

Cree® XLamp® CXA3050 LED



PRODUCT DESCRIPTION

The XLamp CXA3050 LED array expands Cree’s family of high-flux, multi-die integrated arrays, offering high performance in an easy-to-use platform. With XLamp lighting-class reliability, the CXA3050’s uniform emitting surface enables both directional and non-directional lighting applications and luminaire and lamp designs. Available in 2-step and 4-step color consistency, and featuring a 23-mm optical source, the CXA3050 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 CXA3050 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 CCT
- 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: 37 V
- 85 °C binning and characterization
- Maximum drive current: 2500 mA
- 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)

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



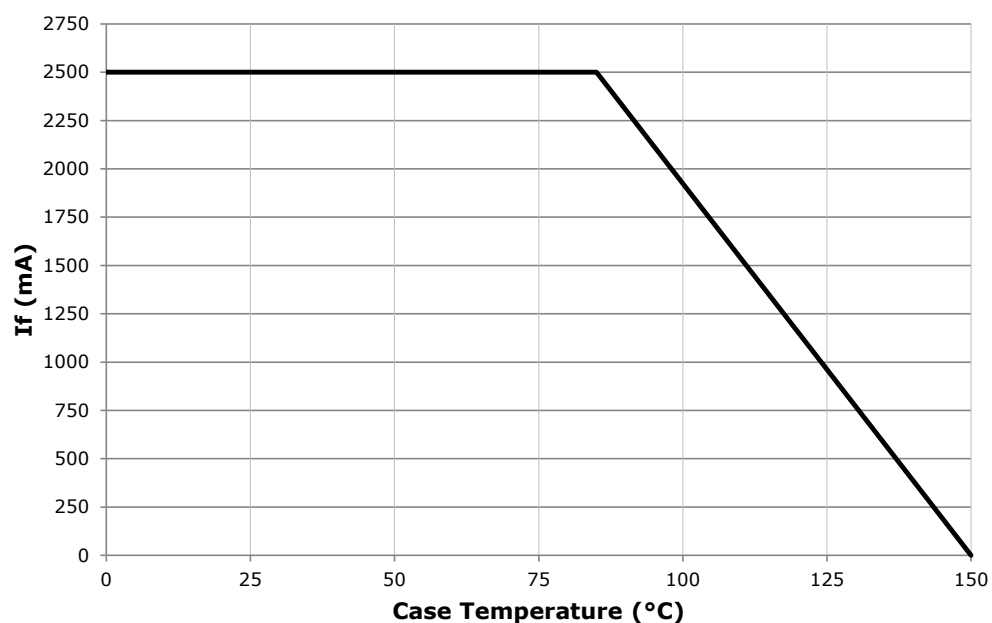
CHARACTERISTICS

Characteristics	Unit	Minimum	Typical	Maximum
Viewing angle (FWHM)	degrees		115	
ESD withstand voltage (HBM per Mil-Std-883D)	V			8000
DC forward current	mA			2500*
Reverse current	mA			0.1
Forward voltage (@ 1400 mA, $T_j = 85\text{ }^{\circ}\text{C}$)	V		37	
Forward voltage (@ 1400 mA, $T_j = 25\text{ }^{\circ}\text{C}$)	V			42

* Refer to the Operating Limits section.

OPERATING LIMITS

The maximum current rating of the CXA3050 is dependent on the case temperature (T_c) when the LED has reached thermal equilibrium under steady-state operation. Please refer to the Mechanical Drawings section on page 14 for the location of the T_c measurement point.



FLUX CHARACTERISTICS, EASYWHITE ORDER CODES AND BINS ($I_F = 1400 \text{ mA}$, $T_J = 85^\circ \text{C}$)

The following tables provide order codes for XLamp CXA3050 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 14).

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 1400 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	X2	5590	6299			65F	CXA3050-0000-000N00X265F
			X4	6010	6773				CXA3050-0000-000N00X465F
			Y2	6430	7246				CXA3050-0000-000N00Y265F
	80	---	W4	5225	5888			65F	CXA3050-0000-000N0HW465F
			X2	5590	6299				CXA3050-0000-000N0HX265F
			X4	6010	6773				CXA3050-0000-000N0HX465F
5700 K	70	75	X2	5590	6299			57F	CXA3050-0000-000N00X257F
			X4	6010	6773				CXA3050-0000-000N00X457F
			Y2	6430	7246				CXA3050-0000-000N00Y257F
	80	---	W4	5225	5888			57F	CXA3050-0000-000N0HW457F
			X2	5590	6299				CXA3050-0000-000N0HX257F
			X4	6010	6773				CXA3050-0000-000N0HX457F
5000 K	70	75	X2	5590	6299	50H	CXA3050-0000-000N00X250H	50F	CXA3050-0000-000N00X250F
			X4	6010	6773		CXA3050-0000-000N00X450H		CXA3050-0000-000N00X450F
			Y2	6430	7246		CXA3050-0000-000N00Y250H		CXA3050-0000-000N00Y250F
	80	---	W4	5225	5888	50H	CXA3050-0000-000N0HW450H	50F	CXA3050-0000-000N0HW450F
			X2	5590	6299		CXA3050-0000-000N0HX250H		CXA3050-0000-000N0HX250F
			X4	6010	6773		CXA3050-0000-000N0HX450H		CXA3050-0000-000N0HX450F
	90	95	V4	4545	5122	50H	CXA3050-0000-000N0UV450H	50F	CXA3050-0000-000N0UV450F
			W2	4860	5477		CXA3050-0000-000N0UW250H		CXA3050-0000-000N0UW250F
			W4	5225	5888		CXA3050-0000-000N0UW450H		CXA3050-0000-000N0UW450F

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 ($I_F = 1400 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$) - CONTINUED

CCT Range	CRI		Base Order Codes Min. Luminous Flux @ 1400 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	W4	5225	5888	40H	CXA3050-0000-000N00W440H	40F	CXA3050-0000-000N00W440F
			X2	5590	6299		CXA3050-0000-000N00X240H		CXA3050-0000-000N00X240F
			X4	6010	6773		CXA3050-0000-000N00X440H		CXA3050-0000-000N00X440F
	80	---	W2	4860	5477	40H	CXA3050-0000-000N0HW240H	40F	CXA3050-0000-000N0HW240F
			W4	5225	5888		CXA3050-0000-000N0HW440H		CXA3050-0000-000N0HW440F
			X2	5590	6299		CXA3050-0000-000N0HX240H		CXA3050-0000-000N0HX240F
	90	95	V2	4230	4767	40H	CXA3050-0000-000N0UV240H	40F	CXA3050-0000-000N0UV240F
			V4	4545	5122		CXA3050-0000-000N0UV440H		CXA3050-0000-000N0UV440F
			W2	4860	5477		CXA3050-0000-000N0UW240H		CXA3050-0000-000N0UW240F
3500 K	80	---	W2	4860	5477	35H	CXA3050-0000-000N00W235H	35F	CXA3050-0000-000N00W235F
			W4	5225	5888		CXA3050-0000-000N00W435H		CXA3050-0000-000N00W435F
			X2	5590	6299		CXA3050-0000-000N00X235H		CXA3050-0000-000N00X235F
	93	95	V2	4230	4767	35H	CXA3050-0000-000N0YV235H	35F	CXA3050-0000-000N0YV235F
			V4	4545	5122		CXA3050-0000-000N0YV435H		CXA3050-0000-000N0YV435F
			W2	4860	5477		CXA3050-0000-000N0YW235H		CXA3050-0000-000N0YW235F
3000 K	80	---	W2	4860	5477	30H	CXA3050-0000-000N00W230H	30F	CXA3050-0000-000N00W230F
			W4	5225	5888		CXA3050-0000-000N00W430H		CXA3050-0000-000N00W430F
			X2	5590	6299		CXA3050-0000-000N00X230H		CXA3050-0000-000N00X230F
	93	95	U4	3955	4469	30H	CXA3050-0000-000N0YU430H	30F	CXA3050-0000-000N0YU430F
			V2	4230	4767		CXA3050-0000-000N0YV230H		CXA3050-0000-000N0YV230F
			V4	4545	5122		CXA3050-0000-000N0YV430H		CXA3050-0000-000N0YV430F
2700 K	80	---	V4	4545	5122	27H	CXA3050-0000-000N00V427H	27F	CXA3050-0000-000N00V427F
			W2	4860	5477		CXA3050-0000-000N00W227H		CXA3050-0000-000N00W227F
			W4	5225	5888		CXA3050-0000-000N00W427H		CXA3050-0000-000N00W427F
	93	95	U2	3680	4158	27H	CXA3050-0000-000N0YU227H	27F	CXA3050-0000-000N0YU227F
			U4	3955	4469		CXA3050-0000-000N0YU427H		CXA3050-0000-000N0YU427F
			V2	4230	4767		CXA3050-0000-000N0YV227H		CXA3050-0000-000N0YV227F

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 ($I_F = 1400 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$)

The following tables provide order codes for XLamp CXA3050 LEDs. For a complete description of the order code nomenclature, please reference Bin and Order Code Formats (page 14).

CCT Range	CRI		Base Order Codes Min Luminous Flux @ 1400 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
6500 K	70	75	X2	5590	6299	1A0, 1B0, 1C0, 1D0	CXA3050-0000-000N00X20E1
			X4	6010	6773		CXA3050-0000-000N00X40E1
			Y2	6430	7246		CXA3050-0000-000N00Y20E1
	80	---	W4	5225	5888	1A0, 1B0, 1C0, 1D0	CXA3050-0000-000N0HW40E1
			X2	5590	6299		CXA3050-0000-000N0HX20E1
			X4	6010	6773		CXA3050-0000-000N0HX40E1
5700 K	70	75	X2	5590	6299	2A0, 2B0, 2C0, 2D0	CXA3050-0000-000N00X20E2
			X4	6010	6773		CXA3050-0000-000N00X40E2
			Y2	6430	7246		CXA3050-0000-000N00Y20E2
	80	---	W4	5225	5888	2A0, 2B0, 2C0, 2D0	CXA3050-0000-000N0HW40E2
			X2	5590	6299		CXA3050-0000-000N0HX20E2
			X4	6010	6773		CXA3050-0000-000N0HX40E2
5000 K	70	75	X2	5590	6299	3A0, 3B0, 3C0, 3D0	CXA3050-0000-000N00X20E3
			X4	6010	6773		CXA3050-0000-000N00X40E3
			Y2	6430	7246		CXA3050-0000-000N00Y20E3
	80	---	W4	5225	5888	3A0, 3B0, 3C0, 3D0	CXA3050-0000-000N0HW40E3
			X2	5590	6299		CXA3050-0000-000N0HX20E3
			X4	6010	6773		CXA3050-0000-000N0HX40E3
	90	95	V4	4545	5122	3A0, 3B0, 3C0, 3D0	CXA3050-0000-000N0UV40E3
			W2	4860	5477		CXA3050-0000-000N0UW20E3
			W4	5225	5888		CXA3050-0000-000N0UW40E3

Notes

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- * Flux values @ 25 °C are calculated and for reference only.

FLUX CHARACTERISTICS, ANSI WHITE ORDER CODES AND BINS ($I_F = 1400 \text{ mA}$, $T_J = 85 \text{ }^\circ\text{C}$) - CONTINUED

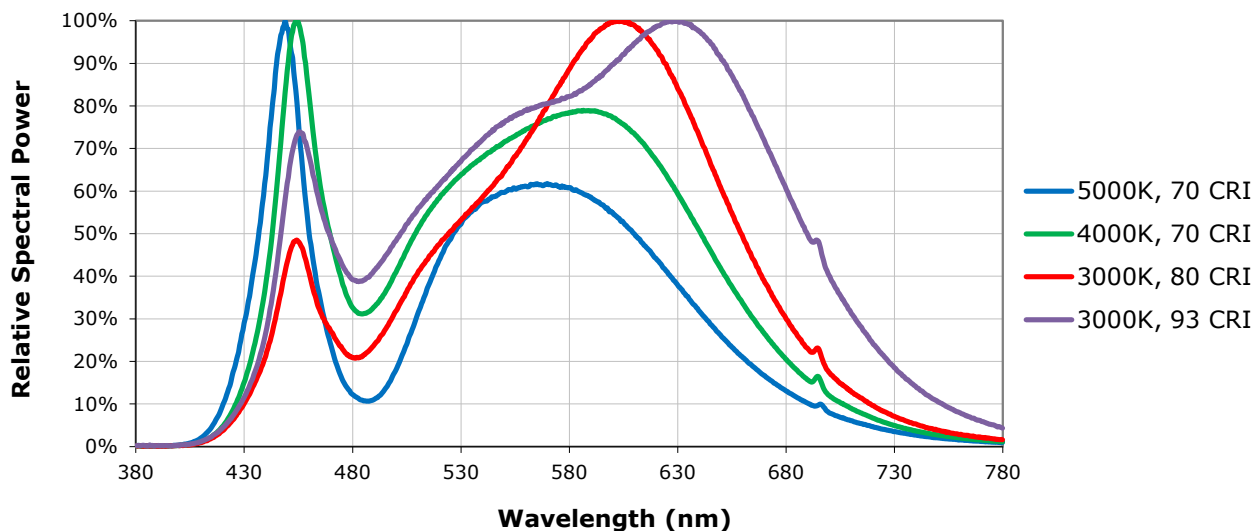
CCT Range	CRI		Base Order Codes Min Luminous Flux @ 1400 mA			Chromaticity Regions	Order Code
	Min	Typ	Group	Flux (lm) @ 85 °C	Flux (lm) @ 25 °C*		
4000 K	70	75	W4	5225	5888	5A0, 5B0, 5C0, 5D0	CXA3050-0000-000N00W40E5
			X2	5590	6299		CXA3050-0000-000N00X20E5
			X4	6010	6773		CXA3050-0000-000N00X40E5
	80	---	W2	4860	5477	5A0, 5B0, 5C0, 5D0	CXA3050-0000-000N0HW20E5
			W4	5225	5888		CXA3050-0000-000N0HW40E5
			X2	5590	6299		CXA3050-0000-000N0HX20E5
	90	95	V2	4230	4767	5A0, 5B0, 5C0, 5D0	CXA3050-0000-000N0UV20E5
			V4	4545	5122		CXA3050-0000-000N0UV40E5
			W2	4860	5477		CXA3050-0000-000N0UW20E5
3500 K	80	---	W2	4860	5477	6A0, 6B0, 6C0, 6D0	CXA3050-0000-000N00W20E6
			W4	5225	5888		CXA3050-0000-000N00W40E6
			X2	5590	6299		CXA3050-0000-000N00X20E6
	93	95	V2	4230	4767	6A0, 6B0, 6C0, 6D0	CXA3050-0000-000N0YV20E6
			V4	4545	5122		CXA3050-0000-000N0YV40E6
			W2	4860	5477		CXA3050-0000-000N0YW20E6
3000 K	80	---	W2	4860	5477	7A0, 7B0, 7C0, 7D0	CXA3050-0000-000N00W20E7
			W4	5225	5888		CXA3050-0000-000N00W40E7
			X2	5590	6299		CXA3050-0000-000N00X20E7
	93	95	U4	3955	4469	7A0, 7B0, 7C0, 7D0	CXA3050-0000-000N0YU40E7
			V2	4230	4767		CXA3050-0000-000N0YV20E7
			V4	4545	5122		CXA3050-0000-000N0YV40E7
2700 K	80	---	V4	4545	5122	8A0, 8B0, 8C0, 8D0	CXA3050-0000-000N00V40E8
			W2	4860	5477		CXA3050-0000-000N00W20E8
			W4	5225	5888		CXA3050-0000-000N00W40E8
	93	95	U2	3680	4158	8A0, 8B0, 8C0, 8D0	CXA3050-0000-000N0YU20E8
			U4	3955	4469		CXA3050-0000-000N0YU40E8
			V2	4230	4767		CXA3050-0000-000N0YV20E8

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.

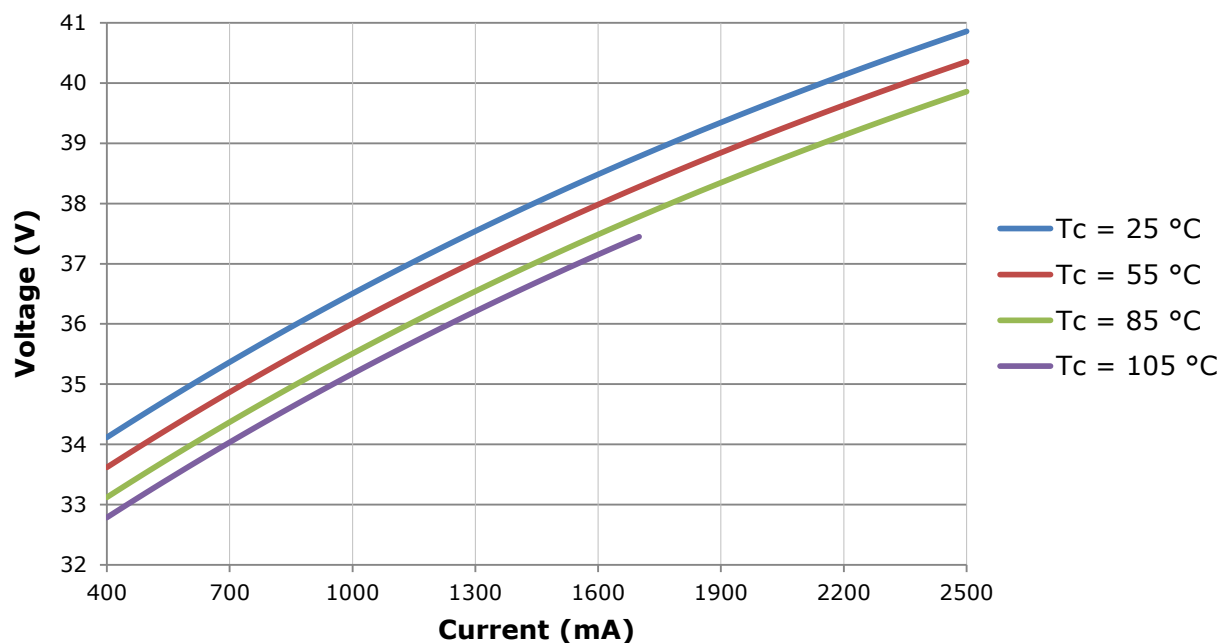
RELATIVE SPECTRAL POWER DISTRIBUTION ($I_F = 1400 \text{ mA}$, $T_J = 85^\circ\text{C}$)

The following graph is the result of a series of pulsed measurements at 1400 mA and $T_J = 85^\circ\text{C}$.



ELECTRICAL CHARACTERISTICS

The following graph is the result of a series of steady-state measurements.

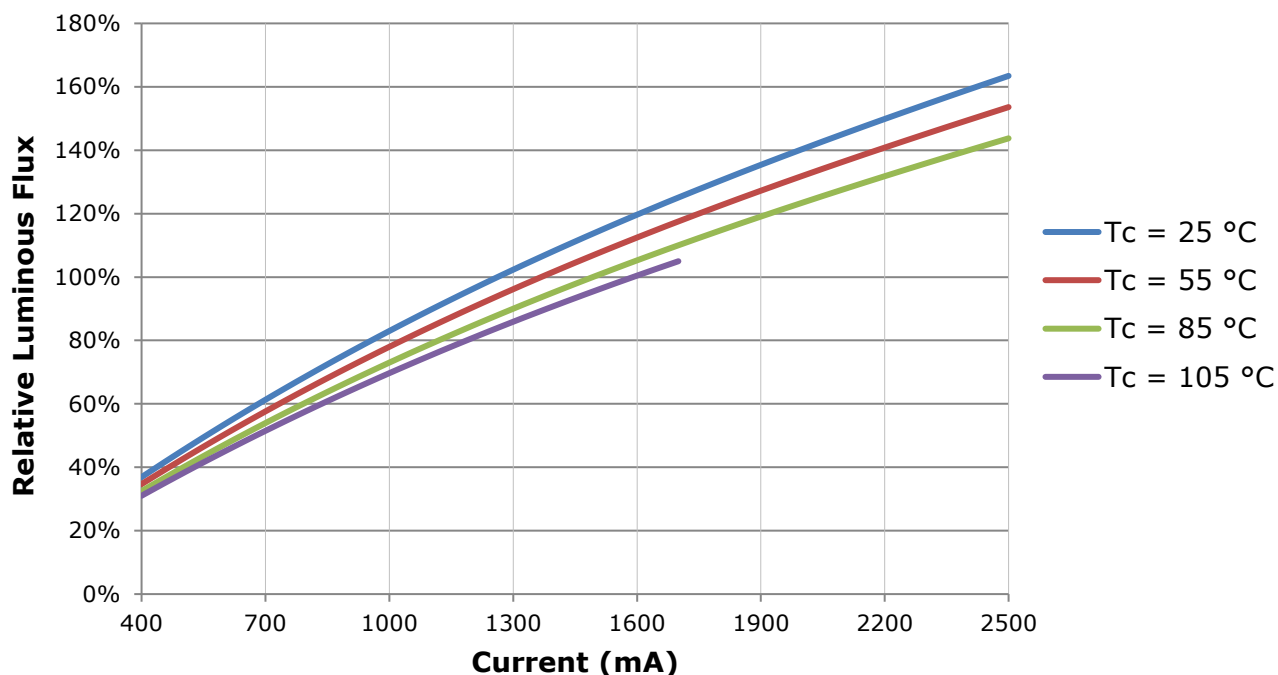


RELATIVE LUMINOUS FLUX

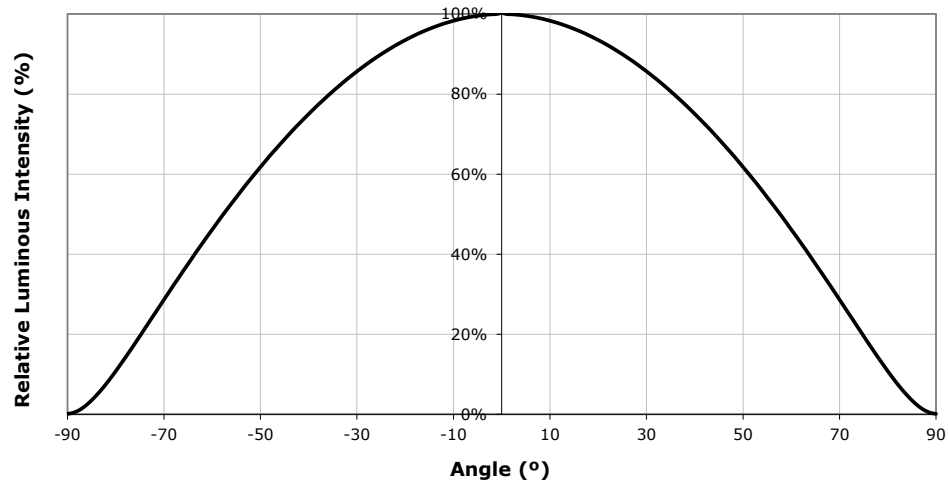
The relative luminous flux values provided below are the ratio of:

- Measurements of CXA3050 at steady-state operation at the given conditions, divided by
- Flux measured during binning, which is a pulsed measurement at 1400 mA at $T_j = 85^\circ\text{C}$.

For example, at steady-state operation of $T_c = 85^\circ\text{C}$, $I_f = 1900\text{ mA}$, the relative luminous flux ratio is 120% in the chart below. A CXA3050 LED that measures 6000 lm during binning will deliver 7200 lm (6000×1.2) at steady-state operation of $T_c = 85^\circ\text{C}$, $I_f = 1900\text{ mA}$.



TYPICAL SPATIAL DISTRIBUTION



PERFORMANCE GROUPS - BRIGHTNESS ($I_f = 1400 \text{ mA}$, $T_j = 85^\circ\text{C}$)

XLamp CXA3050 LEDs are tested for luminous flux and placed into one of the following bins.

Group Code	Min. Luminous Flux @ 1400 mA	Max. Luminous Flux @ 1400 mA
U2	3680	3955
U4	3955	4230
V2	4230	4545
V4	4545	4860
W2	4860	5225
W4	5225	5590
X2	5590	6010
X4	6010	6430
Y2	6430	6910
Y4	6910	7390

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

XLamp CXA3050 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

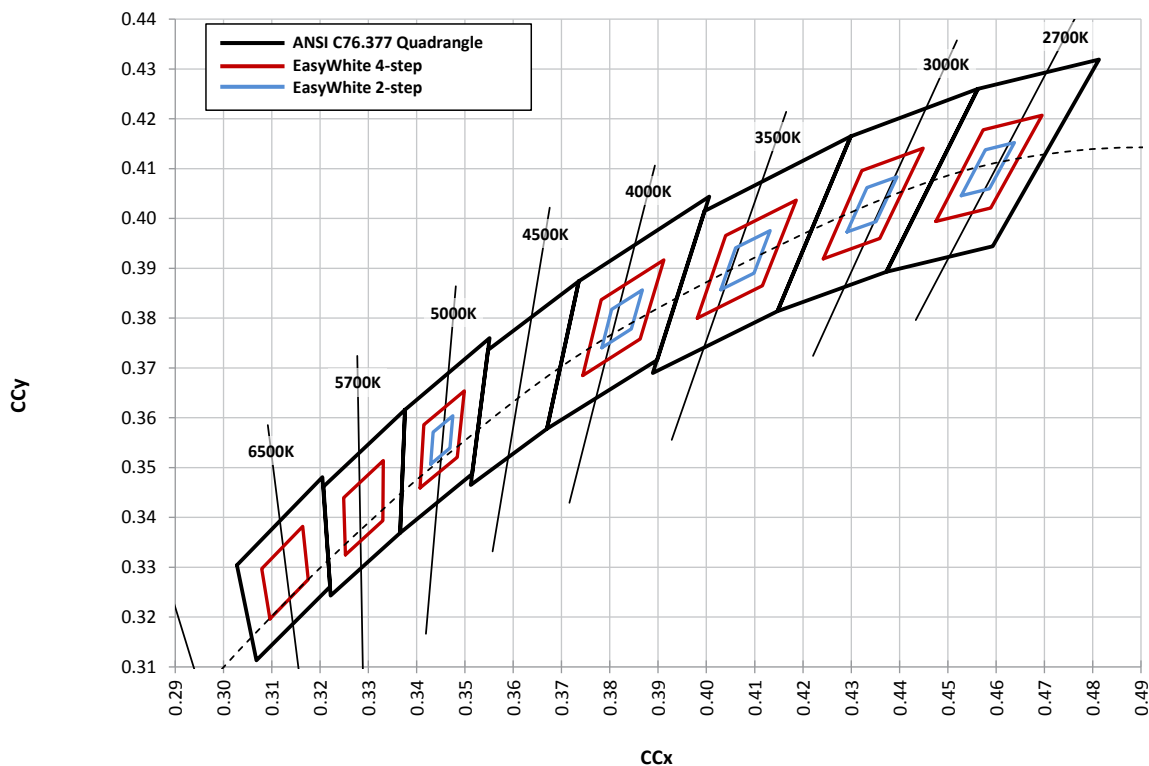
ANSI White Bins				
Code	CCT	Bin Code	x	y
0E5	4000 K	5A0	.3670	.3578
			.3702	.3722
			.3825	.3798
			.3783	.3646
		5B0	.3702	.3722
			.3736	.3874
			.3869	.3958
			.3825	.3798
		5C0	.3825	.3798
			.3869	.3958
			.4006	.4044
			.3950	.3875
		5D0	.3783	.3646
			.3825	.3798
			.3950	.3875
			.3898	.3716

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

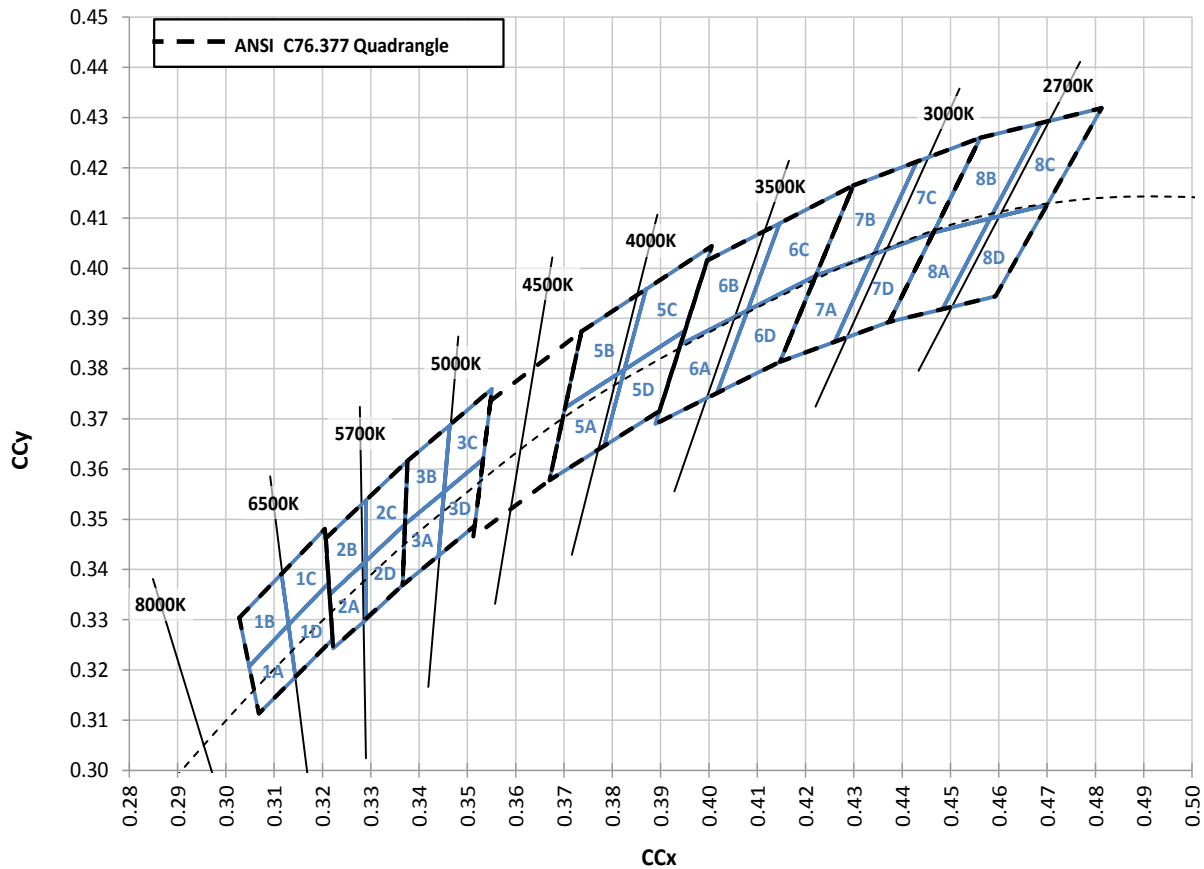
PERFORMANCE GROUPS - CHROMATICITY ($T_j = 85\text{ }^\circ\text{C}$) - CONTINUED

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

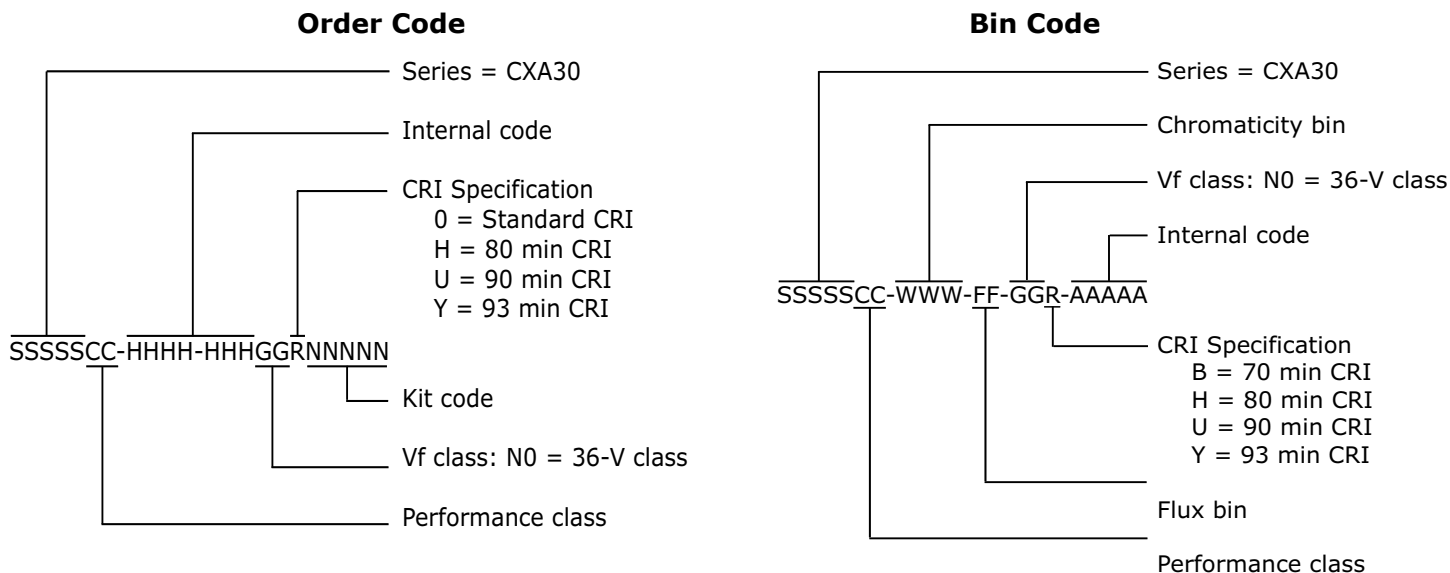
CREE EASYWHITE BINS PLOTTED ON THE CIE 1931 COLOR SPACE ($T_j = 85\text{ }^\circ\text{C}$)



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

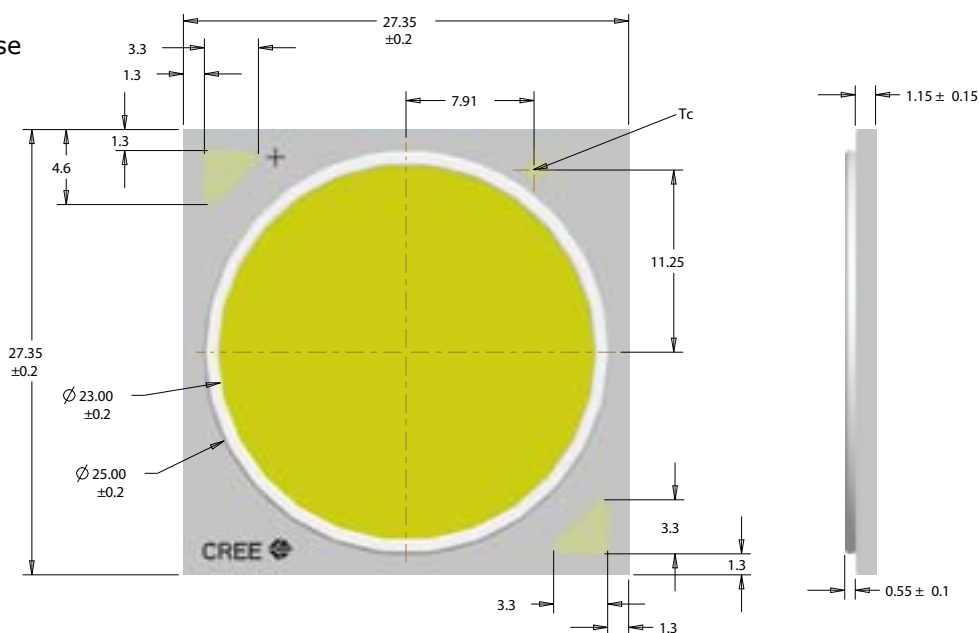


Bin codes and order codes are configured as follows:



Dimensions are in mm.

Tolerances unless otherwise specified:

$$\begin{aligned} & .x \pm .10 \\ & .xx \pm .03 \\ & .xxx \pm .010 \\ & x^\circ \pm 1^\circ \end{aligned}$$


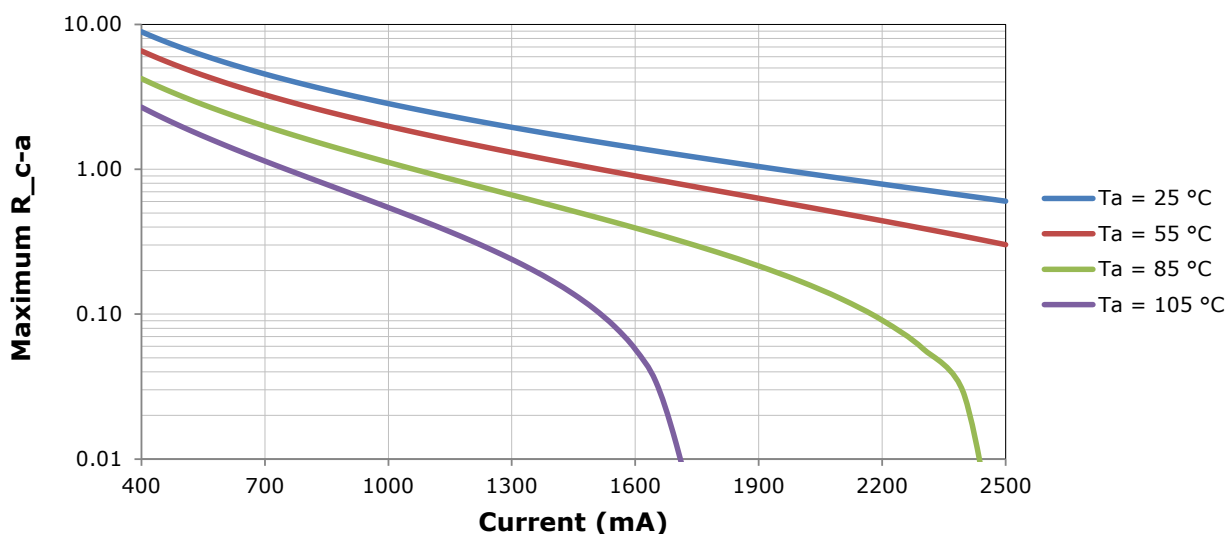
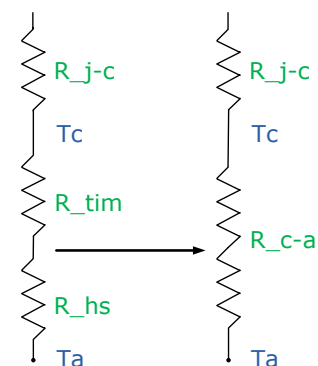
THERMAL DESIGN

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 2 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.

To keep the CXA3050 LED at or below the maximum rated T_c , the case to ambient thermal resistance (R_{c-a}) must be at or below the maximum R_{c-a} value shown on the following graph, depending on the operating environment. The y-axis in the graph 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}).



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 CXA3050 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 $\pm$.1

.xx $\pm$.05

.xxx $\pm$.005

x° $\pm$ 1°

