

Cree® PLCC4 3 in 1 SMD LED CLV1L-FKB



PRODUCT DESCRIPTION

Cree PLCC full-color LEDs offer highintensity 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)
- Moisture Sensitivity Level: 5a
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Full-Color Video Screen
- Decorative lighting
- Amusement



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

Items	Symbol	Ab	115		
		R	G	В	Unit
Forward Current Note 1	$I_{_{\rm F}}$	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}		°C		
Storage Temperature	T_{stg}		°C		
Junction Temperature	T,	110 110 110			°C
Junction/ambient 1 chip on	R _{THJA}	450	400	450	°C/W
Junction/ambient 3 chips on	R _{THJA}	650 580 680		°C/W	
Junction/solder point 1 chip on	R _{THJS}	300	280	300	°C/W
Junction/solder point 3 chips on	$R_{_{THJS}}$	450	430	480	°C/W

Note: 1. Single-color light.

2. Pulse width ≤ 0.1 msec, duty $\leq 1/10$.

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

Characteristics	Condition	Symbol		Unit		
Cital acteristics	Condition		R	G	В	Onic
Dominant Wavelength	$I_F = 20 \text{ mA (R)}$ $I_F = 15 \text{ mA (G)}$ $I_F = 15 \text{ mA (B)}$	$\lambda_{\scriptscriptstyle DOM}$	619~624	520~537.5	460~477.5	nm
Spectral bandwidth at 50% $I_{\text{\tiny REL}}$ max	$I_F = 20 \text{ mA (R)}$ $I_F = 15 \text{ mA (G)}$ $I_F = 15 \text{ mA (B)}$	Δλ	24	38	28	nm
Famueud Valhage	$I_F = 20 \text{ mA (R)}$ $I_F = 15 \text{ mA (G)}$ $I_F = 15 \text{ mA (B)}$	$V_{F(avg)}$	2.0	3.2	3.2	V
Forward Voltage		$V_{F(max)}$	2.6	4.0	4.0	V
Lunchaus Tahanatha	$I_F = 20 \text{ mA (R)}$	$I_{V(min)}$	355	710	180	mcd
Luminous Intensity	$I_F = 15 \text{ mA (G)}$ $I_F = 15 \text{ mA (B)}$	$I_{V(avg)}$	450	1100	250	mcd
Reverse Current (max)	$V_R = 5 V$	I_R	10	10	10	μΑ



INTENSITY BIN LIMIT (RED $I_F = 20 \text{ mA}$, GREEN $I_F = 15 \text{ mA}$, BLUE $I_F = 15 \text{ mA}$)

Red

Bin Code	Min.(mcd)	Max.(mcd)		
Н	355	450		
hj	403	505		
J	450	560		
km	505	635		
K	560	710		
np	635	805		
М	710	900		

Green

Bin Code	Min.(mcd)	Max.(mcd)
М	710	900
qr	805	1010
N	900	1120
st	1010	1260
Р	1120	1400
vw	1260	1600
Q	1400	1800

Blue

Bin Code	Min.(mcd)	Max.(mcd)
Е	180	224
bc	202	252
F	224	280
de	252	318
G	280	355
fg	318	403
Н	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

Bin Code	Min.(nm)	Max.(nm)		
DD	610	624		

Green

Bin Code	Min.(nm)	Max.(nm)
G7	520	525
G23	522.5	527.5
G8	525	530
G45	527.5	532.5
G9	530	535
G67	532.5	537.5

Blue

Bin Code	Min.(nm)	Max.(nm)
В3	460	465
B23	462.5	467.5
B4	465	470
B45	467.5	472.5
B5	470	475
B67	472.5	477.5

Tolerance of measurement of dominant wavelength is ± 1 nm.



ORDER CODE TABLE*

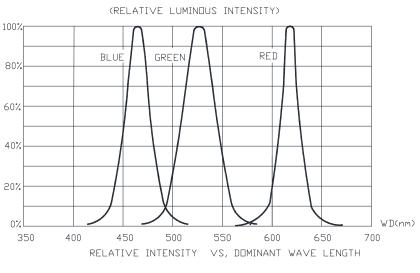
Kit Number	Color	Luminous Inte	Dominant Wavelength (nm)				Pack-	
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)	age
CLV1L-FKB-CHMMQEHBB7673673	Red	355	900	RB	619	RB	624	Reel
	Green	710	1800	G7	520	G67	537.5	Reel
	Blue	180	450	В3	460	B67	477.5	Reel
	Red	Any 1 Intensity sub-bins f	rom H (355) - M (900)	RB	619	RB	624	Reel
CLV1L-FKB-CH1M1E1BB7B3B3	Green	Any 1 Intensity sub-bins f	rom M (710) - Q (1800)	Any 1 Sub	Min. (nm) 619 RB 624 520 G67 537.5 460 B67 477.5 619 RB 624 Sub-Bins from G7(520) - G67(537.5) Sub-Bins from B3(460) - B67(477.5) 619 RB 624	Reel		
	Blue	Any 1 Intensity sub-bins f	rom E (180) - H (450)	Any 1 Sub	-Bins from	B3(460) - B6	537.5 477.5 624 667(537.5) 67(477.5)	Reel
	Red	Any 1 Intensity sub-bins	from J (450) - M (900)	RB	619	RB	624	Reel
CLV1L-FKB-CJ1N1F1BB7B3B3	Green	Any 2 Intensity sub-bins f	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) - B6	57(477.5)	Reel

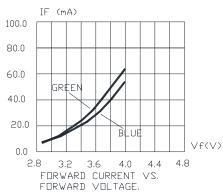
Notes:

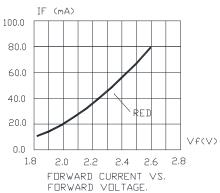
- 1. The above kit numbers represent the order codes which include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each reel. Single intensity-bin code and single color-bin code will be orderable in certain quantities. For example, any 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 G67 means only 1 color bin (G7 or G23 or G8 or G45 or G9 or G67) 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.

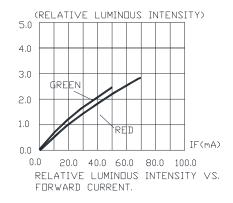


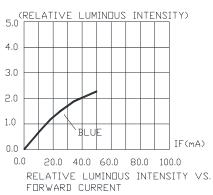
GRAPHS







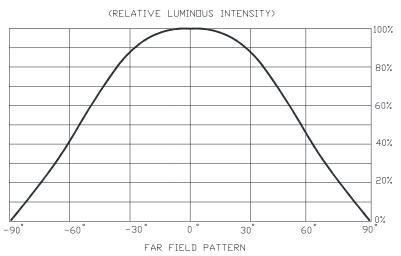


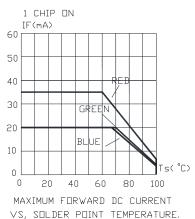


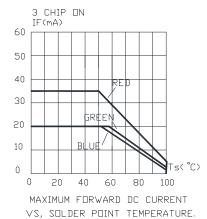
The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

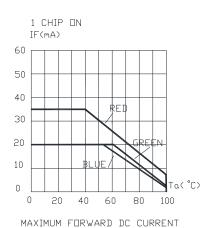


GRAPHS

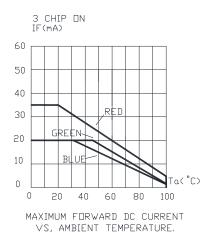








VS, AMBIENT TEMPERATURE.

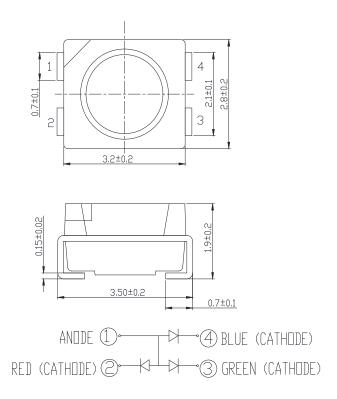


The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.



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

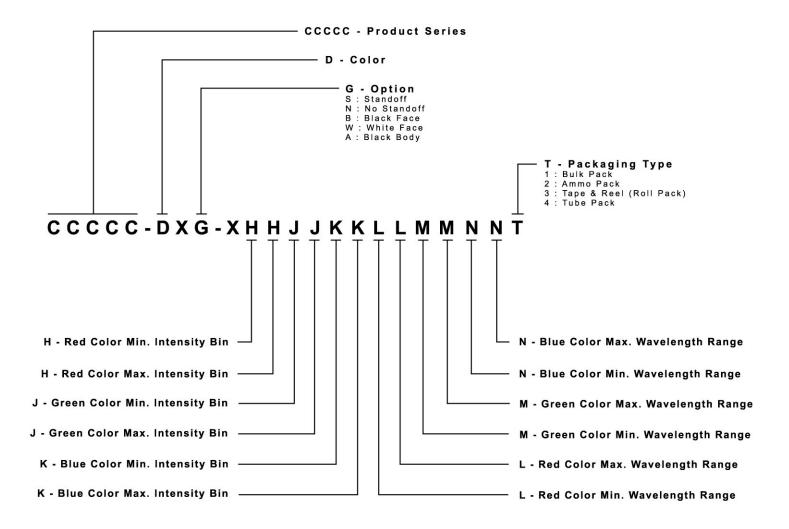
Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.



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 CLV1L-FKB is rated as a MSL 5a product.
- 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.

