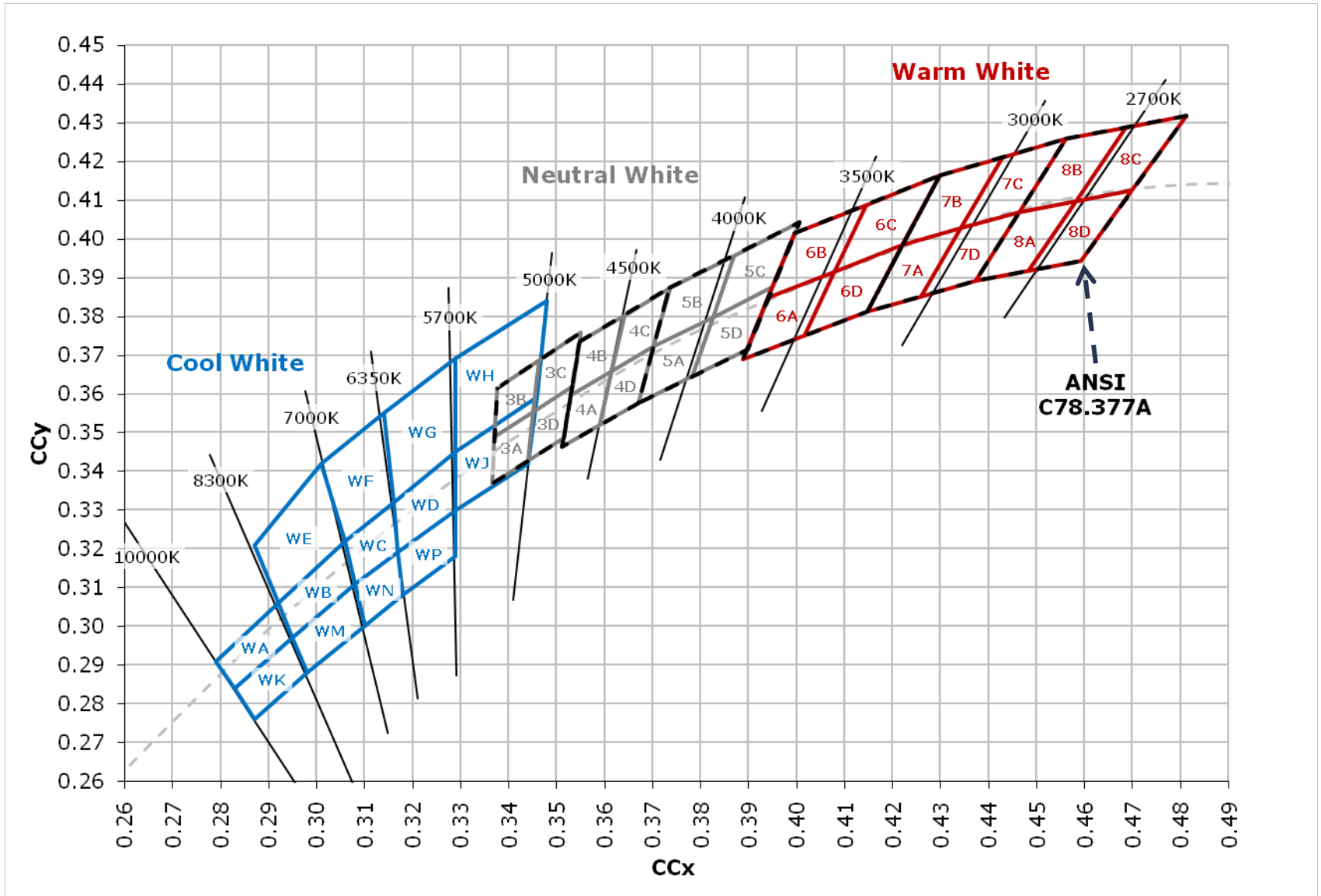
| Min. Flux Bin | 10,000K – 5,000K | 5,000K – 4,200K | 4,200K – 3,500K | 3,500K – 3,200K | 3,200K – 2,900K | 2,900K – 2,700K |
|---------------------|---------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | 01, 02, 03, ... | E3, F4, E4 | F5, E5 | F6, E6 | F7, E7 | F8 |
| | | | | | | |
| M | 430 | | | | | |
| K | 370 | 370 | 370 | 370 | | |
| J | | 320 | 320 | 320 | 320 | 320 |
| H | | | | 280 | 280 | 280 |
| G | | | | | | 240 |

Minimum luminous flux @ 350 mA (lm)

Flux and chromaticity are measured with each LED die connected to independent drive circuits at 350 mA.

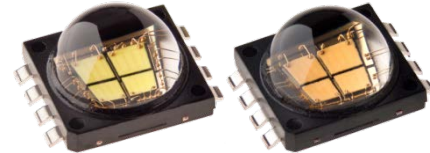
The flux and chromaticity are measured with all LEDs lit simultaneously.

XLamp MC-E White Chromaticity Bins



XLamp MC-E EasyWhite

Standard Order Codes



| Min. Flux Bin | 4-Step | | | | 2-Step | | | |
|---------------------|--------|-------|-------|-------|--------|-------|-------|-------|
| | 4000K | 3500K | 3000K | 2700K | 4000K | 3500K | 3000K | 2700K |
| | 40F | 35F | 30F | 27F | 40H | 35H | 30H | 27H |
| K | 370 | 370 | | | 370 | 370 | | |
| J | 320 | 320 | 320 | 320 | 320 | 320 | 320 | 320 |
| H | | 280 | 280 | 280 | | 280 | 280 | 280 |
| G | | | | 240 | | | | 240 |
| | | | | | | | | |

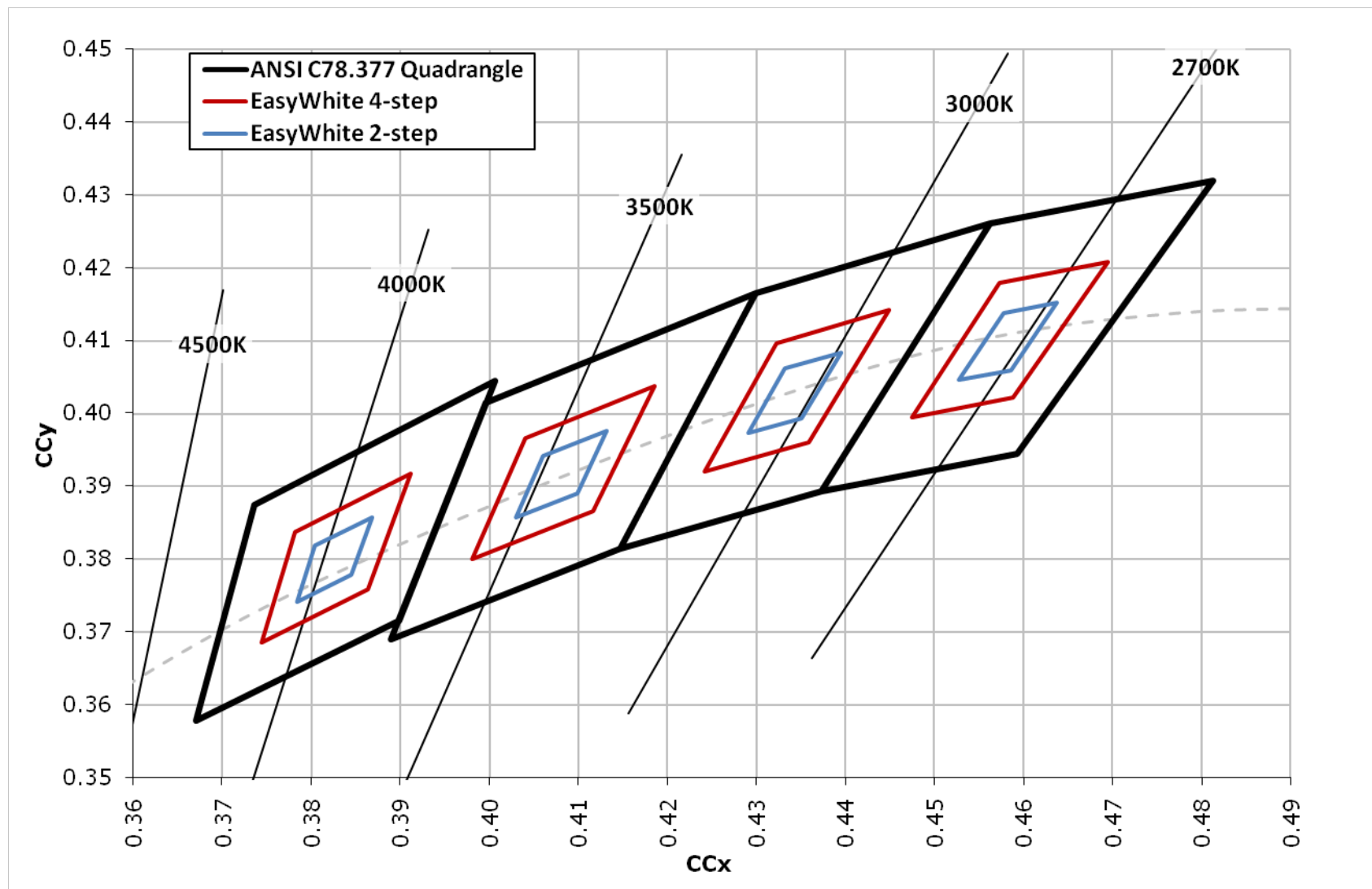
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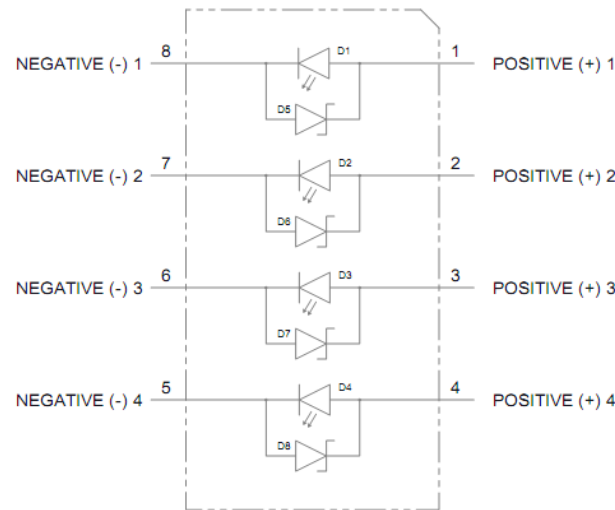
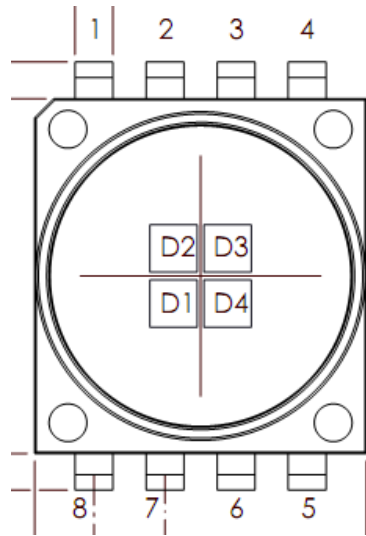
4-Step : MCEEZW-A1-0000-0000K040**F**
 2-Step : MCEEZW-A1-0000-0000K040**H**

XLamp MC-E EasyWhite Bins



XLamp MC-E: Individually Addressable LEDs

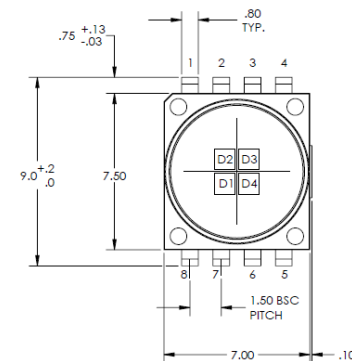
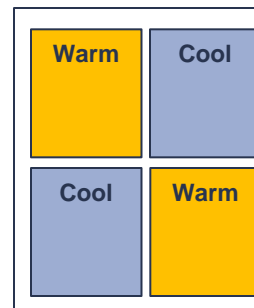
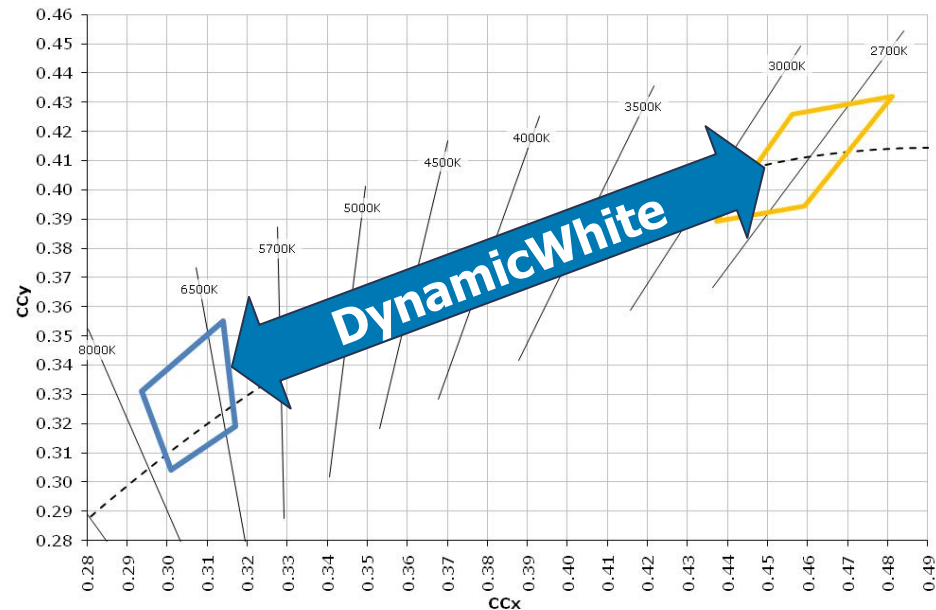
Individually addressable = complete system design flexibility



| Connection | Parallel | Series | Individual |
|-----------------|--|--|---|
| Characteristics | <ul style="list-style-type: none">• Low voltage• High current | <ul style="list-style-type: none">• High voltage• Low current | <ul style="list-style-type: none">• Enables series + parallel connection |
| Advantages | <ul style="list-style-type: none">• Low voltage is good for battery powered applications | <ul style="list-style-type: none">• Best efficiency for wired power applications | <ul style="list-style-type: none">• Enables unique system functions<ul style="list-style-type: none">– Dimming– Strobing |

XLamp MC-E DynamicWhite

- Color tuning across CCTs
- CCT range : 7500K ~ 2500K
- Light output:
 - CW: 100 lm per die
 - WW: 70 lm per die



Target Application

- Studio & Stage Lighting
 - Tunable white
 - Optical control (No color separation)

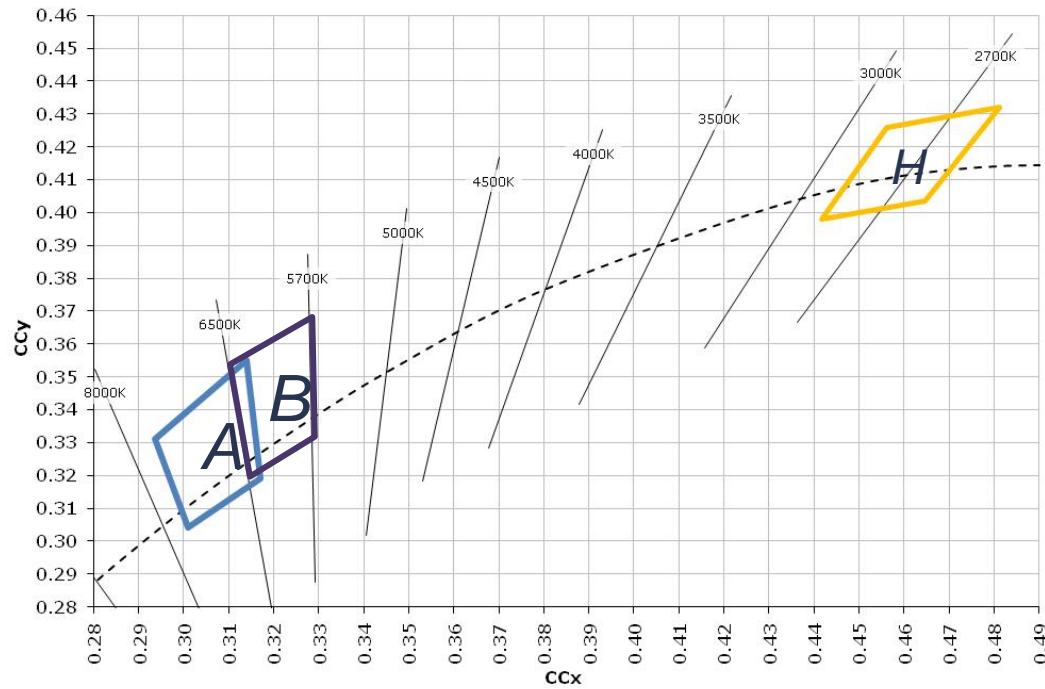


MC-E DynamicWhite Specifications

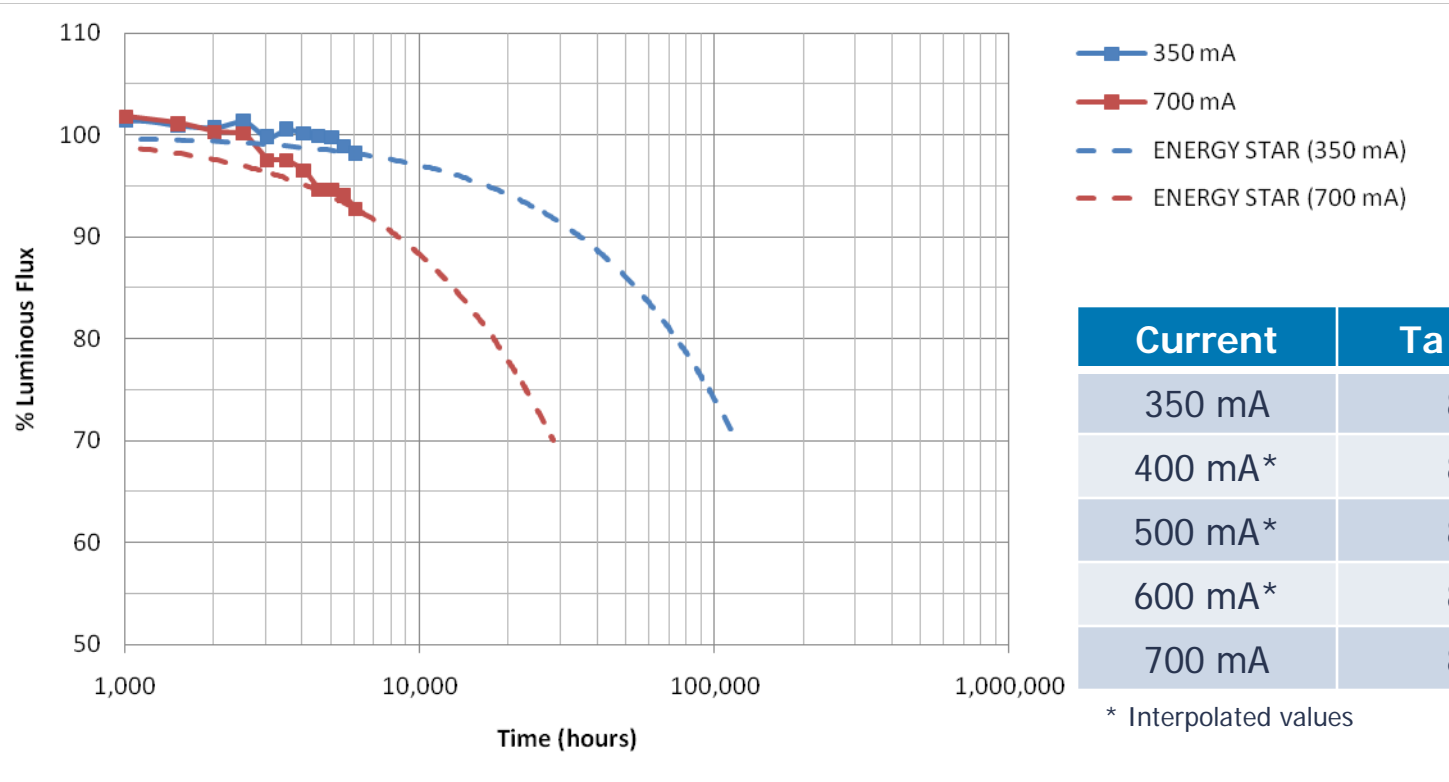
| | | Min. | Typical | Max. |
|--|--------------------------------------|--------|---------|-------|
| Luminous Flux per emitter @350mA, 25 °C | Per Cool white die (7500 - 5700K) | 100 lm | | |
| | Per warm white die (2700K) | 70 lm | | |
| Vf per emitter | | | 3.2V | 3.9V |
| CRI | Cool (6000K) | | 70 | |
| | Warm(2700K) | | 80 | |
| Max. Drive current per emitter | | | | 700mA |

Other Optical & Electrical characteristics will remain the same as MC-E

MC-E DynamicWhite Chromaticity Options



XLamp MC-E White L70 Lifetime ($T_a=85^{\circ}\text{C}$)



Notes:

- These extrapolations are for informational purposes only and are not a warranty or a specification.
- Extrapolated lifetimes are subject to change without notice.
- Extrapolations are performed using ENERGY STAR exponential method (fit to last data point).
- Notice: Cree will revise L70 lifetimes to those calculated by IES TM-21 methods once TM-21 is finalized.

XLamp MC-E – Summary

- Cree XLamp MC-E is a multi-die solution that enables simpler application optimized designs
- Cree XLamp MC-E is available in standard white and EasyWhite bins ideal for halogen replacement solutions
- MC-E offers the features and characteristics you have come to expect from Cree XLamp LEDs
- MC-E is available in color temperatures ranging from 2,700 Kelvin to 10,000 Kelvin in standard white and color temperatures from 2700 Kelvin to 4,000 Kelvin in EasyWhite
- MC-Es individually addressable die offer tremendous design flexibility
- MC-E DynamicWhite offers a tune-able LED solution ideal for Studio & Stage Lighting
- MC-E performs very well relative to the Energy Star Method for measuring lumen maintenance, projecting to maintain 70% of it's rated lumens for over 118,000 hours



PORTABLE



RESIDENTIAL



OFFICE



RETAIL



ARCHITECTURAL



OUTDOOR

LED lighting: Energy efficient & planet friendly.

Cree. Leading the LED lighting revolution.

Join Cree's LED lighting revolution. We invite you to see how our high-performance, high-efficiency LEDs are lighting up the world.

CREE 