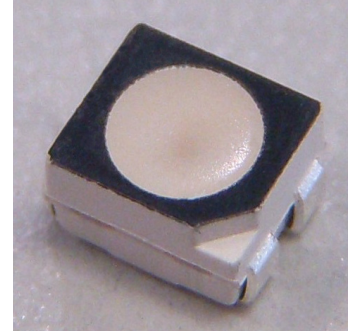


Cree® PLCC4 3 in 1 SMD LED CLV1L-FKB



PRODUCT DESCRIPTION

Cree PLCC full-color LEDs offer high-intensity light output and a wide viewing angle in an industry-standard package. Designed to work in a wide array of environmental conditions, Cree PLCC full-color LEDs are suited for indoor video screen, decorative lighting and amusement applications.

FEATURES

- Size (mm): 3.2 x 2.8
- Dominant Wavelength:
Red (619 - 624nm)
Green (520 - 537.5nm)
Blue (460 - 477.5nm)
- Luminous Intensity (mcd)
Red (355 - 900)
Green (710 - 1800)
Blue (180 - 450)
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Full-Color Video Screen
- Decorative lighting
- Amusement

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

Items	Symbol	Absolute Maximum Rating			Unit
		R	G	B	
Forward Current ^{Note 1}	I_F	35	20	20	mA
Peak Forward Current ^{Note 2}	I_{FP}	200	100	100	mA
Reverse Voltage	V_R	5	5	5	V
Power Dissipation	P_D	91	80	80	mW
Operation Temperature	T_{opr}	-40 ~ +100			$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ +100			$^\circ\text{C}$
Junction Temperature	T_J	110	110	110	$^\circ\text{C}$
Junction/ambient 1 chip on	R_{THJA}	450	400	450	$^\circ\text{C}/\text{W}$
Junction/ambient 3 chips on	R_{THJA}	650	580	680	$^\circ\text{C}/\text{W}$
Junction/solder point 1 chip on	R_{THJS}	300	280	300	$^\circ\text{C}/\text{W}$
Junction/solder point 3 chips on	R_{THJS}	450	430	480	$^\circ\text{C}/\text{W}$

Note: 1.Single-color light.
2.Pulse width ≤ 0.1 msec, duty $\leq 1/10$.

TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)

Characteristics	Condition	Symbol	Values			Unit
			R	G	B	
Dominant Wavelength	$I_F = 20$ mA (R) $I_F = 15$ mA (G) $I_F = 15$ mA (B)	λ_{DOM}	619~624	520~537.5	460~477.5	nm
Spectral bandwidth at 50% I_{REL} max	$I_F = 20$ mA (R) $I_F = 15$ mA (G) $I_F = 15$ mA (B)	$\Delta \lambda$	24	38	28	nm
Viewing Angle at 50% I_V	$I_F = 20$ mA (R) $I_F = 15$ mA (G) $I_F = 15$ mA (B)	$2\theta_{1/2}$	120	120	120	deg
Forward Voltage	$I_F = 20$ mA (R) $I_F = 15$ mA (G) $I_F = 15$ mA (B)	$V_{F(avg)}$	2.0	3.2	3.2	V
		$V_{F(max)}$	2.6	4.0	4.0	V
Luminous Intensity	$I_F = 20$ mA (R) $I_F = 15$ mA (G) $I_F = 15$ mA (B)	$I_{V(min)}$	355	710	180	mcd
		$I_{V(avg)}$	450	1100	250	mcd
Reverse Current (max)	$V_R = 5$ V	I_R	10	10	10	μA

INTENSITY BIN LIMIT (RED $I_F = 20$ mA, GREEN $I_F = 15$ mA, BLUE $I_F = 15$ mA)

Red			Green			Blue		
Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)
H	355	450	M	710	900	E	180	224
hj	403	505	qr	805	1010	bc	202	252
J	450	560	N	900	1120	F	224	280
km	505	635	st	1010	1260	de	252	318
K	560	710	P	1120	1400	G	280	355
np	635	805	vw	1260	1600	fg	318	403
M	710	900	Q	1400	1800	H	355	450

Tolerance of measurement of luminous intensity is $\pm 10\%$.

COLOR BIN LIMIT (RED $I_F = 20$ mA, GREEN $I_F = 15$ mA, BLUE $I_F = 15$ mA)

Red			Green			Blue		
Bin Code	Min.(nm)	Max.(nm)	Bin Code	Min.(nm)	Max.(nm)	Bin Code	Min.(nm)	Max.(nm)
RB	619	624	G7	520	525	B3	460	465
			G23	522.5	527.5	B23	462.5	467.5
			G8	525	530	B4	465	470
			G45	527.5	532.5	B45	467.5	472.5
			G9	530	535	B5	470	475
			G67	532.5	537.5	B67	472.5	477.5

Tolerance of measurement of dominant wavelength is ± 1 nm.

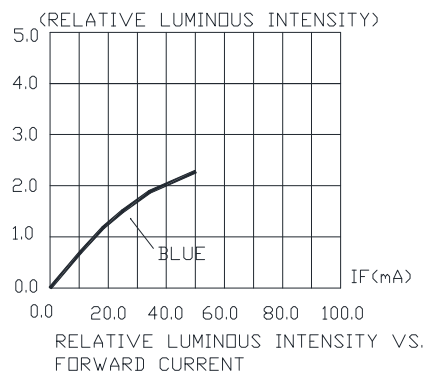
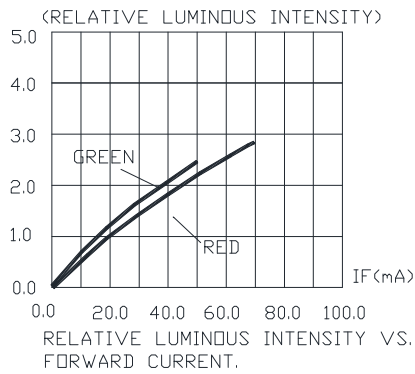
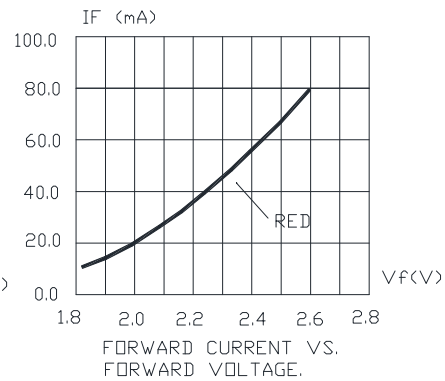
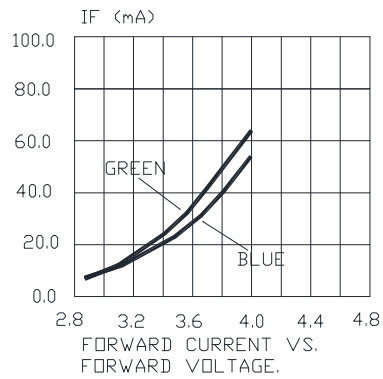
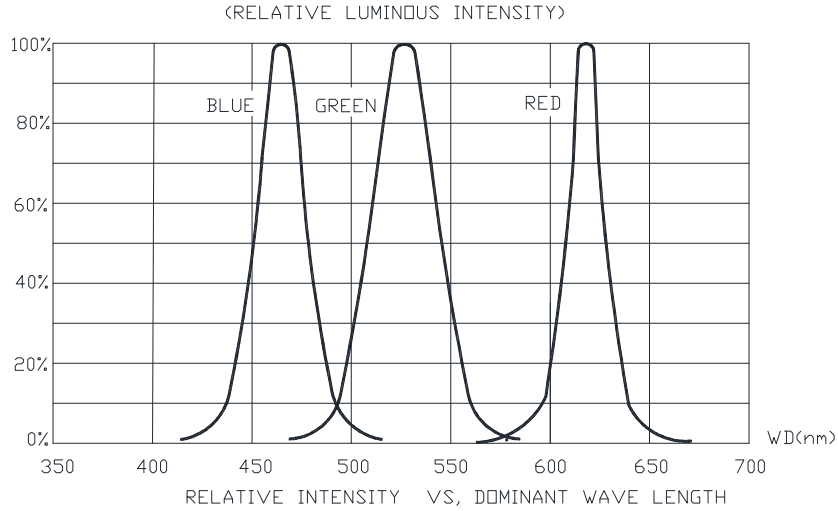
ORDER CODE TABLE*

Kit Number	Color	Luminous Intensity (mcd)		Dominant Wavelength (nm)				Package
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)	
CLV1L-FKB-CHMMQEHHB7673673	Red	355	900	RB	619	RB	624	Reel
	Green	710	1800	G7	520	G67	537.5	Reel
	Blue	180	450	B3	460	B67	477.5	Reel
CLV1L-FKB-CH1M1E1BB7B3B3	Red	Any 1 Intensity sub-bins from H (355) - M (900)		RB	619	RB	624	Reel
	Green	Any 1 Intensity sub-bins from M (710) - Q (1800)		Any 1 Sub-Bins from G7(520) - G67(537.5)				Reel
	Blue	Any 1 Intensity sub-bins from E (180) - H (450)		Any 1 Sub-Bins from B3(460) - B67(477.5)				Reel
CLV1L-FKB-CJ1N1F1BB7B3B3	Red	Any 1 Intensity sub-bins from J (450) - M (900)		RB	619	RB	624	Reel
	Green	Any 2 Intensity sub-bins from N (900) - Q (1800)		Any 1 Sub-Bins from G7(520) - G67(537.5)				Reel
	Blue	Any 2 Intensity sub-bins from F (224) - H (450)		Any 1 Sub-Bins from B3(460) - B67(477.5)				Reel

Notes:

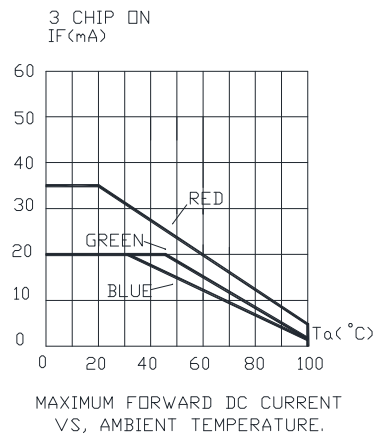
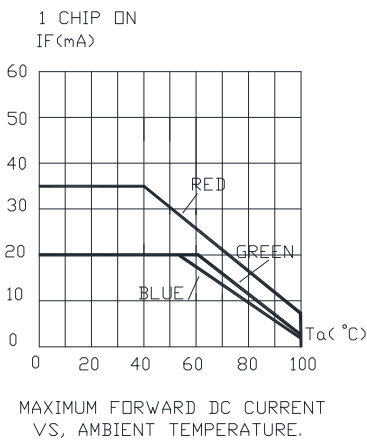
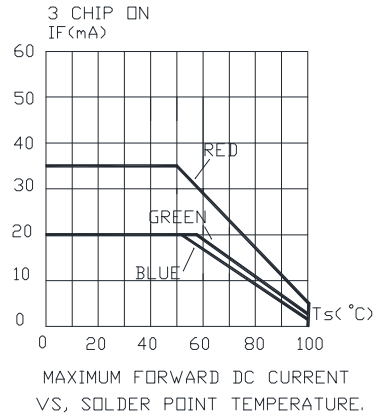
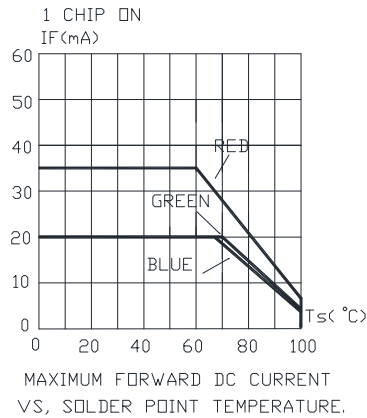
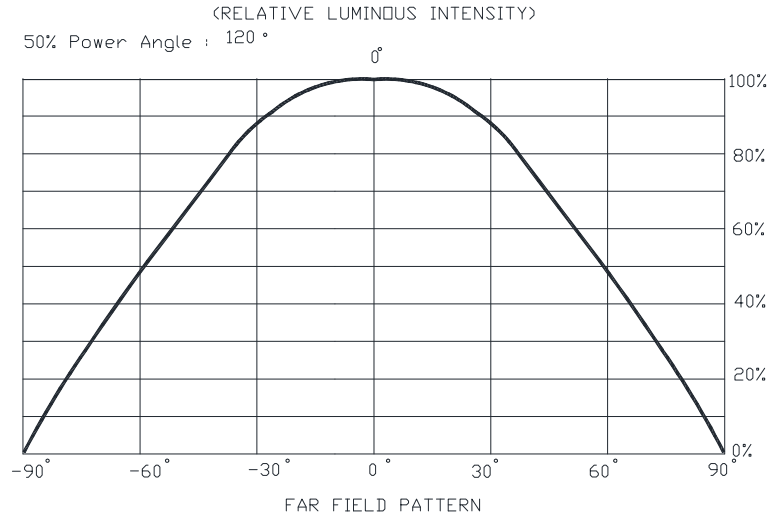
1. The above kit numbers represent the order codes which include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each reel. Single intensity-bin code and single color-bin code will be orderable in certain quantities. For example, any 1 intensity bin from H - K means only 1 intensity bin (H or J or K) will be shipped by Cree. For example, any 1 color bin from G7 - Ga means only 1 color bin (G7 or G8 or G9 or Ga) will be shipped by Cree.
2. Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
3. Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

GRAPHS



The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

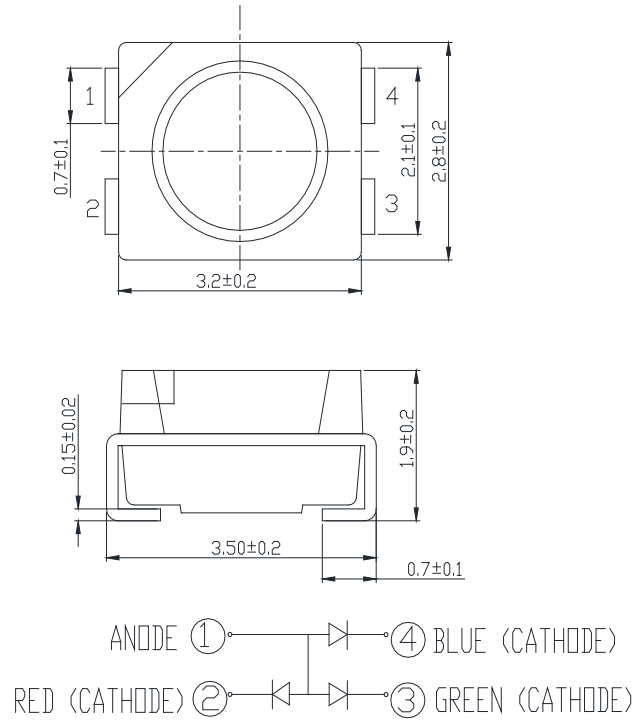
GRAPHS



The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

MECHANICAL DIMENSIONS

All dimensions are in mm.



NOTES

RoHS Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise 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 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

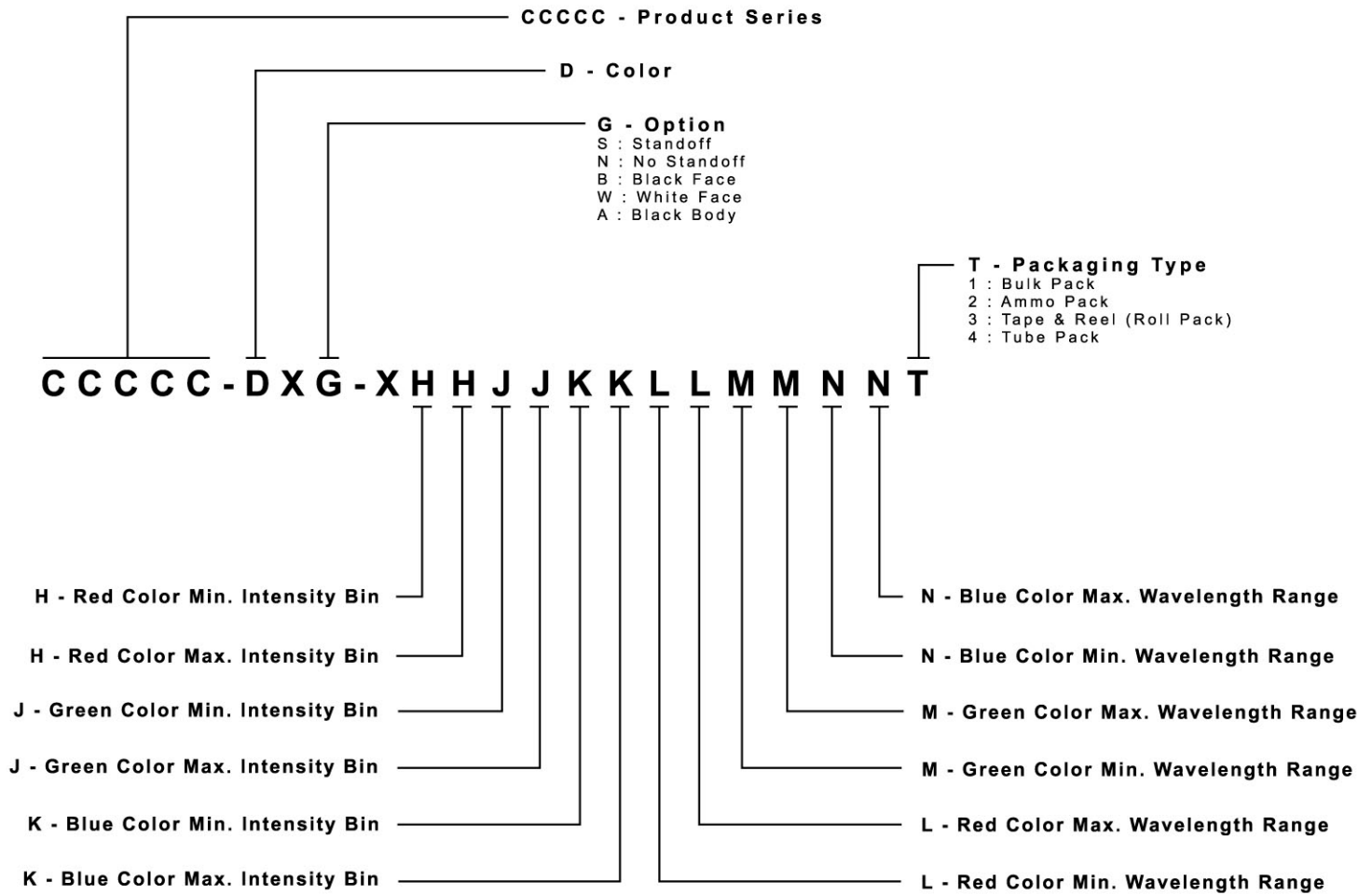
Vision Advisory Claim

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

KIT NUMBER SYSTEM

Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness. Sorted LEDs are packaged for shipping in various convenient options. Please refer to the "Cree LED Lamp Packaging Standard" document for more information about shipping and packaging options.

Cree LEDs are sold by order codes in combinations of bins called kits. Order codes are configured in the following manner:



PACKAGING

- The boxes are not water resistant and they must be kept away from water and moisture.
- The LEDs are packed in cardboard boxes after packaging in normal or anti-electrostatic bags.
- Cardboard boxes will be used to protect the LEDs from mechanical shocks during transportation.
- The reel pack is applied in SMD LED.
- Max 2000 pcs per reel.

