

Cree® XLamp® CXA1507 LED



PRODUCT DESCRIPTION

The XLamp CXA1507 LED array expands Cree’s family of high-flux, multi-die arrays in a smaller, easy-to-use platform. With XLamp lighting-class reliability, the CXA1507’s small, uniform emitting surface enables both directional and non-directional lighting applications including lamp retrofit and luminaire designs. Available in 2-step and 4-step color consistency, and featuring a 9-mm optical source, the CXA1507 brings new levels of flux and efficacy to this form factor.

The CXA LED Design Guide provides basic information on the requirements to use the CXA1507 LED successfully in luminaire designs.¹

FEATURES

- Available in ANSI white bins as well as 4-step and 2-step EasyWhite® bins at 2700 K, 3000 K, 3500 K, 4000 K and 5000 K
- Available in ANSI white bins as well as 4-step EasyWhite bins at 5700 K and 6500 K CCT
- Available in 70-, 80-, 90- and 93-minimum CRI options
- Forward voltage options: 18 V & 37 V
- 85 °C binning and characterization
- Maximum drive current: 750 mA (18 V), 375 mA (37 V)
- 115° viewing angle, uniform chromaticity profile
- Top-side solder connections
- Thermocouple attach point
- NEMA SSL-3 2011 standard flux bins
- RoHS- and REACH-compliant
- UL-recognized component (E349212)

TABLE OF CONTENTS

Characteristics	2
Operating Limits.....	3
Flux Characteristics, EasyWhite	
Order Codes and Bins - 18 V	4
Flux Characteristics, ANSI White	
Order Codes and Bins - 18 V	6
Flux Characteristics, EasyWhite	
Order Codes and Bins - 37 V	8
Flux Characteristics, ANSI White	
Order Codes and Bins - 37 V	10
Relative Spectral Power	
Distribution.....	12
Electrical Characteristics.....	13
Relative Luminous Flux.....	14
Typical Spatial Distribution.....	16
Performance Groups - Brightness....	16
Performance Groups - Chromaticity.	17
Cree EasyWhite Bins Plotted on the	
1931 CIE Color Space	19
Cree ANSI White Bins Plotted on	
the 1931 CIE Color Space.....	20
Bin and Order Code Formats	21
Mechanical Dimensions.....	21
Thermal Design.....	22
Notes.....	24
Packaging.....	25

¹ Cree XLamp CXA LED Design Guide, Design Guide DG02, www.cree.com/xlamp_app_notes/cxa_design_guide



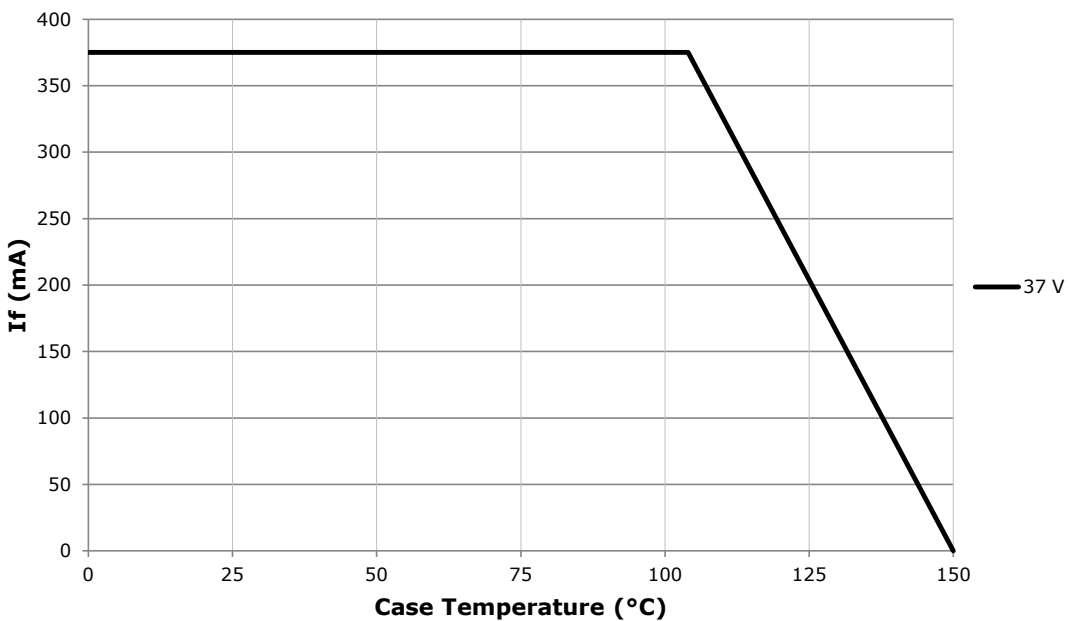
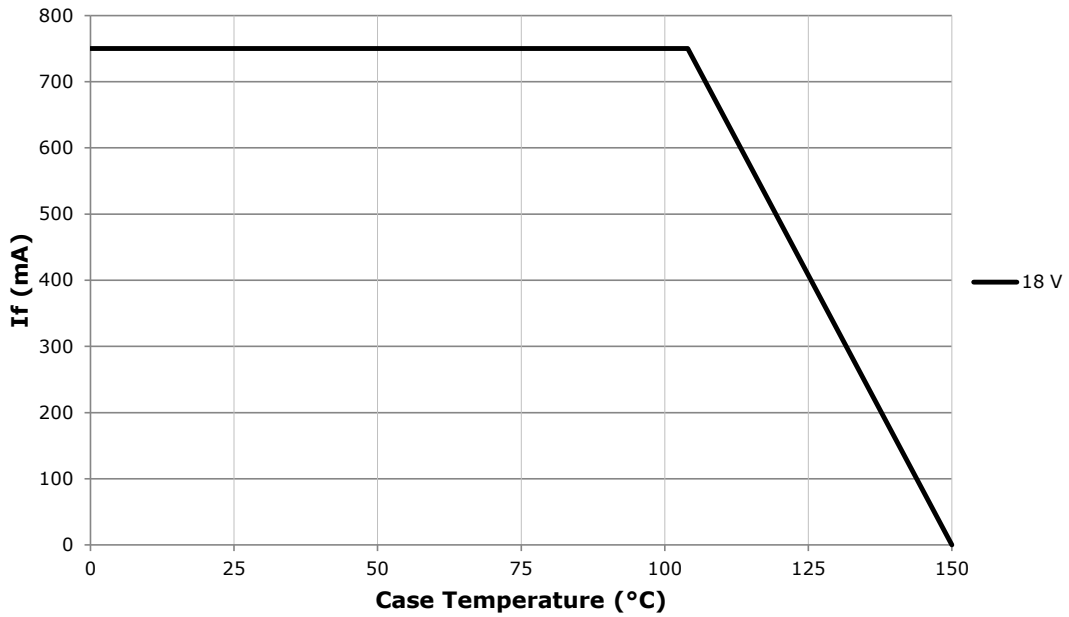
CHARACTERISTICS

Characteristics	Unit	Minimum	Typical	Maximum
Viewing angle (FWHM)	degrees		115	
ESD withstand voltage (HBM per Mil-Std-883D)	V			8000
DC forward current (18 V)	mA			750*
DC forward current (37 V)	mA			375*
Reverse current 18 V, 37 V)	mA			0.1
Forward voltage (18 V, 400 mA, 85 °C)	V		18.5	
Forward voltage (18 V, 400 mA, 25 °C)	V			21
Forward voltage (37 V, 200 mA, 85 °C)	V		37	
Forward voltage (37 V, 200 mA, 25 °C)	V			42

* Refer to the Operating Limits section.

OPERATING LIMITS

The maximum current rating of the CXA1507 is dependent on the case temperature (T_c) when the LED has reached thermal equilibrium under steady-state operation. Please refer to the Mechanical Dimensions section on page 21 for the location of the T_c measurement point.



FLUX CHARACTERISTICS, EASYWHITE ORDER CODES AND BINS - 18 V ($I_F = 400 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$)

The following tables provide order codes for XLamp CXA1507 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 22).

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 400 mA			2-Step Order Code		4-Step Order Code				
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*	Chromaticity Region		Chromaticity Region				
6500 K	70	75	G2	780	871	50H	CXA1507-0000-000F00G265F	65F	CXA1507-0000-000F00G265F			
			G4	840	938				CXA1507-0000-000F00G465F			
			H2	900	1005				CXA1507-0000-000F00H265F			
	80	---	F4	730	815			50H	CXA1507-0000-000F0HF465F	65F	CXA1507-0000-000F0HF465F	
			G2	780	871						CXA1507-0000-000F0HG265F	
			G4	840	938						CXA1507-0000-000F0HG465F	
5700 K	70	75	G2	780	871	50H	CXA1507-0000-000F00G257F			57F	CXA1507-0000-000F00G257F	
			G4	840	938						CXA1507-0000-000F00G457F	
			H2	900	1005						CXA1507-0000-000F00H257F	
	80	---	F4	730	815			50H	CXA1507-0000-000F0HF457F	57F	CXA1507-0000-000F0HF457F	
			G2	780	871						CXA1507-0000-000F0HG257F	
			G4	840	938						CXA1507-0000-000F0HG457F	
5000 K	70	75	G2	780	871	50H	CXA1507-0000-000F00G250H			50F	CXA1507-0000-000F00G250F	
			G4	840	938						CXA1507-0000-000F00G450H	CXA1507-0000-000F00G450F
			H2	900	1005						CXA1507-0000-000F00H250H	CXA1507-0000-000F00H250F
	80	---	F4	730	815	50H	CXA1507-0000-000F0HF450H	50F	CXA1507-0000-000F0HF450F			
			G2	780	871				CXA1507-0000-000F0HG250H	CXA1507-0000-000F0HG250F		
			G4	840	938				CXA1507-0000-000F0HG450H	CXA1507-0000-000F0HG450F		
	90	95	E2	590	659	50H	CXA1507-0000-000F0UE250H	50F	CXA1507-0000-000F0UE250F			
			E4	635	709				CXA1507-0000-000F0UE450H	CXA1507-0000-000F0UE450F		
			F2	680	759				CXA1507-0000-000F0UF250H	CXA1507-0000-000F0UF250F		

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, EASYWHITE ORDER CODES AND BINS - 18 V ($I_F = 400 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$) - CONTINUED

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 400 mA			2-Step Order Code		4-Step Order Code	
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*	Chromaticity Region		Chromaticity Region	
4000 K	70	75	F4	730	815	40H	CXA1507-0000-000F00F440H	40F	CXA1507-0000-000F00F440F
			G2	780	871		CXA1507-0000-000F00G240H		CXA1507-0000-000F00G240F
			G4	840	938		CXA1507-0000-000F00G440H		CXA1507-0000-000F00G440F
	80	---	F4	730	815	40H	CXA1507-0000-000F0HF440H	40F	CXA1507-0000-000F0HF440F
			G2	780	871		CXA1507-0000-000F0HG240H		CXA1507-0000-000F0HG240F
	90	95	E2	590	659	40H	CXA1507-0000-000F0UE240H	40F	CXA1507-0000-000F0UE240F
			E4	635	709		CXA1507-0000-000F0UE440H		CXA1507-0000-000F0UE440F
			F2	680	759		CXA1507-0000-000F0UF240H		CXA1507-0000-000F0UF240F
	3500 K	80	---	F2	680	759	35H	CXA1507-0000-000F00F235H	35F
F4				730	815	CXA1507-0000-000F00F435H		CXA1507-0000-000F00F435F	
G2				780	871	CXA1507-0000-000F00G235H		CXA1507-0000-000F00G235F	
93		95	D4	550	614	35H	CXA1507-0000-000F0YD435H	35F	CXA1507-0000-000F0YD435F
			E2	590	659		CXA1507-0000-000F0YE235H		CXA1507-0000-000F0YE235F
			E4	635	709		CXA1507-0000-000F0YE435H		CXA1507-0000-000F0YE435F
3000 K	80	---	F2	680	759	30H	CXA1507-0000-000F00F230H	30F	CXA1507-0000-000F00F230F
			F4	730	815		CXA1507-0000-000F00F430H		CXA1507-0000-000F00F430F
			G2	780	871		CXA1507-0000-000F00G230H		CXA1507-0000-000F00G230F
	93	95	D2	510	569	30H	CXA1507-0000-000F0YD230H	30F	CXA1507-0000-000F0YD230F
			D4	550	614		CXA1507-0000-000F0YD430H		CXA1507-0000-000F0YD430F
			E2	590	659		CXA1507-0000-000F0YE230H		CXA1507-0000-000F0YE230F
2700 K	80	---	E4	635	709	27H	CXA1507-0000-000F00E427H	27F	CXA1507-0000-000F00E427F
			F2	680	759		CXA1507-0000-000F00F227H		CXA1507-0000-000F00F227F
			F4	730	815		CXA1507-0000-000F00F427H		CXA1507-0000-000F00F427F
	93	95	C4	475	530	27H	CXA1507-0000-000F0YC427H	27F	CXA1507-0000-000F0YC427F
			D2	510	569		CXA1507-0000-000F0YD227H		CXA1507-0000-000F0YD227F
			D4	550	614		CXA1507-0000-000F0YD427H		CXA1507-0000-000F0YD427F

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, ANSI WHITE ORDER CODES AND BINS - 18 V ($I_f = 400$ mA, $T_j = 85$ °C)

The following tables provide order codes for XLamp CXA1507 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 22).

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 400 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
6500 K	70	75	G2	780	871	1A0, 1B0, 1C0, 1D0	CXA1507-0000-000F00G20E1
			G4	840	938		CXA1507-0000-000F00G40E1
			H2	900	1005		CXA1507-0000-000F00H20E1
	80	---	F4	730	815	1A0, 1B0, 1C0, 1D0	CXA1507-0000-000F0HF40E1
			G2	780	871		CXA1507-0000-000F0HG20E1
			G4	840	938		CXA1507-0000-000F0HG40E1
5700 K	70	75	G2	780	871	2A0, 2B0, 2C0, 2D0	CXA1507-0000-000F00G20E2
			G4	840	938		CXA1507-0000-000F00G40E2
			H2	900	1005		CXA1507-0000-000F00H20E2
	80	---	F4	730	815	2A0, 2B0, 2C0, 2D00	CXA1507-0000-000F0HF40E2
			G2	780	871		CXA1507-0000-000F0HG20E2
			G4	840	938		CXA1507-0000-000F0HG40E3
5000 K	70	75	G2	780	871	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000F00G20E3
			G4	840	938		CXA1507-0000-000F00G40E3
			H2	900	1005		CXA1507-0000-000F00H20E3
	80	---	F4	730	815	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000F0HF40E3
			G2	780	871		CXA1507-0000-000F0HG20E3
			G4	840	938		CXA1507-0000-000F0HG40E3
	90	95	E2	590	659	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000F0UE20E3
			E4	635	709		CXA1507-0000-000F0UE40E3
			F2	680	759		CXA1507-0000-000F0UF20E3

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, ANSI WHITE ORDER CODES AND BINS - 18 V ($I_f = 400$ mA, $T_j = 85$ °C) - CONTINUED

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 400 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
4000 K	70	75	F4	730	815	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000F00F40E5
			G2	780	871		CXA1507-0000-000F00G20E5
			G4	840	938		CXA1507-0000-000F00G40E5
	80	---	F4	780	815	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000F00HF40E5
			G2	780	871		CXA1507-0000-000F00HG20E5
	90	95	E2	590	659	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000F00E20E5
E4			635	709	CXA1507-0000-000F00E40E5		
F2			680		CXA1507-0000-000F00F20E5		
3500 K	80	---	F2	680	759	6A0, 6B0, 6C0, 6D0	CXA1507-0000-000F00F20E6
			F4	730	815		CXA1507-0000-000F00F40E6
			G2	780	871		CXA1507-0000-000F00G20E6
	93	95	D4	550	614	6A0, 6B0, 6C0, 6D0	CXA1507-0000-000F00YD40E6
			E2	590	659		CXA1507-0000-000F00YE20E6
			E4	635	709		CXA1507-0000-000F00YE40E6
3000 K	80	---	F2	680	759	7A0, 7B0, 7C0, 7D0	CXA1507-0000-000F00F20E7
			F4	730	815		CXA1507-0000-000F00F40E7
			G2	780	871		CXA1507-0000-000F00G20E7
	93	95	D2	510	569	7A0, 7B0, 7C0, 7D0	CXA1507-0000-000F00YD20E7
			D4	550	614		CXA1507-0000-000F00YD40E7
			E2	590	659		CXA1507-0000-000F00YE20E7
2700 K	80	---	E4	635	709	8A0, 8B0, 8C0, 8D0	CXA1507-0000-000F00E40E8
			F2	680	759		CXA1507-0000-000F00F20E8
			F4	730	815		CXA1507-0000-000F00F40E8
	93	95	C4	475	530	8A0, 8B0, 8C0, 8D0	CXA1507-0000-000F00YC40E8
			D2	510	569		CXA1507-0000-000F00YD20E8
			D4	550	614		CXA1507-0000-000F00YD40E8

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, EASYWHITE ORDER CODES AND BINS - 37 V ($I_f = 200 \text{ mA}$, $T_j = 85 \text{ }^\circ\text{C}$)

The following tables provide order codes for XLamp CXA1507 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 22).

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 200 mA			2-Step Order Code		4-Step Order Code			
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*	Chromaticity Region		Chromaticity Region			
6500 K	70	75	G2	780	871	50H	CXA1507-0000-000N00G265H	65F	CXA1507-0000-000N00G265F		
			G4	840	938				CXA1507-0000-000N00G465F		
			H2	900	1005				CXA1507-0000-000N00H265F		
	80	---	F4	730	815			50H	CXA1507-0000-000N00HF465H	65F	CXA1507-0000-000N00HF465F
			G2	780	871						CXA1507-0000-000N00HG265F
			G4	840	938						CXA1507-0000-000N00HG465F
5700 K	70	75	G2	780	871	50H	CXA1507-0000-000N00G257H	57F	CXA1507-0000-000N00G257F		
			G4	840	938				CXA1507-0000-000N00G457F		
			H2	900	1005				CXA1507-0000-000N00H257F		
	80	---	F4	730	815			50H	CXA1507-0000-000N00HF457H	57F	CXA1507-0000-000N00HF457F
			G2	780	871						CXA1507-0000-000N00HG257F
			G4	840	938						CXA1507-0000-000N00HG457F
5000 K	70	75	G2	780	871	50H	CXA1507-0000-000N00G250H	50F	CXA1507-0000-000N00G250F		
			G4	840	938				CXA1507-0000-000N00G450H	CXA1507-0000-000N00G450F	
			H2	900	1005				CXA1507-0000-000N00H250H	CXA1507-0000-000N00H250F	
	80	---	F4	730	815	50H	CXA1507-0000-000N00HF450H	50F	CXA1507-0000-000N00HF450F		
			G2	780	871				CXA1507-0000-000N00HG250H	CXA1507-0000-000N00HG250F	
			G4	840	938				CXA1507-0000-000N00HG450H	CXA1507-0000-000N00HG450F	
	90	95	E2	590	659	50H	CXA1507-0000-000N00UE250H	50F	CXA1507-0000-000N00UE250F		
			E4	635	709				CXA1507-0000-000N00UE450H	CXA1507-0000-000N00UE450F	
			F2	680	759				CXA1507-0000-000N00UF250H	CXA1507-0000-000N00UF250F	

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, EASYWHITE ORDER CODES AND BINS - 37 V ($I_F = 200 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$) - CONTINUED

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 200 mA			2-Step Order Code		4-Step Order Code	
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*	Chromaticity Region		Chromaticity Region	
4000 K	70	75	F4	730	815	40H	CXA1507-0000-000N00F440H	40F	CXA1507-0000-000N00F440F
			G2	780	871		CXA1507-0000-000N00G240H		CXA1507-0000-000N00G240F
			G4	840	938		CXA1507-0000-000N00G440H		CXA1507-0000-000N00G440F
	80	---	F4	780	815	40H	CXA1507-0000-000N0HF440H	40F	CXA1507-0000-000N0HF440F
			G2	780	871		CXA1507-0000-000N0HG240H		CXA1507-0000-000N0HG240F
	90	95	E2	590	659	40H	CXA1507-0000-000N0UE240H	40F	CXA1507-0000-000N0UE240F
			E4	635	709		CXA1507-0000-000N0UE440H		CXA1507-0000-000N0UE440F
			F2	680	759		CXA1507-0000-000N0UF240H		CXA1507-0000-000N0UF240F
	3500 K	80	---	F2	680	759	35H	CXA1507-0000-000N00F235H	35F
F4				730	815	CXA1507-0000-000N00F435H		CXA1507-0000-000N00F435F	
G2				780	871	CXA1507-0000-000N00G235H		CXA1507-0000-000N00G235F	
93		95	D4	550	614	35H	CXA1507-0000-000N0YD435H	35F	CXA1507-0000-000N0YD435F
			E2	590	659		CXA1507-0000-000N0YE235H		CXA1507-0000-000N0YE235F
			E4	635	709		CXA1507-0000-000N0YE435H		CXA1507-0000-000N0YE435F
3000 K	80	---	F2	680	759	30H	CXA1507-0000-000N00F230H	30F	CXA1507-0000-000N00F230F
			F4	730	815		CXA1507-0000-000N00F430H		CXA1507-0000-000N00F430F
			G2	780	871		CXA1507-0000-000N00G230H		CXA1507-0000-000N00G230F
	90	---	D4	550	614	30H	CXA1507-0000-000N0UD430H	30F	CXA1507-0000-000N0UD430F
			E2	590	659		CXA1507-0000-000N0UE230H		CXA1507-0000-000N0UE230F
	93	95	D2	510	569	30H	CXA1507-0000-000N0YD230H	30F	CXA1507-0000-000N0YD230F
			D4	550	614		CXA1507-0000-000N0YD430H		CXA1507-0000-000N0YD430F
			E2	590	659		CXA1507-0000-000N0YE230H		CXA1507-0000-000N0YE230F
	2700 K	80	---	E4	635	709	27H	CXA1507-0000-000N00E427H	27F
F2				680	759	CXA1507-0000-000N00F227H		CXA1507-0000-000N00F227F	
F4				730	815	CXA1507-0000-000N00F427H		CXA1507-0000-000N00F427F	
90		---	C4	475	530	27H	CXA1507-0000-000N0UC427H	27F	CXA1507-0000-000N0UC427F
			D2	510	569		CXA1507-0000-000N0UD227H		CXA1507-0000-000N0UD227F
			D4	550	614		CXA1507-0000-000N0UD427H		CXA1507-0000-000N0UD427F
93		95	C4	475	530	27H	CXA1507-0000-000N0YC427H	27F	CXA1507-0000-000N0YC427F
			D2	510	569		CXA1507-0000-000N0YD227H		CXA1507-0000-000N0YD227F
			D4	550	614		CXA1507-0000-000N0YD427H		CXA1507-0000-000N0YD427F

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, ANSI WHITE ORDER CODES AND BINS - 37 V ($I_f = 200$ mA, $T_j = 85$ °C)

The following tables provide order codes for XLamp CXA1507 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 22).

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 200 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
6500 K	70	75	G2	780	871	1A0, 1B0, 1C0, 1D0	CXA1507-0000-000N00G20E1
			G4	840	938		CXA1507-0000-000N00G40E1
			H2	900	1005		CXA1507-0000-000N00H20E1
	80	---	F4	730	815	1A0, 1B0, 1C0, 1D0	CXA1507-0000-000N0HF40E1
			G2	780	871		CXA1507-0000-000N0HG20E1
			G4	840	938		CXA1507-0000-000N0HG40E1
5700 K	70	75	G2	780	871	2A0, 2B0, 2C0, 2D0	CXA1507-0000-000N00G20E2
			G4	840	938		CXA1507-0000-000N00G40E2
			H2	900	1005		CXA1507-0000-000N00H20E2
	80	---	F4	730	815	2A0, 2B0, 2C0, 2D00	CXA1507-0000-000N0HF40E2
			G2	780	871		CXA1507-0000-000N0HG20E2
			G4	840	938		CXA1507-0000-000N0HG40E3
5000 K	70	75	G2	780	871	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000N00G20E3
			G4	840	938		CXA1507-0000-000N00G40E3
			H2	900	1005		CXA1507-0000-000N00H20E3
	80	---	F4	730	815	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000N0HF40E3
			G2	780	871		CXA1507-0000-000N0HG20E3
			G4	840	938		CXA1507-0000-000N0HG40E3
	90	95	E2	590	659	3A0, 3B0, 3C0, 3D0	CXA1507-0000-000N0UE20E3
			E4	635	709		CXA1507-0000-000N0UE40E3
			F2	680	759		CXA1507-0000-000N0UF20E3

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, ANSI WHITE ORDER CODES AND BINS - 37 V ($I_f = 200$ mA, $T_j = 85$ °C) - CONTINUED

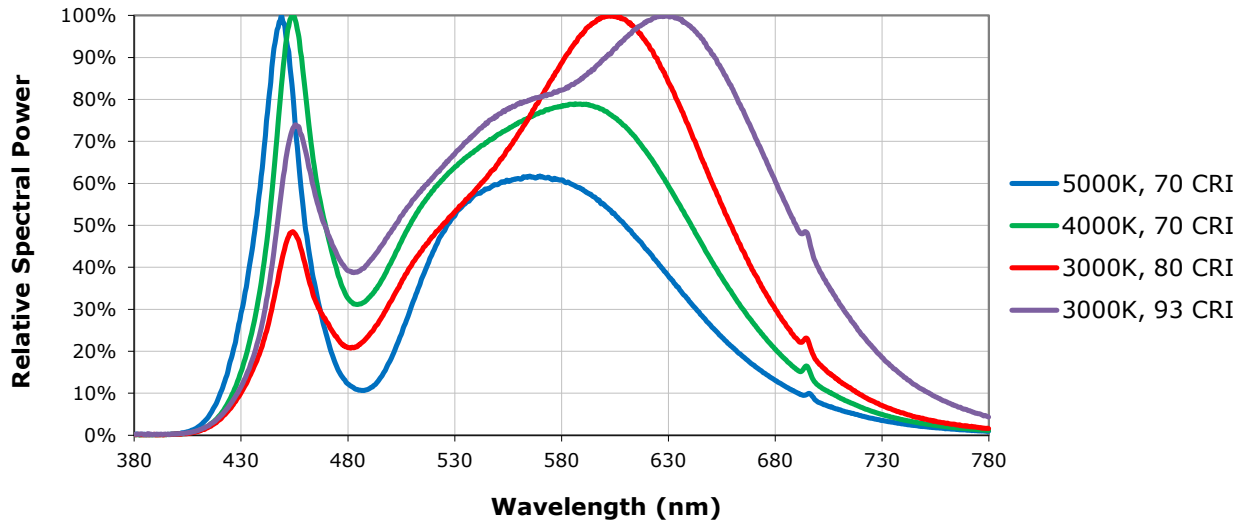
CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 200 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
4000 K	70	75	F4	730	815	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000N00F40E5
			G2	780	871		CXA1507-0000-000N00G20E5
			G4	840	938		CXA1507-0000-000N00G40E5
	80	---	F4	780	815	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000N00HF40E5
			G2	780	871		CXA1507-0000-000N00HG20E5
	90	95	E2	590	659	5A0, 5B0, 5C0, 5D0	CXA1507-0000-000N00UE20E5
			E4	635	709		CXA1507-0000-000N00UE40E5
			F2	680			CXA1507-0000-000N00UF20E5
	3500 K	80	---	F2	680	759	6A0, 6B0, 6C0, 6D0
F4				730	815	CXA1507-0000-000N00F40E6	
G2				780	871	CXA1507-0000-000N00G20E6	
93		95	D4	550	614	6A0, 6B0, 6C0, 6D0	CXA1507-0000-000N00YD40E6
			E2	590	659		CXA1507-0000-000N00YE20E6
			E4	635	709		CXA1507-0000-000N00YE40E6
3000 K	80	---	F2	680	759	7A0, 7B0, 7C0, 7D0	CXA1507-0000-000N00F20E7
			F4	730	815		CXA1507-0000-000N00F40E7
			G2	780	871		CXA1507-0000-000N00G20E7
	90	---	D4	550	614	7A0, 7B0, 7C0, 7D0	CXA1507-0000-000N00UD40E7
			E2	590	659		CXA1507-0000-000N00UE20E7
	93	95	D2	510	569	7A0, 7B0, 7C0, 7D0	CXA1507-0000-000N00YD20E7
			D4	550	614		CXA1507-0000-000N00YD40E7
			E2	590	659		CXA1507-0000-000N00YE20E7
	2700 K	80	---	E4	635	709	8A0, 8B0, 8C0, 8D0
F2				680	759	CXA1507-0000-000N00F20E8	
F4				730	815	CXA1507-0000-000N00F40E8	
90		---	C4	475	530	8A0, 8B0, 8C0, 8D0	CXA1507-0000-000N00UC40E8
			D2	510	569		CXA1507-0000-000N00UD20E8
			D4	550	614		CXA1507-0000-000N00UD40E8
93		95	C4	475	530	8A0, 8B0, 8C0, 8D0	CXA1507-0000-000N00YC40E8
			D2	510	569		CXA1507-0000-000N00YD20E8
			D4	550	614		CXA1507-0000-000N00YD40E8

Notes

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ± 2 on CRI measurements.
- * Flux values @ 25 °C are calculated and for reference only.

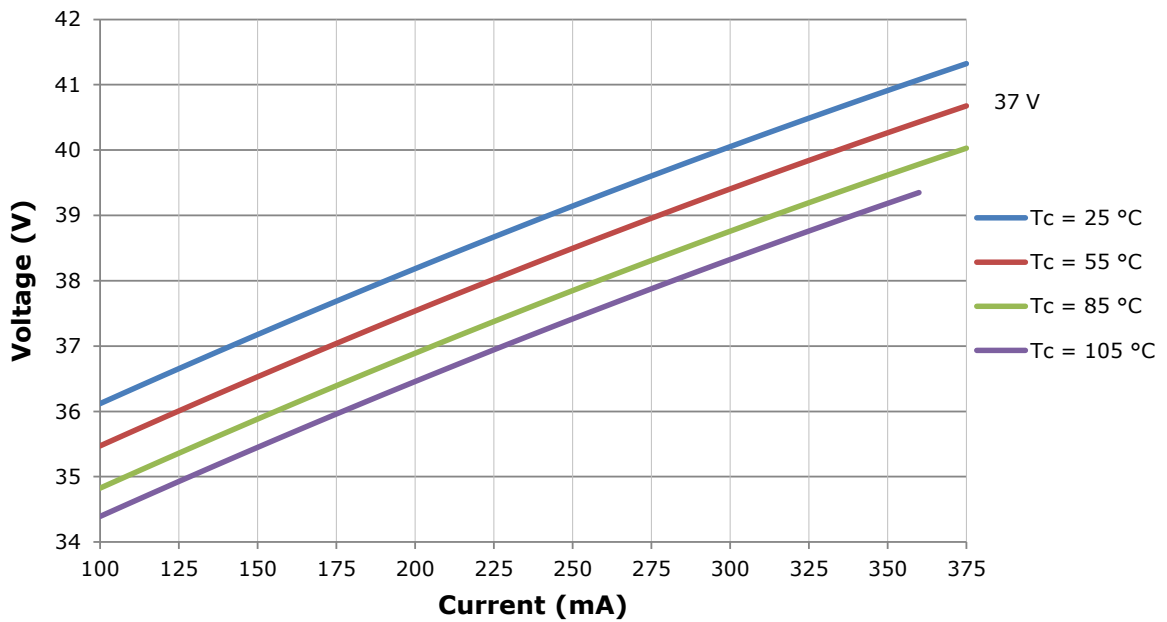
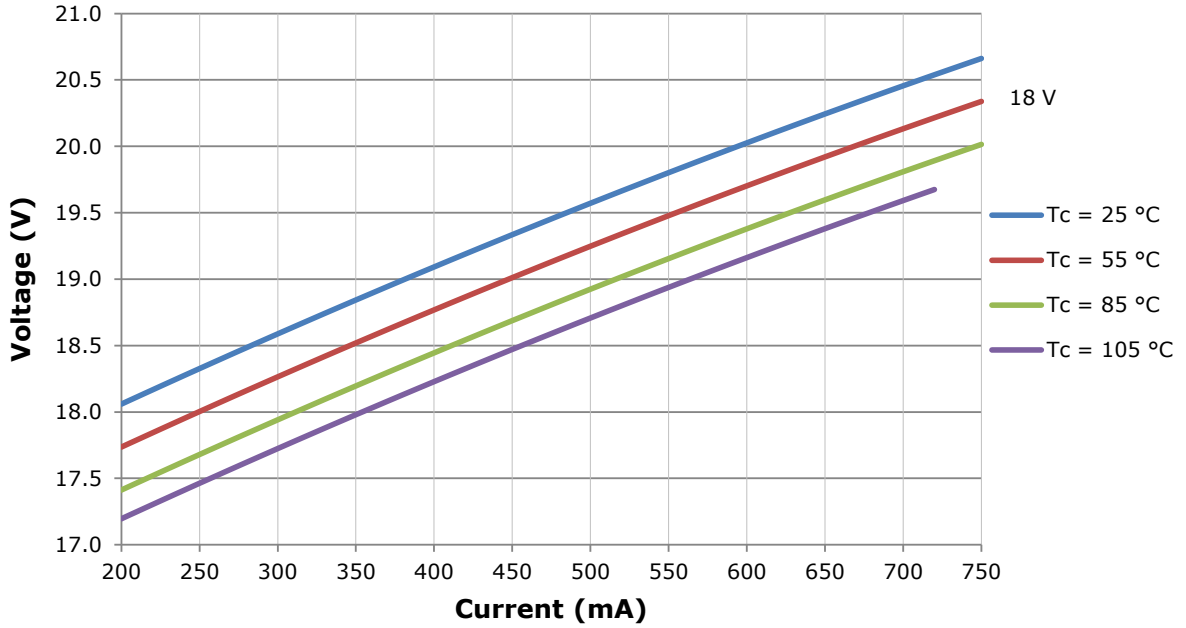
RELATIVE SPECTRAL POWER DISTRIBUTION (18 V, $I_F = 400$ mA; 37 V, $I_F = 200$ mA, $T_j = 85$ °C)

The following graph is the result of a series of pulsed measurements at 400 mA for the 18-V CXA1507 LED and 200 mA for the 37-V CXA1507 LED and $T_j = 85$ °C.



ELECTRICAL CHARACTERISTICS

The following graphs are the result of a series of steady-state measurements.

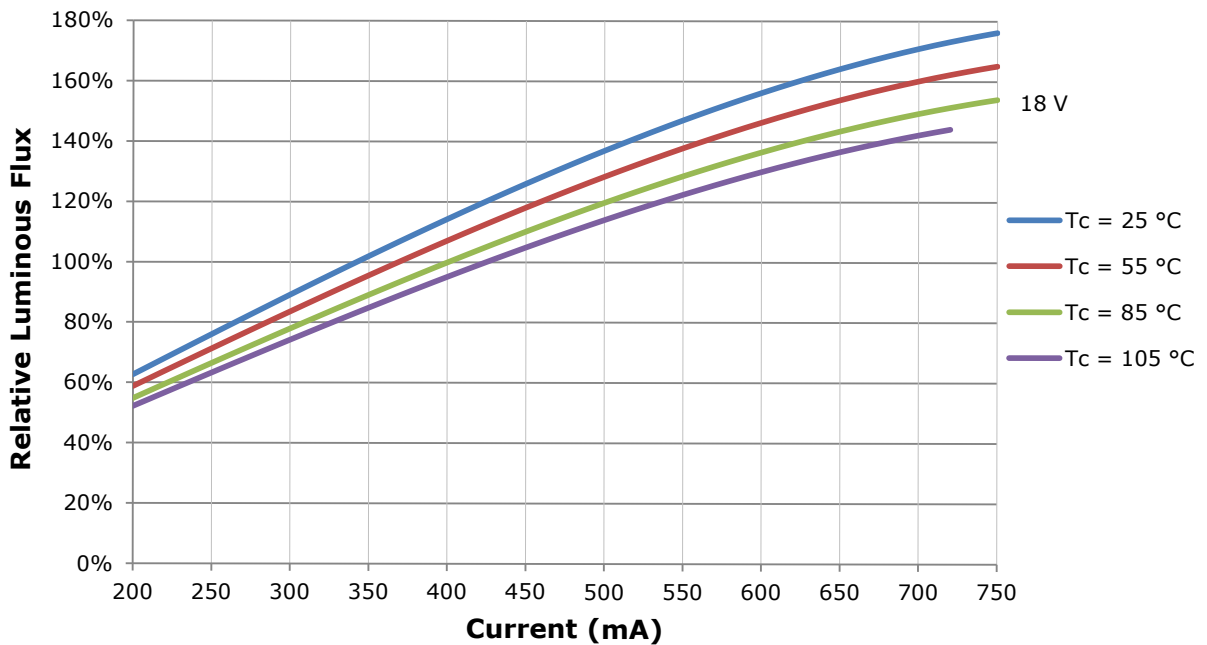


RELATIVE LUMINOUS FLUX

The relative luminous flux values provided below are the ratio of:

- Measurements of CXA1507 at steady-state operation at the given conditions, divided by
- Flux measured during binning, which is a pulsed measurement at 400 mA at $T_j = 85\text{ }^\circ\text{C}$ for the 18-V CXA1507 LED.

Using the 18-V CXA1507 LED as an example, at steady-state operation of $T_c = 55\text{ }^\circ\text{C}$, $I_f = 450\text{ mA}$, the relative luminous flux ratio is 120% in the chart below. A CXA1507 LED that measures 710 lm during binning will deliver 852 lm (710×1.2) at steady-state operation of $T_c = 55\text{ }^\circ\text{C}$, $I_f = 450\text{ mA}$.

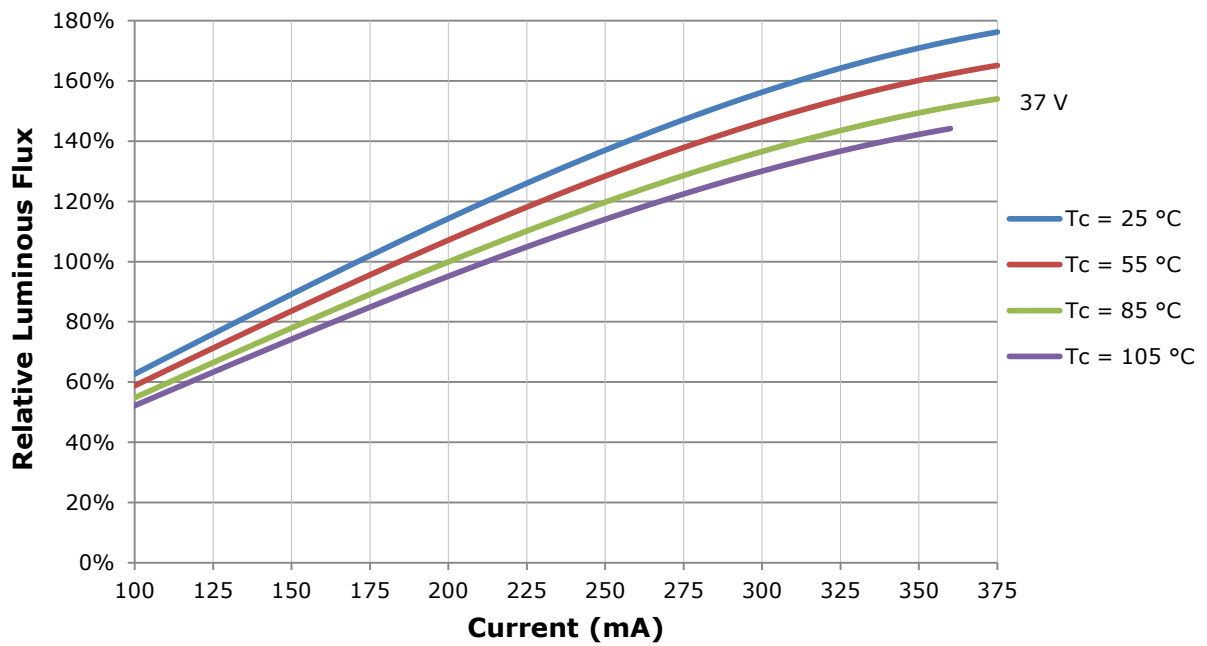


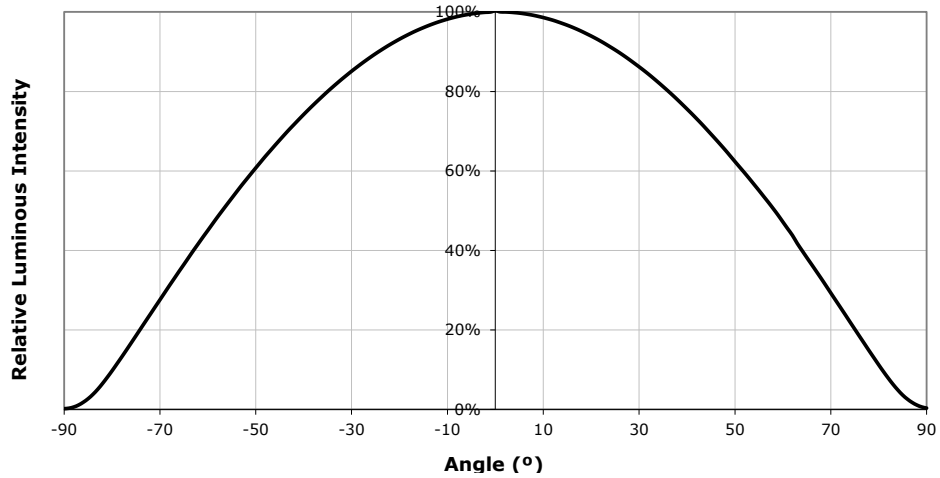
RELATIVE LUMINOUS FLUX - CONTINUED

The relative luminous flux values provided below are the ratio of:

- Measurements of CXA1507 at steady-state operation at the given conditions, divided by
- Flux measured during binning, which is a pulsed measurement at 200 mA at $T_j = 85\text{ }^\circ\text{C}$ for the 37-V CXA1507 LED.

Using the 37-V CXA1507 LED as an example, at steady-state operation of $T_c = 55\text{ }^\circ\text{C}$, $I_f = 350\text{ mA}$, the relative luminous flux ratio is 160% in the chart below. A CXA1507 LED that measures 710 lm during binning will deliver 1136 lm (710×1.6) at steady-state operation of $T_c = 55\text{ }^\circ\text{C}$, $I_f = 350\text{ mA}$.



TYPICAL SPATIAL DISTRIBUTION

PERFORMANCE GROUPS - BRIGHTNESS (18 V, I_F = 400 mA; 37 V, I_F = 200 mA, T_J = 85 °C)

XLamp CXA1507 LEDs are tested for luminous flux and placed into one of the following bins.

Group Code	Min. Luminous Flux	Max. Luminous Flux
C4	475	510
D2	510	550
D4	550	590
E2	590	635
E4	635	680
F2	680	730
F4	730	780
G2	780	840
G4	840	900
H2	900	970
H4	970	1040

PERFORMANCE GROUPS - CHROMATICITY ($T_j = 85\text{ °C}$)

XLamp CXA1507 LEDs are tested for chromaticity and placed into one of the regions defined by the following bounding coordinates.

EasyWhite Color Temperatures – 4-Step			
Code	CCT	x	y
65F	6500 K	0.3253	0.3325
		0.3249	0.3439
		0.3331	0.3514
		0.3330	0.3393
57F	5700 K	0.3097	0.3196
		0.3079	0.3297
		0.3164	0.3382
		0.3176	0.3275
50F	5000 K	0.3407	0.3459
		0.3415	0.3586
		0.3499	0.3654
		0.3484	0.3521
40F	4000 K	0.3744	0.3685
		0.3782	0.3837
		0.3912	0.3917
		0.3863	0.3758
35F	3500 K	0.3981	0.3800
		0.4040	0.3966
		0.4186	0.4037
		0.4116	0.3865
30F	3000 K	0.4242	0.3919
		0.4322	0.4096
		0.4449	0.4141
		0.4359	0.3960
27F	2700 K	0.4475	0.3994
		0.4573	0.4178
		0.4695	0.4207
		0.4589	0.4021

EasyWhite Color Temperatures – 2-Step			
Code	CCT	x	y
50H	5000 K	0.3429	0.3507
		0.3434	0.3571
		0.3475	0.3604
		0.3469	0.3539
40H	4000 K	0.3784	0.3741
		0.3804	0.3818
		0.3867	0.3857
		0.3844	0.3778
35H	3500 K	0.4030	0.3857
		0.4061	0.3941
		0.4132	0.3976
		0.4099	0.3890
30H	3000 K	0.4291	0.3973
		0.4333	0.4062
		0.4395	0.4084
		0.4351	0.3994
27H	2700 K	0.4528	0.4046
		0.4578	0.4138
		0.4638	0.4152
		0.4586	0.4060

PERFORMANCE GROUPS - CHROMATICITY ($T_j = 85\text{ }^\circ\text{C}$) - CONTINUED

ANSI White Bins				
Code	CCT	Bin Code	x	y
0E1	6500 K	1A0	0.3048	0.3207
			0.3130	0.3290
			0.3144	0.3186
			0.3068	0.3113
		1B0	0.3028	0.3304
			0.3115	0.3391
			0.3130	0.3290
			0.3048	0.3207
		1C0	0.3115	0.3391
			0.3205	0.3481
			0.3213	0.3373
			0.3130	0.3290
		1D0	0.3130	0.3290
			0.3213	0.3373
			0.3221	0.3261
			0.3144	0.3186

ANSI White Bins				
Code	CCT	Bin Code	x	y
0E2	5700 K	2A0	0.3215	0.3350
			0.3290	0.3417
			0.3290	0.3300
			0.3222	0.3243
		2B0	0.3207	0.3462
			0.3290	0.3538
			0.3290	0.3417
			0.3215	0.3350
		2C0	0.3290	0.3538
			0.3376	0.3616
			0.3371	0.3490
			0.3290	0.3417
		2D0	0.3290	0.3417
			0.3371	0.3490
			0.3366	0.3369
			0.3290	0.3300

ANSI White Bins				
Code	CCT	Bin Code	x	y
0E3	5000 K	3A0	.3371	.3490
			.3451	.3554
			.3440	.3427
			.3366	.3369
		3B0	.3376	.3616
			.3463	.3687
			.3451	.3554
			.3371	.3490
		3C0	.3463	.3687
			.3551	.3760
			.3533	.3620
			.3451	.3554
		3D0	.3451	.3554
			.3533	.3620
			.3515	.3487
			.3440	.3427

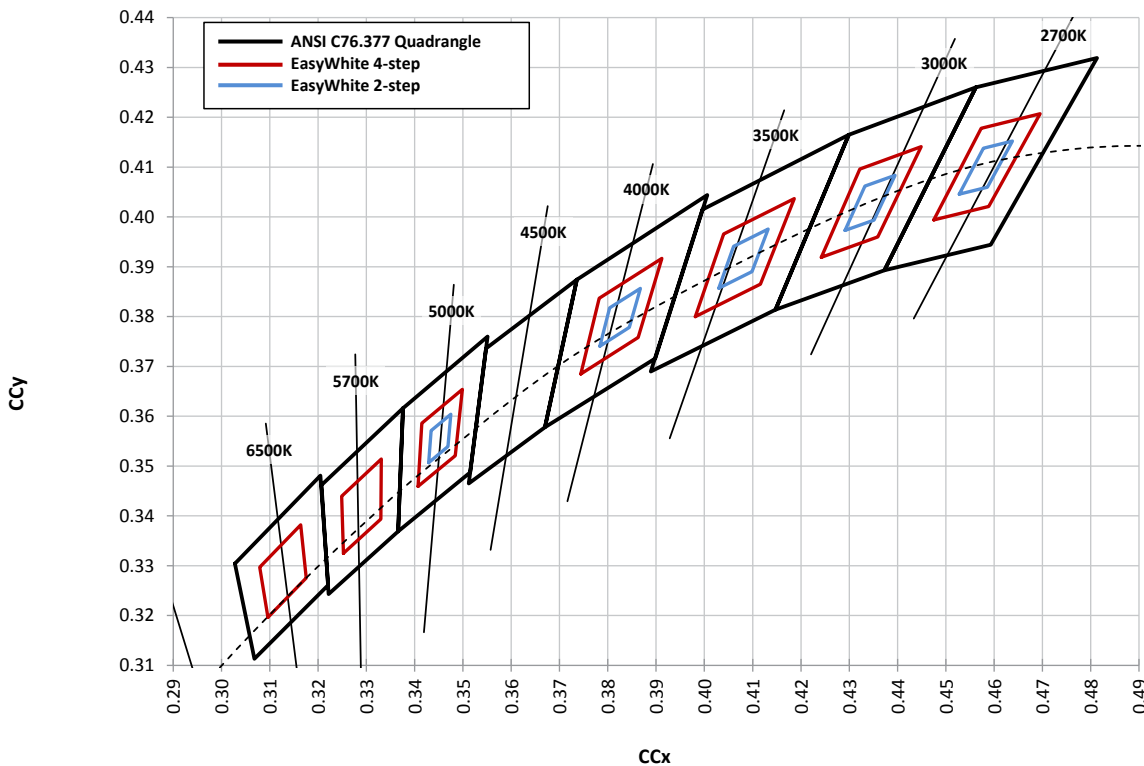
ANSI White Bins				
Code	CCT	Bin Code	x	y
0E5	4000 K	5A0	.3670	.3578
			.3702	.3722
			.3825	.3798
			.3783	.3646
		5B0	.3702	.3722
			.3736	.3874
			.3869	.3958
			.3825	.3798
		5C0	.3825	.3798
			.3869	.3958
			.4006	.4044
			.3950	.3875
		5D0	.3783	.3646
			.3825	.3798
			.3950	.3875
			.3898	.3716

ANSI White Bins				
Code	CCT	Bin Code	x	y
0E6	3500 K	6A0	.3889	.3690
			.3941	.3848
			.4080	.3916
			.4017	.3751
		6B0	.3941	.3848
			.3996	.4015
			.4146	.4089
			.4080	.3916
		6C0	.4080	.3916
			.4146	.4089
			.4299	.4165
			.4221	.3984
		6D0	.4017	.3751
			.4080	.3916
			.4221	.3984
			.4147	.3814

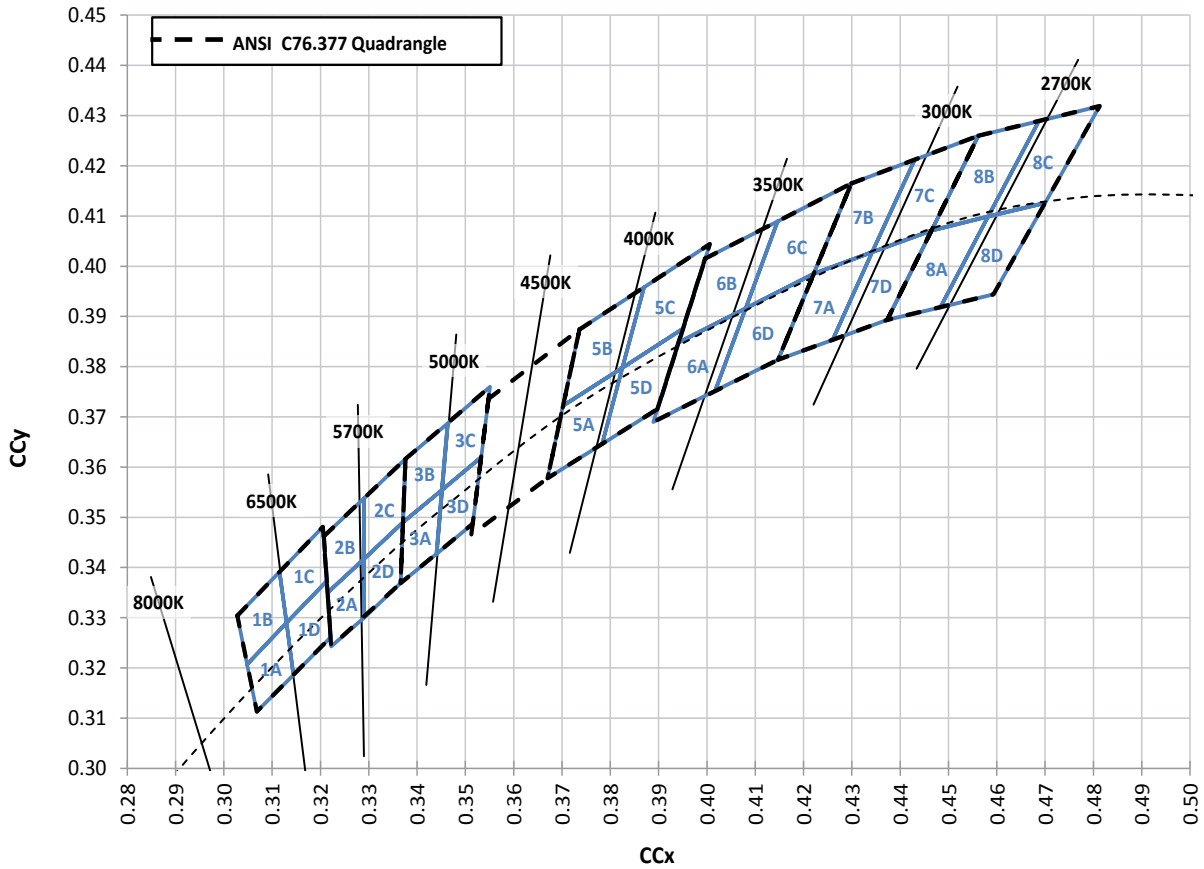
PERFORMANCE GROUPS - CHROMATICITY ($T_j = 85\text{ }^\circ\text{C}$) - CONTINUED

ANSI White Bins					ANSI White Bins				
Code	CCT	Bin Code	x	y	Code	CCT	Bin Code	x	y
0E7	3000 K	7A0	.4147	.3814	0E8	2700 K	8A0	.4373	.3893
			.4221	.3984				.4465	.4071
			.4342	.4028				.4582	.4099
			.4259	.3853				.4483	.3919
		7B0	.4221	.3984			8B0	.4465	.4071
			.4299	.4165				.4562	.4260
			.4430	.4212				.4687	.4289
			.4342	.4028				.4582	.4099
		7C0	.4342	.4028			8C0	.4582	.4099
			.4430	.4212				.4687	.4289
			.4562	.4260				.4813	.4319
			.4465	.4071				.4700	.4126
		7D0	.4259	.3853			8D0	.4483	.3919
			.4342	.4028				.4582	.4099
			.4465	.4071				.4700	.4126
			.4373	.3893				.4593	.3944

CREE EASYWHITE BINS PLOTTED ON THE 1931 CIE COLOR SPACE ($T_j = 85\text{ }^\circ\text{C}$)



CREE ANSI WHITE BINS PLOTTED ON THE 1931 CIE COLOR SPACE ($T_j = 85^\circ\text{C}$)



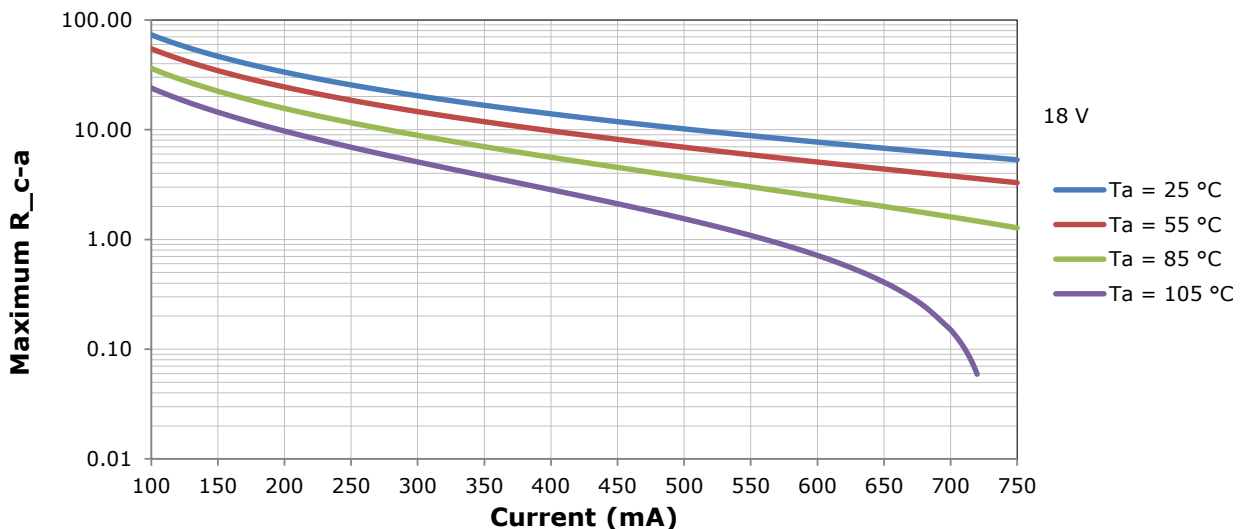
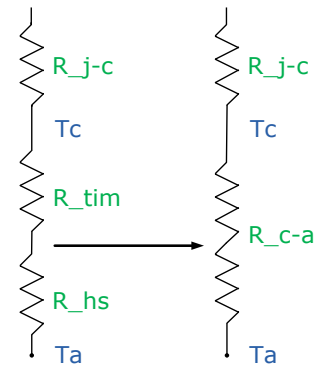
THERMAL DESIGN

The CXA family of LED arrays can include over a hundred different LED die inside one package, and thus over a hundred different junction temperatures (T_j). Cree has intentionally removed junction-temperature-based operating limits and replaced the commonplace maximum T_j calculations with maximum ratings based on forward current (I_f) and case temperature (T_c). No additional calculations are required to ensure the CXA LED is being operated within its designed limits. Please refer to page 3 for the Operating Limit specification.

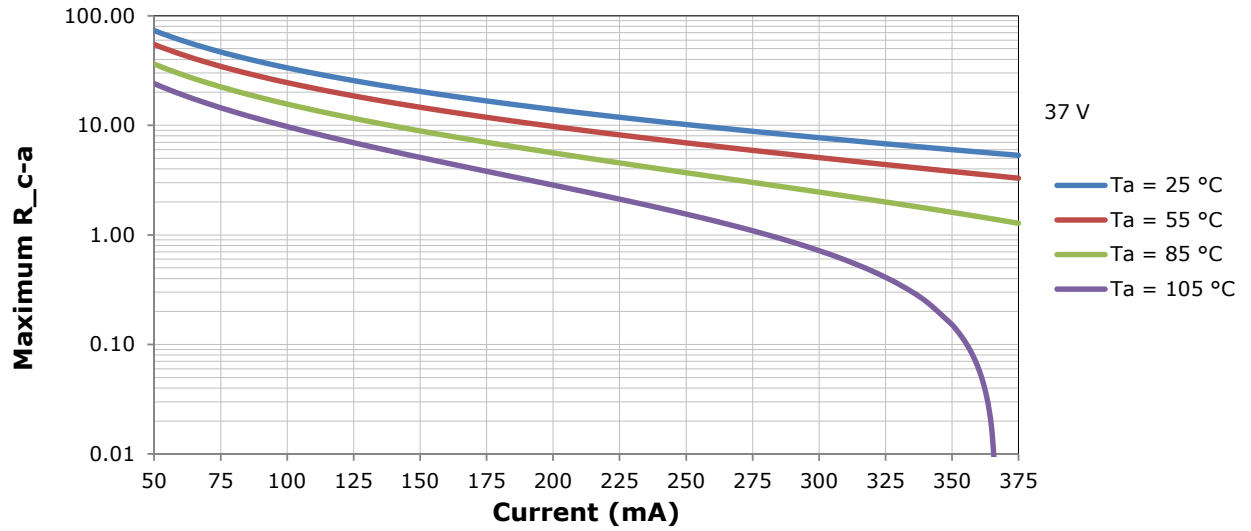
Cree has measured the temperature at the bottom of the package, commonly referred to as the solder point (T_{sp}), and found this value to be equivalent to the temperature at the T_c location at the top of the package once the LED has reached thermal equilibrium. There is no need to calculate for T_j inside the package, as the thermal management design process, specifically from T_{sp} to ambient (T_a), remains identical to any other LED component. For more information on thermal management of Cree XLamp LEDs, please refer to the XLamp Thermal Management application note at www.cree.com/xlamp_app_notes/thermal_management. For CXA soldering recommendations and more information on thermal interface materials (TIM) and connection methods, please refer to the Cree XLamp CXA Family LEDs soldering and handling document at www.cree.com/xlamp_app_notes/CXA_SH. The CXA LED Design Guide at www.cree.com/xlamp_app_notes/cxa_design_guide provides basic information on the requirements to use Cree XLamp CXA LEDs successfully in luminaire designs.

To keep the CXA1507 LED at or below the maximum rated T_c , the case to ambient temperature thermal resistance (R_{c-a}) must be at or below the maximum R_{c-a} value shown on the following graphs, depending on the operating environment. The y-axis in the graphs is a base 10 logarithmic scale.

As the figure at right shows, the R_{c-a} value is the sum of the thermal resistance of the TIM (R_{tim}) plus the thermal resistance of the heat sink (R_{hs}).



THERMAL DESIGN - CONTINUED



NOTES

Lumen Maintenance Projections

Cree now uses standardized IES LM-80-08 and TM-21-11 methods for collecting long-term data and extrapolating LED lumen maintenance. For information on the specific LM-80 data sets available for this LED, refer to the public LM-80 results document at www.cree.com/xlamp_app_notes/LM80_results.

Please read the XLamp Long-Term Lumen Maintenance application note at www.cree.com/xlamp_app_notes/lumen_maintenance for more details on Cree's lumen maintenance testing and forecasting. Please read the XLamp Thermal Management application note at www.cree.com/xlamp_app_notes/thermal_management for details on how thermal design, ambient temperature, and drive current affect the LED junction temperature.

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree representative or from the Product Documentation sections of www.cree.com.

REACH Compliance

REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Cree representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

UL Recognized Component

Level 4 enclosure consideration. The LED package or a portion thereof has been investigated as a fire and electrical enclosure per ANSI/UL 8750.

Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

PACKAGING

Cree CXA1507 LEDs are packaged in trays of 20. Five trays are sealed in an anti-static bag and placed inside a carton, for a total of 100 LEDs per carton. Each carton contains 100 LEDs from the same performance bin.

Dimensions are in inches.

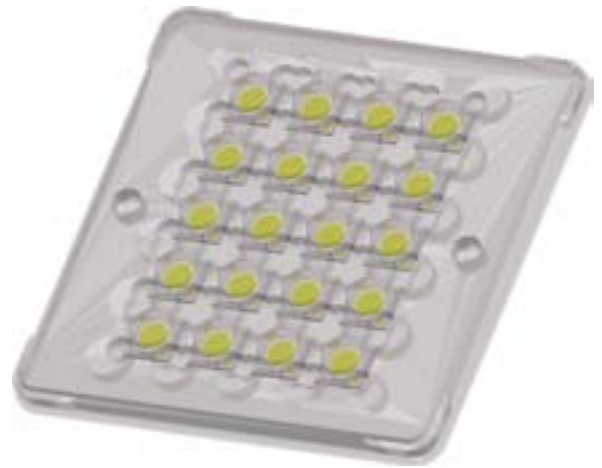
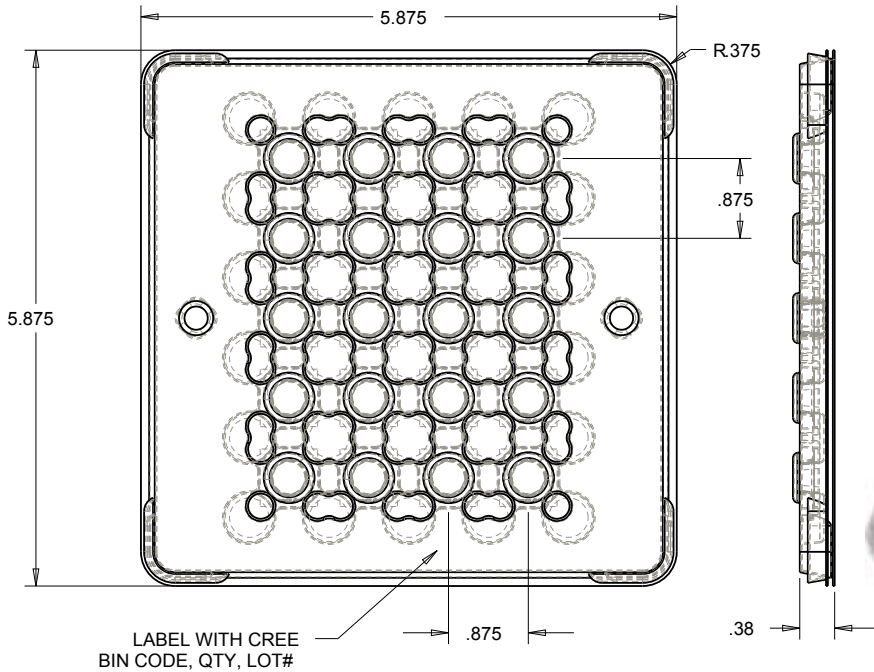
Tolerances:

.x ± .1

.xx ± .05

.xxx ± .005

x° ± 1°



PATENT LABEL IS LOCATED
ON UNDERSIDE OF CARTON

