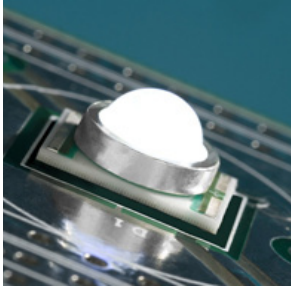


参考資料

Cree® XLamp® XR-E LED



XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)
XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)

PRODUCT DESCRIPTION

The XLamp XR-E LED is leading the LED lighting revolution with its unprecedented lighting-class brightness, efficacy, lifetime and quality of light. These lighting-class features enable the XLamp XR-E LED to replace many traditional light sources and save money with energy-efficient light and long lifetimes.

Cree XLamp LEDs bring high performance and quality of light to a wide range of lighting applications, including color-changing lighting, portable and personal lighting, outdoor lighting, indoor directional lighting, commercial lighting and emergency-vehicle lighting.

FEATURES

- Available in white (2600 K to 10,000 K CCT), blue, royal blue and green
- Maximum drive current: up to 1000 mA
- Maximum junction temperature: 150 °C
- Industry-leading JEDEC standard pre-qualification testing
- Reflow solderable – JEDEC J-STD-020C compatible
- Electrically neutral thermal path
- RoHS- and REACH-compliant
- UL-recognized component (E326295)



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FLUX CHARACTERISTICS (T_j = 25 °C) - WHITE

The following tables describe the available colors and flux for XR-E LEDs by listing the correlated color temperature or dominant wavelength range for the entire family and by providing several base order codes. It is important to note that the base order codes listed here are a subset of the total available order codes for the product family. For more order codes, as well as a complete description of the order-code nomenclature, please consult the XR Family Binning and Labeling document.

XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)

XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)

Color	CCT Range		Base Order Codes Min. Luminous Flux		Order Code
	Min.	Max.	Group	Flux (lm)	
Cool White	5000 K	10,000 K	P4	80.6	XREWHT-L1-0000-00901
			Q2	87.4	XREWHT-L1-0000-00A01
			Q3	93.9	XREWHT-L1-0000-00B01
			Q4	100	XREWHT-L1-0000-00C01
			Q5	107	XREWHT-L1-0000-00D01
			R2	114	XREWHT-L1-0000-00E01
Neutral White	3700 K	5000 K	P3	73.9	XREWHT-L1-0000-008E4
			P4	80.6	XREWHT-L1-0000-009E4
			Q2	87.4	XREWHT-L1-0000-00AE4
			Q3	93.9	XREWHT-L1-0000-00BE4
			Q4	100	XREWHT-L1-0000-00CE4
Warm White	2600 K	3700 K	N3	56.8	XREWHT-L1-0000-005E7
			N4	62.0	XREWHT-L1-0000-006E7
			P2	67.2	XREWHT-L1-0000-007E7
			P3	73.9	XREWHT-L1-0000-008E7
			P4	80.6	XREWHT-L1-0000-009E7

✓ (XREWHT-L1-0000-00C02)

✓ XREWHT-L1-0000-009E7

Notes:

- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements, ± 0.005 on chromaticity (CCx, CCy) measurements and ± 2 on CRI measurements.
- Typical CRI for Cool White & Neutral White (3700 K – 10,000 K CCT) is 75.
- Typical CRI for Warm White (2600 K – 3700 K CCT) is 80.

FLUX CHARACTERISTICS ($T_j = 25\text{ }^{\circ}\text{C}$) - COLOR

The following tables describe the available colors and flux for XR-E LEDs by listing the correlated color temperature or dominant wavelength range for the entire family and by providing several base order codes. It is important to note that the base order codes listed here are a subset of the total available order codes for the product family. For more order codes, as well as a complete description of the order-code nomenclature, please consult the XR Family Binning and Labeling document.

Color	Dominant Wavelength Range				Base Order Codes Min Radiant Flux (mW)		Order Code
	Min.		Max.				
	Group	DWL (nm)	Group	DWL (nm)	Group	Flux (mW)	
Royal Blue	D3	450	D5	465	13	300	XREROY-L1-0000-00801
					14	350	XREROY-L1-0000-00901
					15	425	XREROY-L1-0000-00A01

Color	Dominant Wavelength Range				Base Order Codes Min Luminous Flux (lm)		Order Code
	Min.		Max.				
	Group	DWL (nm)	Group	DWL (nm)	Group	Flux (lm)	
Blue	B3	465	B6	485	J	23.5	XREBLU-L1-0000-00J01
					K	30.6	XREBLU-L1-0000-00K01

Color	Dominant Wavelength Range				Base Order Codes Min. Luminous Flux (lm)		Order Code
	Min.		Max.		Group	Flux (lm)	
	Group	DWL (nm)	Group	DWL (nm)			
Green	G2	520	G4	535	P	67.2	XREGRN-L1-0000-00P01

Note: Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements and $\pm 1\text{ nm}$ on dominant wavelength measurements.

CHARACTERISTICS

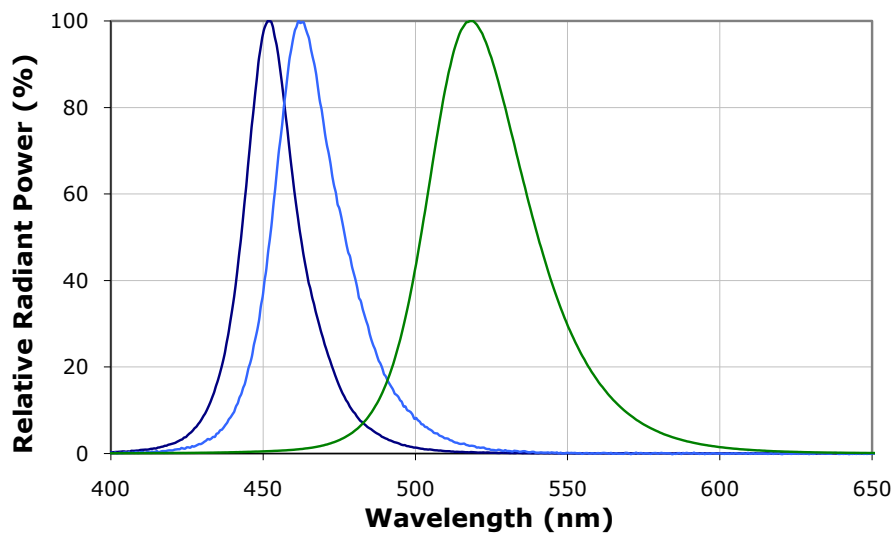
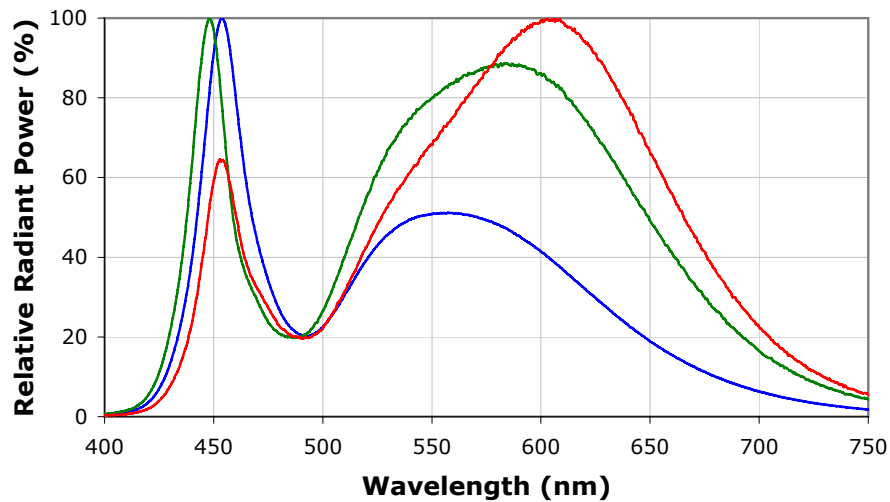
Characteristics	Unit	Minimum	Typical	Maximum
Thermal Resistance, junction to solder point	°C/W		8	
Viewing Angle (FWHM) - white	degrees		90	
Viewing Angle (FWHM) - royal blue, blue, green	degrees		100	
Temperature Coefficient of Voltage - white, royal blue, blue, green	mV/°C		-4.0	
ESD Classification (HBM per Mil-Std-883D)			Class 2	
DC Forward Current - white \geq 5000 K, royal blue, blue	mA			1000
DC Forward Current - white < 5000 K, green	mA			700
DC Pulse Current (@ 1 kHz, 10% duty cycle)	A			1.8
Reverse Voltage	V			5
Forward Voltage (@ 350 mA)	V		3.3	3.9
Forward Voltage (@ 700 mA)	V		3.5	
Forward Voltage (@ 1000 mA) - white \geq 5000 K, royal blue, blue	V		3.7	
LED Junction Temperature*	°C			150



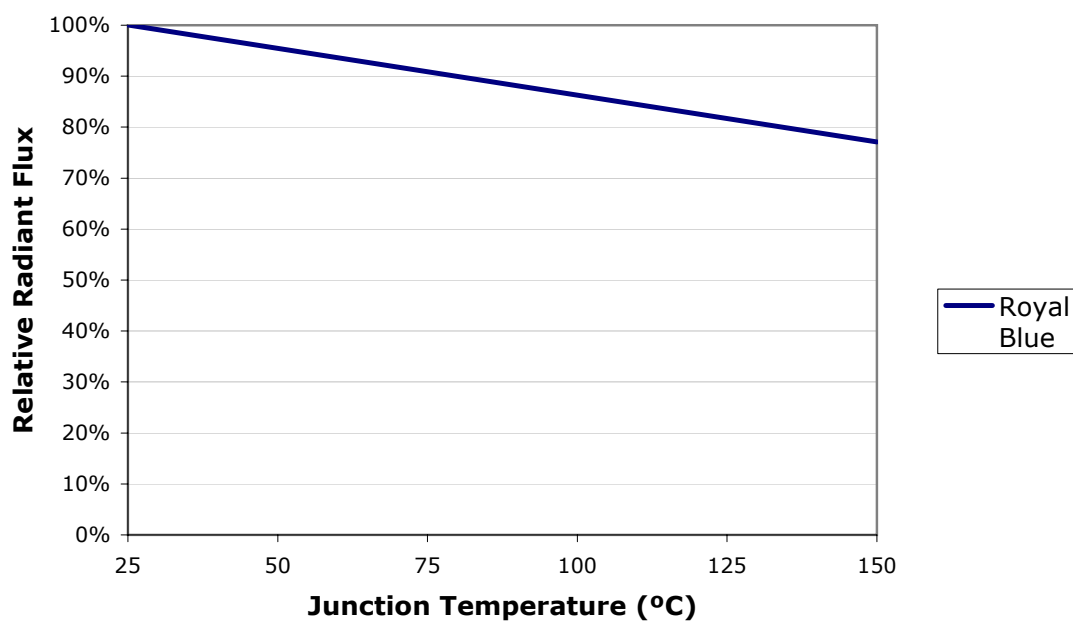
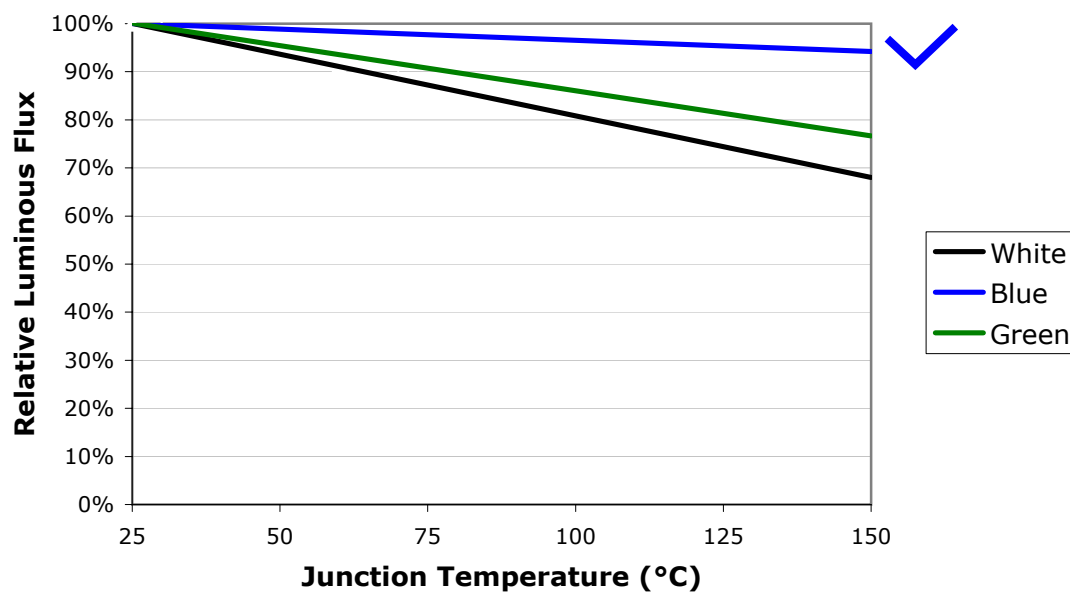
RELATIVE SPECTRAL POWER DISTRIBUTION

XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)

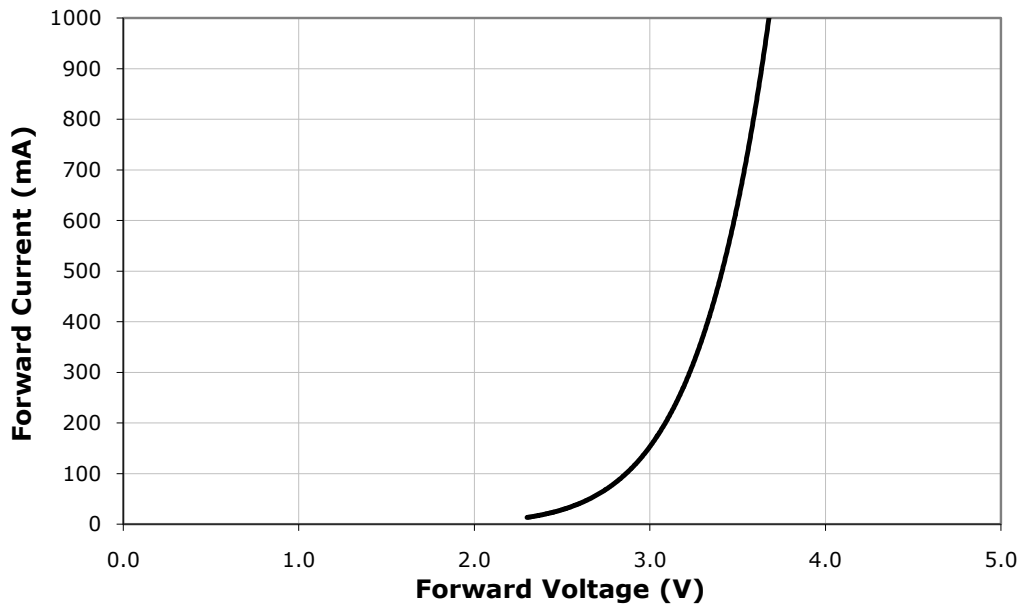
XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)



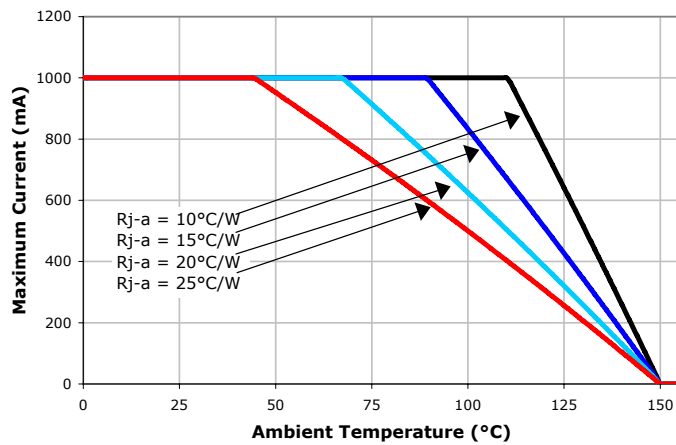
RELATIVE FLUX VS. JUNCTION TEMPERATURE ($I_F = 350$ MA)



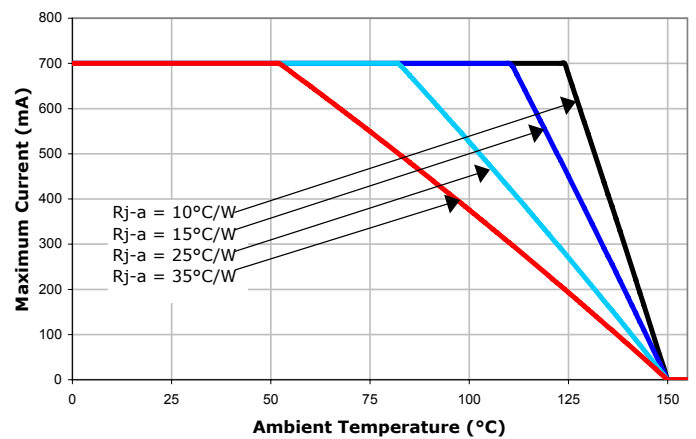
ELECTRICAL CHARACTERISTICS ($T_j = 25^\circ\text{C}$)



THERMAL DESIGN

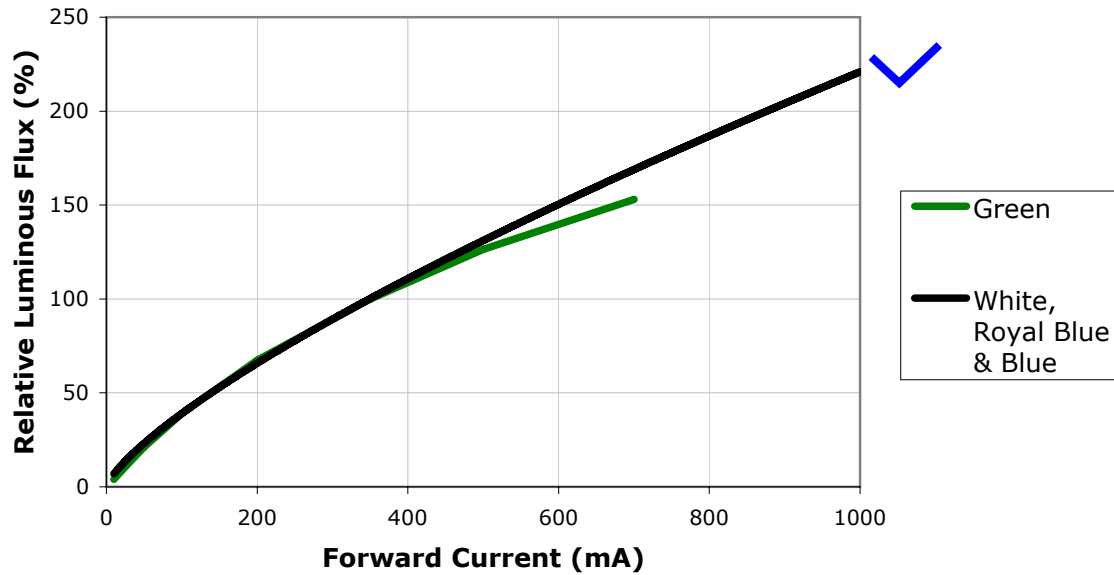


White $\geq 5,000\text{ K}$, Royal Blue, Blue

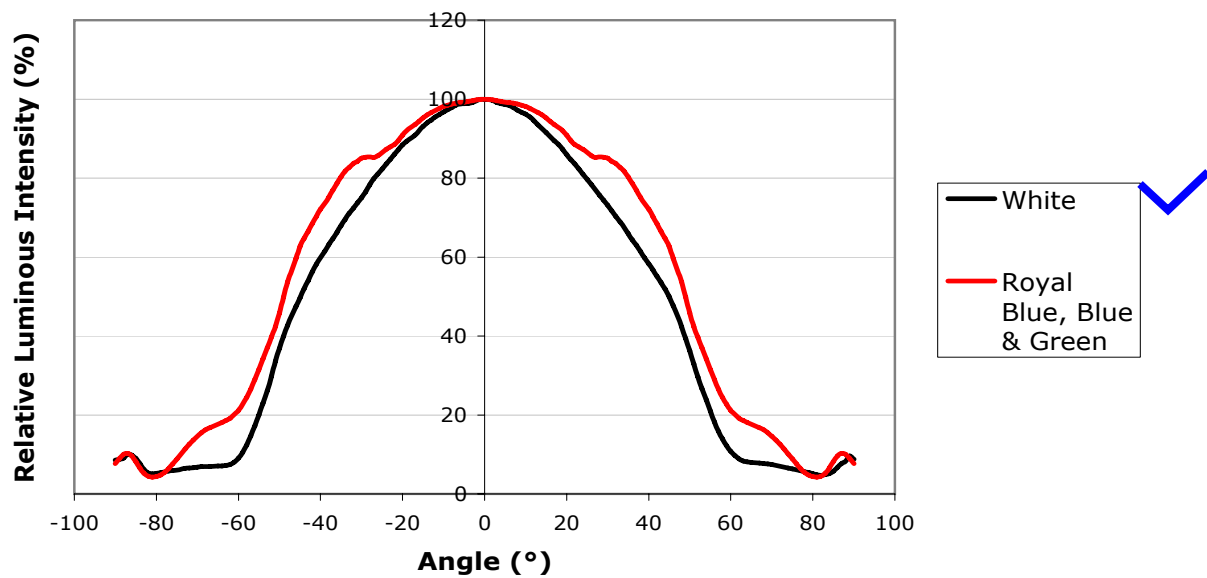


White $< 5,000\text{ K}$, Green

RELATIVE FLUX VS. CURRENT ($T_j = 25^\circ\text{C}$)



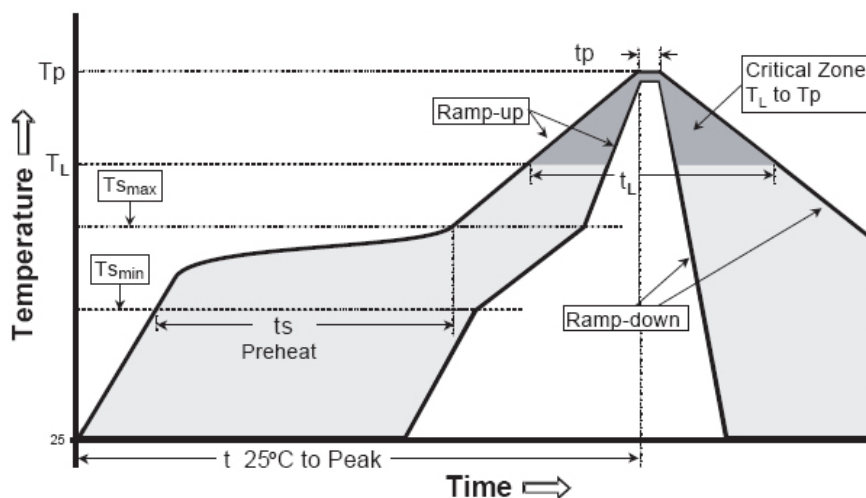
TYPICAL SPATIAL DISTRIBUTION



REFLOW SOLDERING CHARACTERISTICS

In testing, Cree has found XLamp XR-E LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree recommends that users follow the recommended soldering profile provided by the manufacturer of solder paste used.

Note that this general guideline may not apply to all PCB designs and configurations of reflow soldering equipment.



Profile Feature	Lead-Based Solder	Lead-Free Solder
Average Ramp-Up Rate ($T_{s_{max}}$ to T_p)	3 °C/second max.	3 °C/second max.
Preheat: Temperature Min ($T_{s_{min}}$)	100 °C	150 °C
Preheat: Temperature Max ($T_{s_{max}}$)	150 °C	200 °C
Preheat: Time ($t_{s_{min}}$ to $t_{s_{max}}$)	60-120 seconds	60-180 seconds
Time Maintained Above: Temperature (T_L)	183 °C	217 °C
Time Maintained Above: Time (t_L)	60-150 seconds	60-150 seconds
Peak/Classification Temperature (T_p)	215 °C	260 °C
Time Within 5 °C of Actual Peak Temperature (t_p)	10-30 seconds	20-40 seconds
Ramp-Down Rate	6 °C/second max.	6 °C/second max.
Time 25 °C to Peak Temperature	6 minutes max.	8 minutes max.

Note: All temperatures refer to topside of the package, measured on the package body surface.

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.

Moisture Sensitivity

XLamp LEDs are shipped in sealed, moisture-barrier bags (MBB) designed for long shelf life. If XLamp LEDs are exposed to moist environments after opening the MBB packaging but before soldering, damage to the LED may occur during the soldering operation. The following derating table defines the maximum exposure time (in days) for an XLamp LED in the listed humidity and temperature conditions. LEDs with exposure time longer than the time specified below must be baked according to the baking conditions listed below.

Cree recommends keeping XLamp LEDs in their sealed moisture-barrier packaging until immediately prior to use. Cree also recommends returning any unused LEDS to the resealable moisture-barrier bag and closing the bag immediately after use.

Temp.	Maximum Percent Relative Humidity						
	30%	40%	50%	60%	70%	80%	90%
30 °C	9	5	4	3	1	1	1
25 °C	12	7	5	4	2	1	1
20 °C	17	9	7	6	2	2	1

Baking Conditions

It is not necessary to bake all XLamp LEDs. Only the LEDs that meet all of the following criteria must be baked:

1. LEDs that have been removed from the original MBB packaging.
2. LEDs that have been exposed to a humid environment longer than listed in the Moisture Sensitivity section above.
3. LEDs that have not been soldered.

LEDs should be baked at 80 °C for 24 hours. LEDs may be baked on the original reels. Remove LEDs from MBB packaging before baking. Do not bake parts at temperatures higher than 80 °C. This baking operation resets the exposure time as defined in the Moisture Sensitivity section above.

Storage Conditions

XLamp LEDs that have been removed from original MBB packaging but not soldered yet should be stored in a room or cabinet that will maintain an atmosphere of 25 ± 5 °C and no greater than 10% RH (relative humidity). For LEDs stored in these conditions, storage time does not add to exposure time as defined in the Moisture Sensitivity section above.

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 amended through June 8, 2011. RoHS Declarations for this product can be obtained from your Cree representative or obtained from the Product Ecology section of www.cree.com.

REACH Compliance

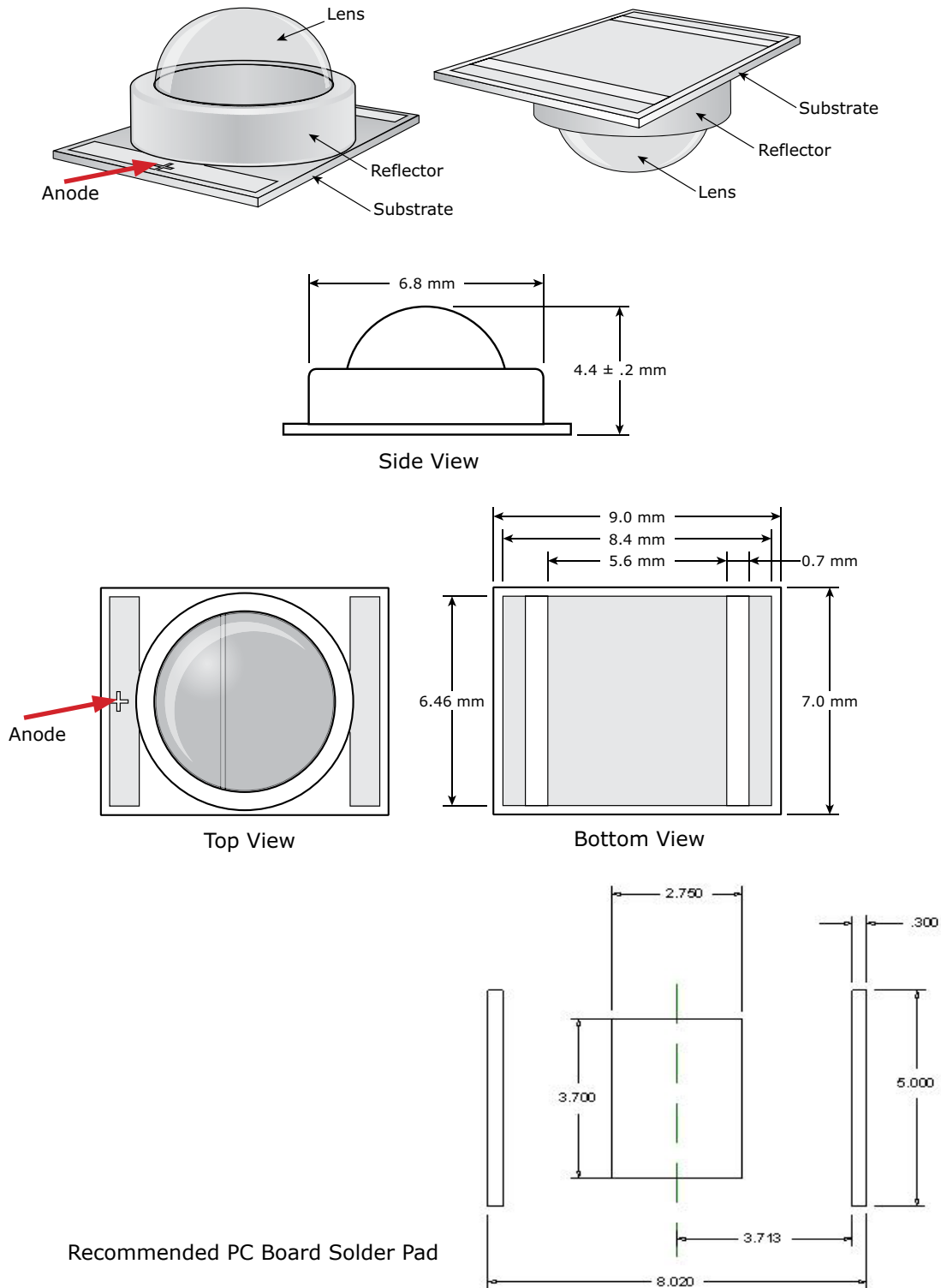
REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notices of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Cree representative to insure you get the most up-to-date REACH Declaration. Historical REACH banned substance information (substances restricted or banned in the EU prior to 2010) is also available upon request.

Vision Advisory Claim

WARNING: Do not look at exposed lamp in operation. Eye injury can result. See LED Eye Safety at www.cree.com/xlamp_app_notes/led_eye_safety.

MECHANICAL DIMENSIONS ($T_A = 25\text{ }^{\circ}\text{C}$)

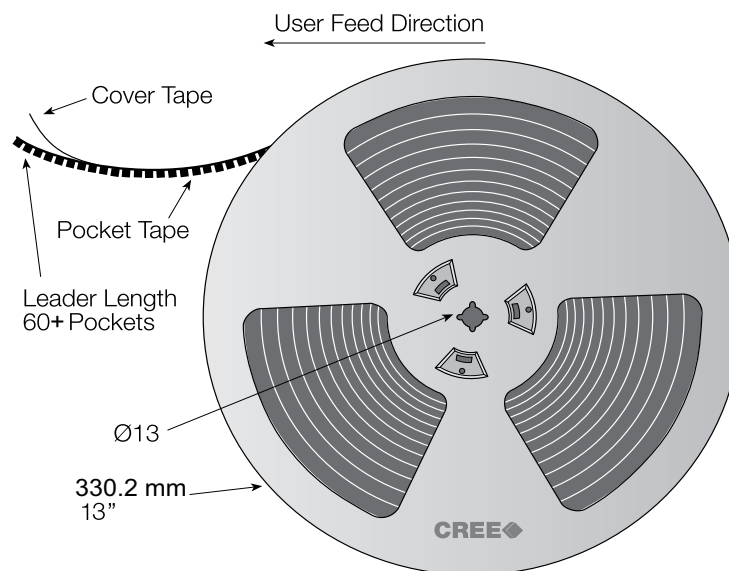
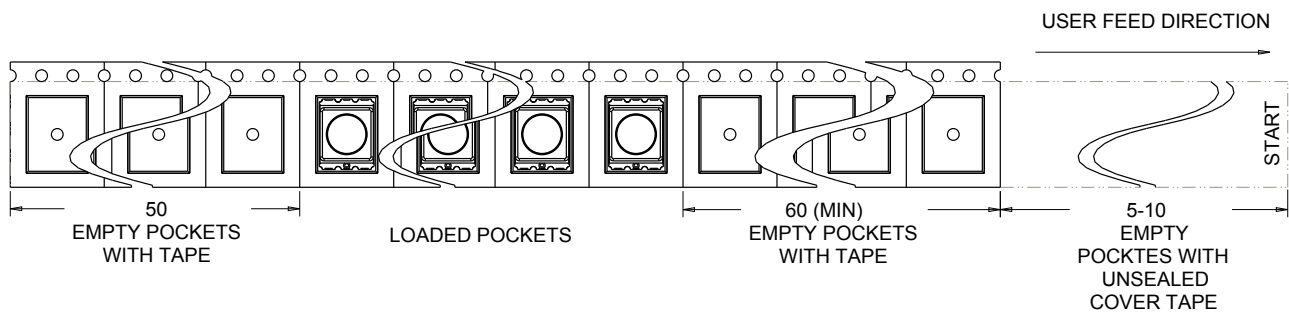
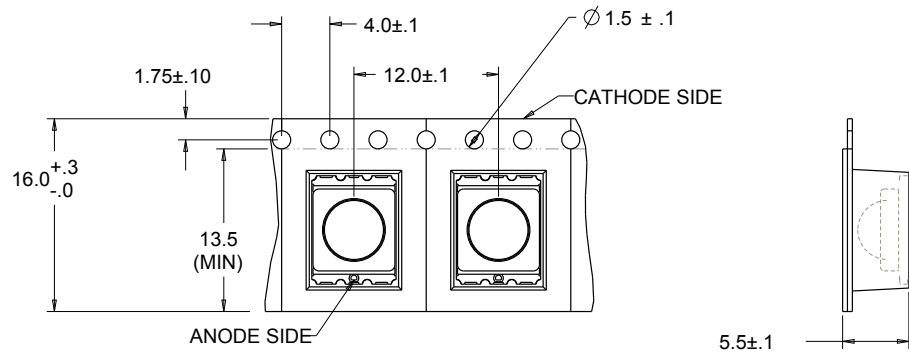
All measurements are $\pm .1\text{mm}$ unless otherwise indicated.



TAPE AND REEL

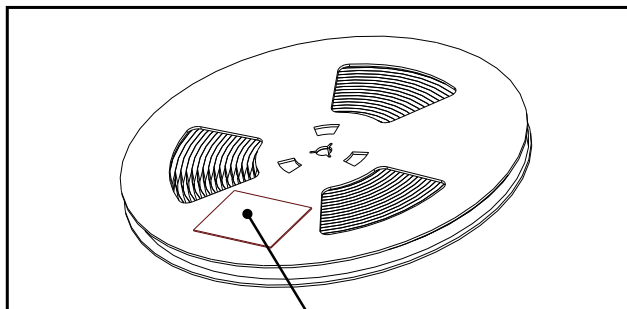
All Cree carrier tapes conform to EIA-481D, Automated Component Handling Systems Standard.

All dimensions in mm.



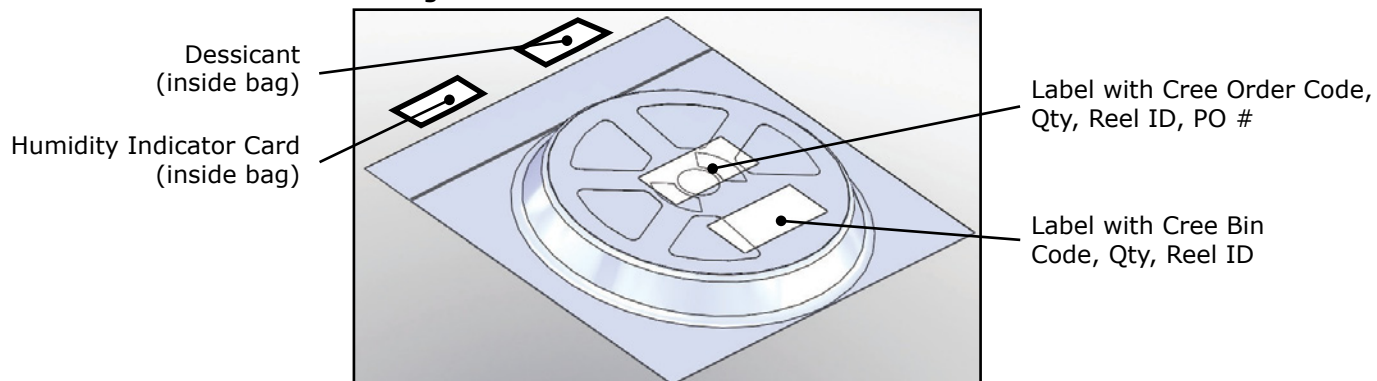
DRY PACKAGING AND PACKAGING

Unpackaged Reel

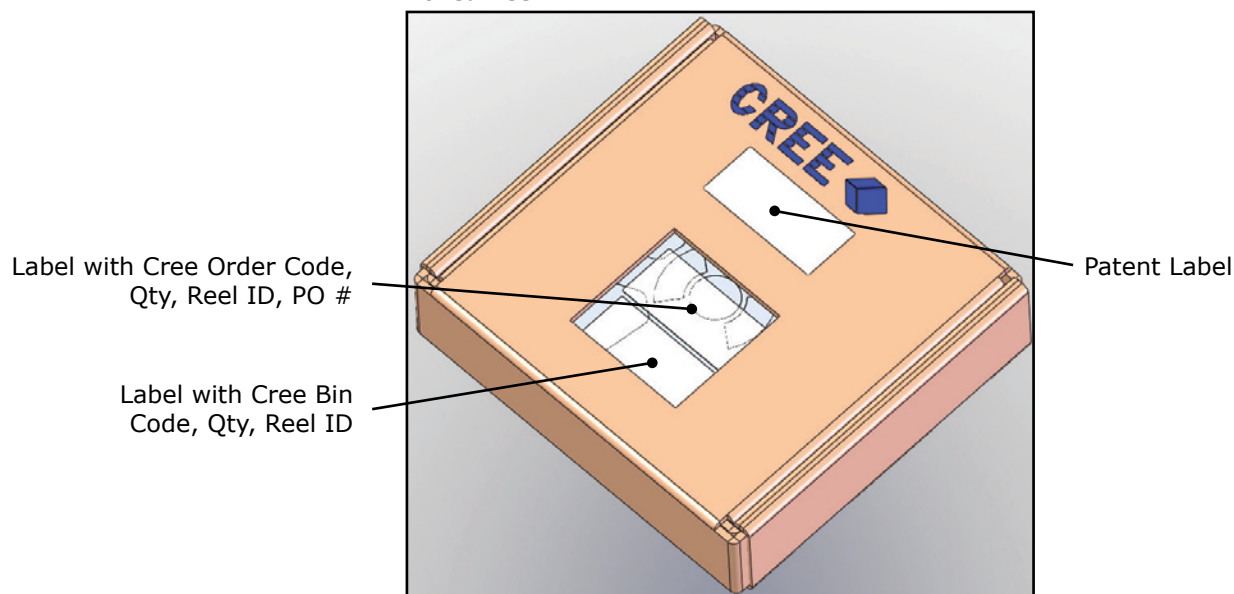


Label with Cree Bin Code, Qty, Reel ID

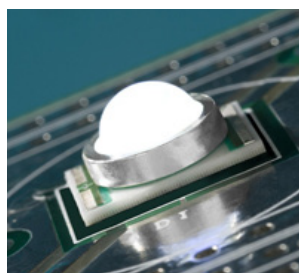
Packaged Reel



Boxed Reel



Cree® XLamp® XR-E and XR-C LED



XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)
XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)

INTRODUCTION

This document describes the product nomenclature required to select and order Cree's XLamp XR-E and XR-C LEDs. XLamp XR-E and XR-C LEDs are tested and sorted into bins which are then combined into orderable kits identified by an order code.

All XLamp LEDs are tested and sorted by color and brightness into a unique bin. Each bin contains LEDs from only one color and brightness group and is uniquely identified by a bin code. White XLamp LEDs are sorted by chromaticity (color) and luminous flux (brightness). Color XLamp LEDs are sorted by dominant wavelength (color) and luminous flux (brightness), or in the case of royal blue, radiant flux (brightness). Amber, red-orange and red LEDs are additionally binned into forward voltage bins. LEDs are shipped on reels containing LEDs from one bin and are always labeled with the appropriate bin code.

Kits contain LEDs from a number of similar bins and are fully defined by their order codes. A full explanation of the order codes for each family, as well as a list of standard order codes, is provided in this document.

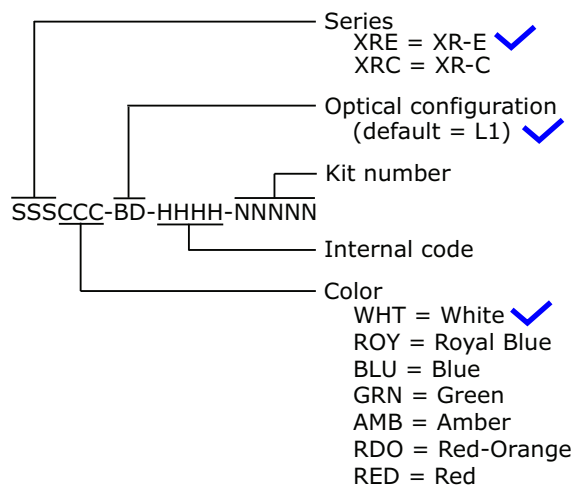
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Performance Groups – Chromaticity	6	✓
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Standard Order Codes and Bins (XR-C Neutral and Warm White)	10	
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Standard Order Codes and Bins (XR-E Cool White).....	12	✓
Standard Order Codes and Bins (XR-E Neutral White)	13	
Standard Order Codes and Bins (XR-E Warm White)	14	✓
Standard Order Codes and Bins (XR-E Color)	15	

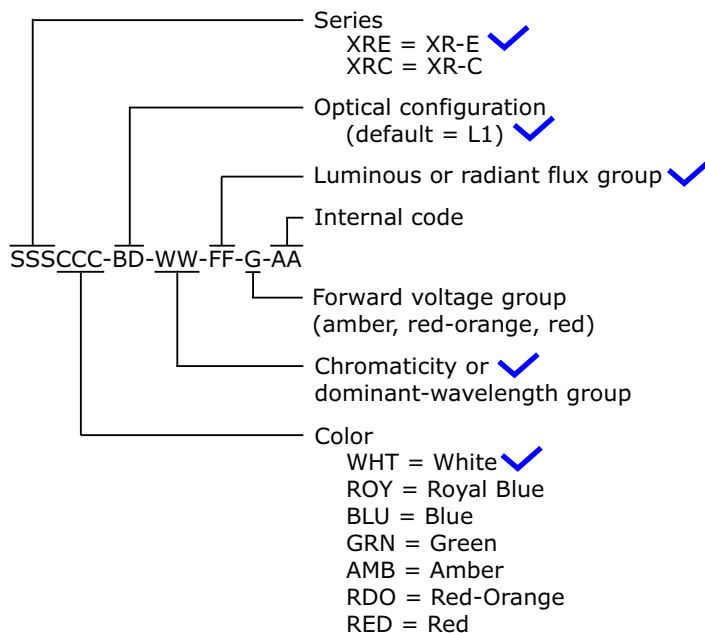
BIN AND ORDER-CODE FORMAT

Bin codes and order codes are configured in the following manner:

Order Code



Bin Code



XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)
XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)

PERFORMANCE GROUPS – BRIGHTNESS

White XLamp XR-E and XR-C LEDs are tested for luminous flux and placed into one of the following luminous-flux groups:

XREWHT-L1-7D-P4

XREWHT-L1-WG-Q4

Group Code	Min. Luminous Flux @ 350 mA (lm)	Max. Luminous Flux @ 350 mA (lm)
M2	39.8	45.7
M3	45.7	51.7
N2	51.7	56.8
N3	56.8	62.0
N4	62.0	67.2
P2	67.2	73.9
P3	73.9	80.6
P4	80.6	87.4
Q2	87.4	93.9
Q3	93.9	100
Q4	100	107
Q5	107	114
R2	114	122



Blue and green XLamp XR-E and XR-C LEDs are tested for luminous flux and placed into one of the following luminous-flux groups:

Group	Min. Luminous Flux @ 350 mA (lm)	Max. Luminous Flux @ 350 mA (lm)
G	13.9	18.1
H	18.1	23.5
J	23.5	30.6
K	30.6	39.8
M	39.8	51.7
N	51.7	67.2
P	67.2	87.4
Q	87.4	114

Amber, red-orange and red XLamp XR-C LEDs are tested for luminous flux and placed into one of the following luminous-flux groups:

Group	Min. Luminous Flux @ 350 mA (lm)	Max. Luminous Flux @ 350 mA (lm)
J	23.5	30.6
K2	30.6	35.2
K3	35.2	39.8
M2	39.8	45.7
M3	45.7	51.7
N2	51.7	56.8
N3	56.8	62.0
N4	62.0	67.2

PERFORMANCE GROUPS – BRIGHTNESS (CONTINUED)

Royal-blue XLamp XR-E and XR-C LEDs are tested for radiant flux and placed into one of the following radiant-flux groups:

Group	Min. Radiant Flux (mW) @ 350 mA	Max. Radiant Flux (mW) @ 350 mA
12	250	300
13	300	350
14	350	425
15	425	500
16	500	600

PERFORMANCE GROUPS – CHROMATICITY

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

White Chromaticity Region Bounding Coordinates

Region	x	y	Region	x	y
WK	.283	.284	WF	.314	.355
	.295	.297		.316	.332
	.298	.288		.306	.322
	.287	.276		.301	.342
WA	.292	.306	WP	.317	.319
	.295	.297		.329	.330
	.283	.284		.329	.318
	.279	.291		.318	.308
WM	.295	.297	WD	.329	.345
	.308	.311		.329	.330
	.310	.300		.317	.319
	.298	.288		.316	.332
WB	.306	.322	WG	.329	.369
	.308	.311		.329	.345
	.295	.297		.316	.332
	.292	.306		.314	.355
WE	.301	.342	WJ	.329	.330
	.306	.322		.329	.345
	.292	.306		.346	.359
	.287	.321		.344	.342
WN	.308	.311	WH	.348	.384
	.317	.319		.346	.359
	.318	.308		.329	.345
	.310	.300		.329	.369
WC	.316	.332			
	.317	.319			
	.308	.311			
	.306	.322			

XREWHT-L1-WG-Q4

PERFORMANCE GROUPS – CHROMATICITY (CONTINUED)

Re-gion	x	y	Re-gion	x	y	Re-gion	x	y	Re-gion	x	y
3A	.3371	.3490	3B	.3376	.3616	3C	.3463	.3687	3D	.3451	.3554
	.3451	.3554		.3463	.3687		.3551	.3760		.3533	.3620
	.3440	.3428		.3451	.3554		.3533	.3620		.3515	.3487
	.3366	.3369		.3371	.3490		.3451	.3554		.3440	.3428
4A	.3512	.3465	4B	.3529	.3597	4C	.3615	.3659	4D	.3590	.3521
	.3529	.3597		.3548	.3736		.3641	.3804		.3615	.3659
	.3615	.3659		.3641	.3804		.3736	.3874		.3702	.3722
	.3590	.3521		.3615	.3659		.3702	.3722		.3670	.3578
5A	.3670	.3578	5B	.3702	.3722	5C	.3825	.3798	5D	.3783	.3646
	.3702	.3722		.3736	.3874		.3869	.3958		.3825	.3798
	.3825	.3798		.3869	.3958		.4006	.4044		.3950	.3875
	.3783	.3646		.3825	.3798		.3950	.3875		.3898	.3716
6A	.3889	.3690	6B	.3941	.3848	6C	.4080	.3916	6D	.4017	.3751
	.3941	.3848		.3996	.4015		.4146	.4089		.4080	.3916
	.4080	.3916		.4146	.4089		.4299	.4165		.4221	.3984
	.4017	.3751		.4080	.3916		.4221	.3984		.4147	.3814
7A	.4147	.3814	7B	.4221	.3984	7C	.4342	.4028	7D	.4259	.3853
	.4221	.3984		.4299	.4165		.4430	.4212		.4342	.4028
	.4342	.4028		.4430	.4212		.4562	.4260		.4465	.4071
	.4259	.3853		.4342	.4028		.4465	.4071		.4373	.3893
8A	.4373	.3893	8B	.4465	.4071	8C	.4582	.4099	8D	.4483	.3919
	.4465	.4071		.4562	.4260		.4687	.4289		.4582	.4099
	.4582	.4099		.4687	.4289		.4813	.4319		.4700	.4126
	.4483	.3919		.4582	.4099		.4700	.4126		.4593	.3944

XREWHT-L1-7D-P4

PERFORMANCE GROUPS – DOMINANT WAVELENGTH

Color XLamp LEDs are tested for dominant wavelength (DWL) and placed into one of the DWL groups defined below.

Color	DWL Group	Min. DWL (nm) @ 350 mA	Max. DWL (nm) @ 350 mA
Royal Blue	D3	450	455
	D4	455	460
	D5	460	465
Blue	B3	465	470
	B4	470	475
	B5	475	480
	B6	480	485
Green	G2	520	525
	G3	525	530
	G4	530	535
Amber	A2	585	590
	A3	590	595
Red-Orange	O3	610	615
	O4	615	620
Red	R2	620	625
	R3	625	630

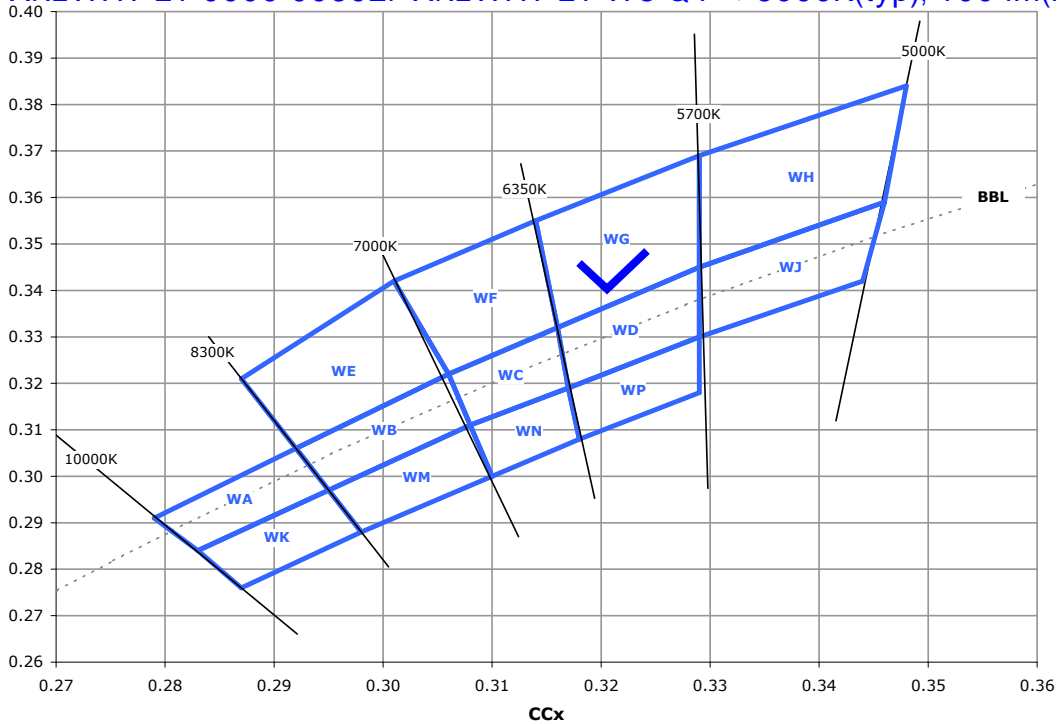
PERFORMANCE GROUPS – FORWARD VOLTAGE

Amber, red-orange and red XLamp LEDs are tested for forward voltage and placed into one of the forward voltage groups defined below.

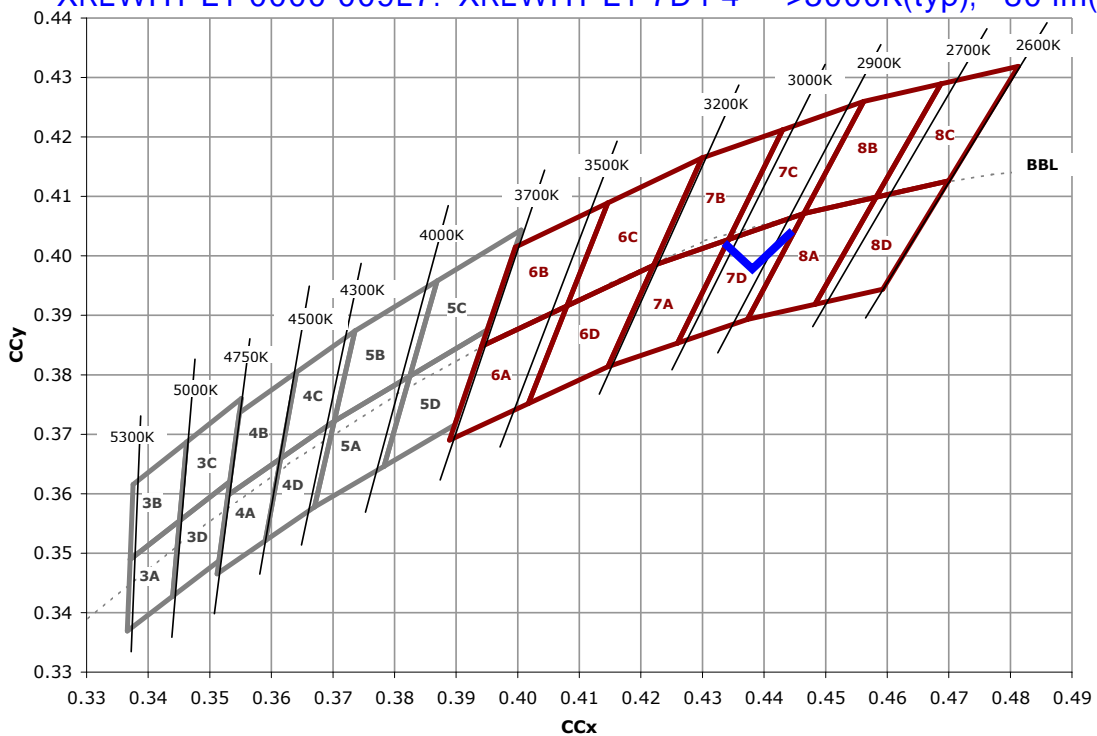
Forward Voltage Group	Min. Forward Voltage @ 350 mA	Max. Forward Voltage @ 350 mA
B	1.75	2.0
C	2.0	2.25
D	2.25	2.5

CREE'S STANDARD CHROMATICITY REGIONS PLOTTED ON THE 1931 CIE CURVE

XREWHT-L1-0000-00C02: XREWHT-L1-WG-Q4 -->6000K(typ), 100 lm(min)



XREWHT-L1-0000-009E7: XREWHT-L1-7D-P4 -->3000K(typ), 80 lm(min)



STANDARD ORDER CODES AND BINS (XR-C COOL WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-C LED Standard Order Codes - White			
Min. Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number
Group	Flux (lm)		
Cool White (5000 K – 10,000 K)			
P3	73.9	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00801
		WC, WD, WF, WG	00802
		WC, WD, WF, WG, WH, WJ, WN, WP	00803
P4	80.6	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00901
		WC, WD, WF, WG	00902
		WC, WD, WF, WG, WH, WJ, WN, WP	00903
Q2	87.4	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00A01
		WC, WD, WF, WG	00A02
		WC, WD, WF, WG, WH, WJ, WN, WP	00A03
Q3	93.9	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00B01
		WC, WD, WF, WG	00B02
		WC, WD, WF, WG, WH, WJ, WN, WP	00B03

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

*Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-C NEUTRAL WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-C LED Standard Order Codes - White				
Min Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number	CCT
Group	Flux (lm)			
Neutral White (3700 K – 5000 K)				
N3	56.8	5C, 5D, 6A, 6B	005F6	3700 K
N4	62.0	4A, 4B, 4C, 4D	006F5	4300 K
		5A, 5B, 5C, 5D	006E5	4000 K
		5C, 5D, 6A, 6B	006F6	3700 K
P2	67.2	3A, 3B, 3C, 3D	007E3	5000 K
		3C, 3D, 4A, 4B	007F4	4750 K
		4A, 4B, 4C, 4D	007E4	4500 K
		4C, 4D, 5A, 5B	007F5	4300 K
		5A, 5B, 5C, 5D	007E5	4000 K
		5C, 5D, 6A, 6B	007F6	3700 K
P3	73.9	3A, 3B, 3C, 3D	008E3	5000 K
		3C, 3D, 4A, 4B	008F4	4750 K
		4A, 4B, 4C, 4D	008E4	4500 K
		4C, 4D, 5A, 5B	008F5	4300 K
		5A, 5B, 5C, 5D	008E5	4000 K
		5C, 5D, 6A, 6B	008F6	3700 K
P4	80.6	3A, 3B, 3C, 3D	009E3	5000 K
		3C, 3D, 4A, 4B	009F4	4750 K
		4A, 4B, 4C, 4D	009E4	4500 K
		4C, 4D, 5A, 5B	009F5	4300 K
		5A, 5B, 5C, 5D	009E5	4000 K
Q2	87.4	3A, 3B, 3C, 3D	00AE3	5000 K
		3C, 3D, 4A, 4B	00AF4	4750 K
		4A, 4B, 4C, 4D	00AE4	4500 K

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

*Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-C WARM WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-C LED Standard Order Codes - White				
Min Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number	CCT
Group	Flux (lm)			
Warm White (2600 K – 3700 K)				
N2	51.7	7C, 7D, 8A, 8B	004F8	2900 K
		8A, 8B, 8C, 8D	004E8	2700 K
N3	56.8	6A, 6B, 6C, 6D	005E6	3500 K
		6C, 6D, 7A, 7B	005F7	3200 K
		7A, 7B, 7C, 7D	005E7	3000 K
		7C, 7D, 8A, 8B	005F8	2900 K
		8A, 8B, 8C, 8D	005E8	2700 K
N4	62.0	6A, 6B, 6C, 6D	006E6	3500 K
		6C, 6D, 7A, 7B	006F7	3200 K
		7A, 7B, 7C, 7D	006E7	3000 K
		7C, 7D, 8A, 8B	006F8	2900 K
		8A, 8B, 8C, 8D	006E8	2700 K
P2	67.2	6A, 6B, 6C, 6D	007E6	3500 K
		6C, 6D, 7A, 7B	007F7	3200 K
		7A, 7B, 7C, 7D	007E7	3000 K
P3	73.9	6A, 6B, 6C, 6D	008E6	3500 K

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-C COLOR)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's dominant-wavelength range and luminous- or radiant-flux range.

XLamp XR-C LED Standard Order Codes - Royal Blue							
Color	Min. Radiant Flux (mW) @ 350 mA*		Dominant Wavelength (nm)				Kit Number
			Min.		Max.		
	Group	Flux (mW)	Group	DWL (nm)	Group	DWL (nm)	
Royal Blue	12	250	D3	450	D5	465	00701
			D3	450	D4	460	00702
			D4	455	D5	465	00703
	13	300	D3	450	D5	465	00801
			D3	450	D4	460	00802
			D4	455	D5	465	00803

XLamp XR-C LED Standard Order Codes - Blue, Green, Amber, Red-Orange, Red							
Color	Min. Luminous Flux (lm) @ 350 mA*		Dominant Wavelength (nm)				Kit Number
			Min.		Max.		
	Group	Flux (lm)	Group	DWL (nm)	Group	DWL (nm)	
Blue	G	13.9	B3	465	B4	475	00G01
	H	18.1	B3	465	B4	475	00H01
Green	M	39.8	G2	520	G4	535	00M01
			G2	520	G3	530	00M02
			G3	525	G4	535	00M03
	N	51.7	G2	520	G4	535	00N01
			G2	520	G3	530	00N02
			G3	525	G4	535	00N03
Amber	J	23.5	A2	585	A3	595	00J01
	K2	30.6	A2	585	A3	595	00K01
	M2	39.8	A2	585	A3	595	00M01
Red-Orange	K2	30.6	O3	610	O4	620	00K01
	M2	39.8	O3	610	O4	620	00M01
Red	J	23.5	R2	620	R3	630	00J01
	K2	30.6	R2	620	R3	630	00K01
	M2	39.8	R2	620	R3	630	00M01

For other flux and dominant wavelength combinations, contact Cree or an authorized distributor.

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-E COOL WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-E LED Standard Order Codes - White			
Min. Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number
Group	Flux (lm)		
Cool White (5000 K – 10,000 K)			
P4	80.6	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00901
		WC, WD, WF, WG	00902
		WC, WD, WF, WG, WH, WJ, WN, WP	00903
Q2	87.4	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00A01
		WC, WD, WF, WG	00A02
		WC, WD, WF, WG, WH, WJ, WN, WP	00A03
Q3	93.9	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00B01
		WC, WD, WF, WG	00B02
		WC, WD, WF, WG, WH, WJ, WN, WP	00B03
Q4	100	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00C01
		WC, WD, WF, WG	00C02
		WC, WD, WF, WG, WH, WJ, WN, WP	00C03
Q5	107	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00D01
		WC, WD, WF, WG	00D02
		WC, WD, WF, WG, WH, WJ, WN, WP	00D03
R2	114	WA, WB, WC, WD, WE, WF, WG, WH, WJ, WK, WM, WN, WP	00E01
		WC, WD, WF, WG	00E02
		WC, WD, WF, WG, WH, WJ, WN, WP	00E03

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

XREWHT-L1-0000-00C02

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-E NEUTRAL WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-E LED Standard Order Codes - White				
Minimum Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number	CCT
Group	Flux (lm)			
Neutral White (3700 K - 5000 K)				
N4	62.0	5C, 5D, 6A, 6B	006F6	3700 K
P2	67.2	4C, 4D, 5A, 5B	007F5	4300 K
		5A, 5B, 5C, 5D	007E5	4000 K
		5C, 5D, 6A, 6B	007F6	3700 K
P3	73.9	3A, 3B, 3C, 3D	008E3	5000 K
		3C, 3D, 4A, 4B	008F4	4750 K
		4A, 4B, 4C, 4D	008E4	4500 K
		4C, 4D, 5A, 5B	008F5	4300 K
		5A, 5B, 5C, 5D	008E5	4000 K
		5C, 5D, 6A, 6B	008F6	3700 K
P4	80.6	3A, 3B, 3C, 3D	009E3	5000 K
		3C, 3D, 4A, 4B	009F4	4750 K
		4A, 4B, 4C, 4D	009E4	4500 K
		4C, 4D, 5A, 5B	009F5	4300 K
		5A, 5B, 5C, 5D	009E5	4000 K
		5C, 5D, 6A, 6B	009F6	3700 K
Q2	87.4	3A, 3B, 3C, 3D	00AE3	5000 K
		3C, 3D, 4A, 4B	00AF4	4750 K
		4A, 4B, 4C, 4D	00AE4	4500 K
		4C, 4D, 5A, 5B	00AF5	4300 K
		5A, 5B, 5C, 5D	00AE5	4000 K
		5C, 5D, 6A, 6B	00AF6	3700 K
Q3	93.9	3A, 3B, 3C, 3D	00BE3	5000 K
		3C, 3D, 4A, 4B	00BF4	4750 K
		4A, 4B, 4C, 4D	00BE4	4500 K
		4C, 4D, 5A, 5B	00BF5	4300 K
		5A, 5B, 5C, 5D	00BE5	4000 K
Q4	100	3A, 3B, 3C, 3D	00CE3	5000 K
		3C, 3D, 4A, 4B	00CF4	4750 K
		4A, 4B, 4C, 4D	00CE4	4500 K

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-E WARM WHITE)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's chromaticity regions and luminous flux range.

XLamp XR-E LED Standard Order Codes - White				
Minimum Luminous Flux (lm) @ 350 mA*		Chromaticity Regions	Kit Number	CCT
Group	Flux (lm)			
Warm White (2600 K - 3700 K)				
N3	56.8	6C, 6D, 7A, 7B	005F7	3200 K
		7A, 7B, 7C, 7D	005E7	3000 K
		7C, 7D, 8A, 8B	005F8	2900 K
		8A, 8B, 8C, 8D	005E8	2700 K
N4	62.0	6A, 6B, 6C, 6D	006E6	3500 K
		6C, 6D, 7A, 7B	006F7	3200 K
		7A, 7B, 7C, 7D	006E7	3000 K
		7C, 7D, 8A, 8B	006F8	2900 K
		8A, 8B, 8C, 8D	006E8	2700 K
P2	67.2	6A, 6B, 6C, 6D	007E6	3500 K
		6C, 6D, 7A, 7B	007F7	3200 K
		7A, 7B, 7C, 7D	007E7	3000 K
		7C, 7D, 8A, 8B	007F8	2900 K
		8A, 8B, 8C, 8D	007E8	2700 K
P3	73.9	6A, 6B, 6C, 6D	008E6	3500 K
		6C, 6D, 7A, 7B	008F7	3200 K
		7A, 7B, 7C, 7D	008E7	3000 K
		7C, 7D, 8A, 8B	008F8	2900 K
		8A, 8B, 8C, 8D	008E8	2700 K
P4	80.6	6A, 6B, 6C, 6D	009E6	3500 K
		6C, 6D, 7A, 7B	009F7	3200 K
		7A, 7B, 7C, 7D	009E7	3000 K
Q2	87.4	6A, 6B, 6C, 6D	00AE6	3500 K

For other flux and chromaticity combinations, contact Cree or an authorized distributor.

XREWHT-L1-0000-009E7

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.

STANDARD ORDER CODES AND BINS (XR-E COLOR)

The following tables list standard kit numbers and performance bins. Kit numbers completely describe an order code's dominant-wavelength range and luminous- or radiant-flux range.

XLamp XR-E LED Standard Order Codes - Royal Blue							
Color	Min. Radiant Flux (mW) @ 350 mA*		Dominant Wavelength (nm)				Kit Number
			Min.		Max.		
	Group	Flux (mW)	Group	DWL (nm)	Group	DWL (nm)	
Royal Blue	13	300	D3	450	D5	465	00801
			D3	450	D4	460	00802
			D4	455	D5	465	00803
	14	350	D3	450	D5	465	00901
			D3	450	D4	460	00902
			D4	455	D5	465	00903
	15	425	D3	450	D5	465	00A01
			D3	450	D4	460	00A02
			D4	455	D5	465	00A03

XLamp XR-E LED Standard Order Codes - Blue and Green							
Color	Min. Luminous Flux (lm) @ 350 mA*		Dominant Wavelength (nm)				Kit Number
			Min.		Max.		
	Group	Flux (lm)	Group	DWL (nm)	Group	DWL (nm)	
Blue	J	23.5	B3	465	B6	485	00J01
			B3	465	B5	480	00J02
			B4	470	B5	480	00J03
	K	30.6	B3	465	B6	485	00K01
			B3	465	B5	480	00K02
			B4	470	B5	480	00K03
Green	P	67.2	G2	520	G4	535	00P01
			G2	520	G3	530	00P02
			G3	525	G4	535	00P03

For other flux and dominant wavelength combinations, contact Cree or an authorized distributor.

* Cree XLamp XR-C & XR-E order codes specify only a minimum flux bin and not a maximum. Cree may ship reels in flux bins higher than the minimum specified by the order code without advance notice. Shipments will always adhere to the chromaticity or DWL bin restrictions specified by the order code.