

Cree® PLCC2 1-in-1 SMD LED CLM3C-WKW/MKW



PRODUCT DESCRIPTION

SMD LEDs is packaged in the industry standard package. These LEDs have high reliability performance and are designed to work under a wide range of environmental conditions.

This high reliability feature makes them ideally suited to be used under illumination application conditions.

Its wide viewing angle makes these LEDs ideally suited for channel letter, or general backlighting and illumination applications. The flat top emitting surface makes it easy for these LEDs to mate with light pipes.

FEATURES

- Size (mm):2.7 x 2.0
- Color Temperatures(K):
 Cool White:
 Min. (4600) / Typical (5500)
 Warm White:
 Min. (2500) / Typical (3200)
- Luminous Intensity (mcd)
 CLM3C-WKW:(1400 3550)
 CLM3C-MKW:(1120 2800)
- CRI
 Typical CRI for Cool White is 72
 Typical CRI for Warm White is 80
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Light Strip
- Channel Letter
- Backlight



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

Items	Symbol	Absolute Maximum Rating	Unit
		Cool/Warm	
Forward Current	$I_{_{\rm F}}$	25	mA
Peak Forward Current Note	$I_{_{FP}}$	100	mA
Reverse Voltage	V_R	5	V
Power Dissipation	$P_{_{D}}$	100	mW
Operation Temperature	T_{opr}	-40 ~ +100	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
Junction Temperature	T _j	110	°C
Junction/Ambient	R _{THJA}	350	°C/W
Junction/Solder Point	R_{THJS}	300	°C/W

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

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

Characteristics	Color	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	Cool/Warm	$V_{_{\rm F}}$	$I_F = 20 \text{ mA}$	V		3.2	4.0
Reverse Current	Cool/Warm	I_R	$V_R = 5 V$	μΑ			10
Luminous Flux	Cool	$\Phi_{_{V}}$	$I_F = 20 \text{ mA}$	mlm		4200	
Luminous Flux	Warm	Φ_{V}	$I_F = 20 \text{ mA}$	mlm		4000	
Luminous Intensity	Cool	I_{v}	$I_F = 20 \text{ mA}$	mcd	1400	1850	
	Warm	I_{v}	$I_F = 20 \text{ mA}$	mcd	1120	1560	
Chromaticity Coordinates	Cool	X	$I_F = 20 \text{ mA}$			0.3325	
	У	$I_F = 20 \text{ mA}$			0.3411		
	Warm	X	$I_F = 20 \text{ mA}$			0.4234	
	vvalili	У	$I_F = 20 \text{ mA}$			0.3990	



INTENSITY BIN LIMIT ($I_F = 20 \text{ mA}$)

Cool White (CLM3C-WKW)

Bin Code	Min.(mcd)	Max.(mcd)
Wb	1400	1800
Xa	1800	2240
Xb	2240	2800
Ya	2800	3550

Warm White (CLM3C-MKW)

Bin Code	Min.(mcd)	Max.(mcd)
Wa	1120	1400
Wb	1400	1800
Xa	1800	2240
Xb	2240	2800

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

VF BIN LIMIT $(I_F = 20 \text{ mA})$

Cool White (CLM3C-WKW)

Bin Code	Min.(V)	Max.(V)
27	2.8	3.0
28	3.0	3.2
29	3.2	3.4
2a	3.4	3.6
2b	3.6	3.8
2c	3.8	4.0

Warm White (CLM3C-MKW)

	•	
Bin Code	Min.(V)	Max.(V)
27	2.8	3.0
28	3.0	3.2
29	3.2	3.4
2a	3.4	3.6
2b	3.6	3.8
2c	3.8	4.0

Tolerance of measurement of VF is ± 0.05 V.



COLOR BIN LIMIT ($I_F = 20 \text{ mA}$)

Cool White

COOI WI			
Bin Code	Sub- bin	х	у
		0.2545	0.2480
	VA/-	0.2633	0.2410
	Wa	0.2545	0.2245
		0.2450	0.2290
		0.2633	0.2410
	\A/l=	0.2720	0.2340
	Wb	0.2640	0.2200
W1		0.2545	0.2245
VV I		0.2545	0.2480
	Wc	0.2640	0.2670
	VVC	0.2720	0.2575
		0.2633	0.2410
		0.2633	0.2410
	Wd	0.2720	0.2575
	vvu	0.2800	0.2480
		0.2720	0.2340
		0.2640	0.2670
	We	0.2735	0.2860
	we	0.2808	0.2740
		0.2720	0.2575
		0.2720	0.2575
	Wf	0.2808	0.2740
	VVI	0.2880	0.2620
W2		0.2800	0.2480
VV Z		0.2735	0.2860
	Wg	0.2830	0.3050
	wg	0.2895	0.2905
		0.2808	0.2740
		0.2808	0.2740
	Wh	0.2895	0.2905
	VVII	0.2960	0.2760
		0.2880	0.2620

Bin Code	Sub- bin	x	у
		0.2830	0.3050
		0.2950	0.3210
	Wj	0.2998	0.3028
		0.2895	0.2905
		0.2895	0.2905
	34/1	0.2998	0.3028
	Wk	0.3045	0.2865
14/2		0.2960	0.2760
W3		0.2950	0.3210
	14/100	0.3070	0.3370
	Wm	0.3100	0.3150
		0.2998	0.3028
		0.2998	0.3028
	Wn	0.3100	0.3150
	VVII	0.3130	0.2970
		0.3045	0.2865
		0.3070	0.3370
	Wp	0.3185	0.3485
	VVΡ	0.3200	0.3270
		0.3100	0.3150
		0.3100	0.3150
	Wq	0.3200	0.3270
	vvq	0.3215	0.3075
W4		0.3130	0.2970
VV4		0.3185	0.3485
	Wr	0.3300	0.3600
	VVI	0.3300	0.3390
		0.3200	0.3270
		0.3200	0.3270
	Ws	0.3300	0.3390
	***3	0.3300	0.3180
		0.3215	0.3075

Bin Code	Sub- bin	х	у
		0.3300	0.3600
	Wt	0.3455	0.3725
	VVL	0.3443	0.3535
		0.3300	0.3390
		0.3300	0.3390
	Wu	0.3443	0.3535
	vvu	0.3430	0.3345
W5		0.3300	0.3180
VVS	Wv	0.3455	0.3725
		0.3610	0.3850
		0.3585	0.3680
		0.3443	0.3535
		0.3443	0.3535
	Ww	0.3585	0.3680
	VVVV	0.3560	0.3510
		0.3430	0.3345

Tolerance of measurement of the color coordinates is ± 0.01 .



COLOR BIN LIMIT ($I_F = 20 \text{ mA}$)

Warm White

Bin Code	Sub- bin	х	у
		0.3610	0.3900
	Ma	0.3576	0.3651
	IMa	0.3751	0.3783
		0.3820	0.4075
		0.3576	0.3651
	Mb	0.3541	0.3401
	טויו	0.3682	0.3491
M1		0.3749	0.3781
1417	Мс	0.3820	0.4075
		0.3751	0.3783
		0.3926	0.3915
		0.4030	0.4250
		0.3751	0.3783
	Md	0.3682	0.3491
	Mu	0.3822	0.3580
		0.3926	0.3915

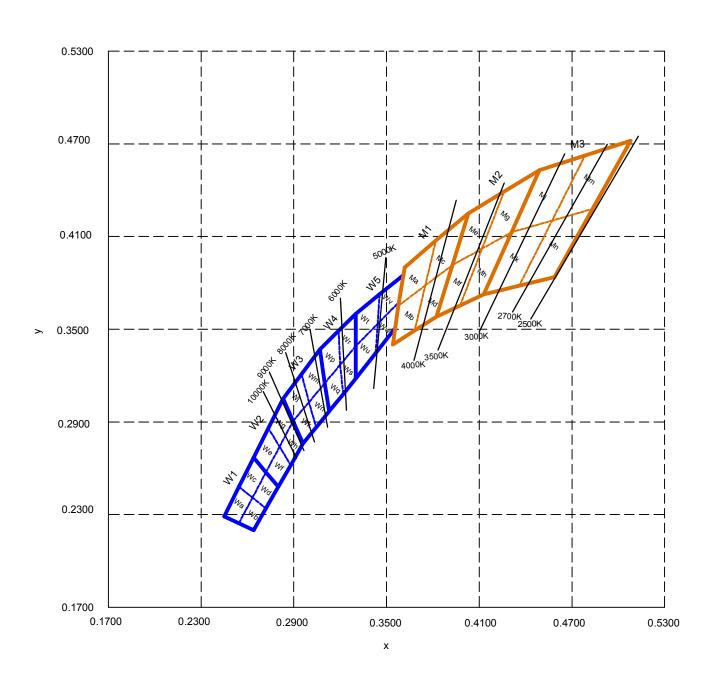
Bin Code	Sub- bin	х	у
		0.4030	0.4250
	Me	0.3926	0.3915
	Me	0.4118	0.4021
		0.4260	0.4390
		0.3926	0.3915
	Mf	0.3822	0.3580
	IMIL	0.3976	0.3653
M2		0.4118	0.4021
IVIZ	Mq	0.4260	0.4390
		0.4118	0.4021
	irig	0.4310	0.4128
		0.4490	0.4530
		0.4118	0.4021
	Mh	0.3976	0.3653
	14111	0.4129	0.3725
		0.4310	0.4128

Bin Code	Sub- bin	x	у
		0.4490	0.4530
	M÷	0.4310	0.4128
	Mj	0.4572	0.4203
		0.4785	0.4625
		0.4310	0.4128
	Mk	0.4129	0.3726
	MIK	0.4359	0.3782
M3		0.4572	0.4203
6141	Mm	0.4785	0.4625
		0.4572	0.4203
	MILLI	0.4834	0.4279
		0.5080	0.4720
		0.4572	0.4203
	Mn	0.4359	0.3782
	14111	0.4588	0.3838
		0.4834	0.4279

Tolerance of measurement of the color coordinates is ± 0.01 .



CIE CHROMATICITY DIAGRAM





ORDER CODE TABLE*

Color	Kit Number	Luminous Intensity (mcd)		Color Bin Code
		Min.	Max.	33131 2111 2342
Cool White	CLM3C-WKW-CWbYa153	1400	3550	W1,W2,W3,W4,W5
Cool White	CLM3C-WKW-CWbYa453	1400	3550	W4,W5
Cool White	CLM3C-WKW-CXaYa453	1800	3550	W4,W5

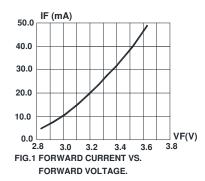
Color	Kit Number	Luminous Intensity (mcd)		Color Bin Code
		Min.	Max.	color Bill code
Warm White	CLM3C-MKW-CWaXb133	1120	2800	M1,M2,M3
Warm White	CLM3C-MKW-CWaXb513	1120	2800	W5,M1
Warm White	CLM3C-MKW-CWaXb233	1120	2800	M2,M3
Warm White	CLM3C-MKW-CWbXb513	1400	2800	W5,M1
Warm White	CLM3C-MKW-CWbXb233	1400	2800	M2,M3

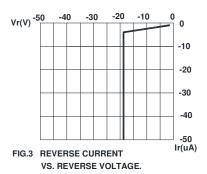
Notes:

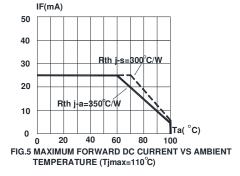
- 1. The above kit numbers represent order codes that include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each bulk. Single intensity-bin code and single color-bin codes will not be orderable.
- 2. Please refer to the "Cree LED Lamp 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.

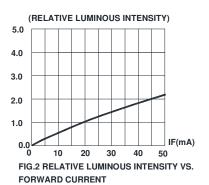


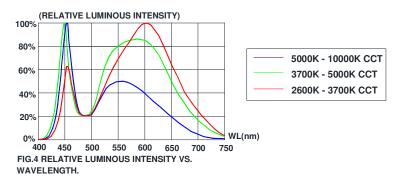
GRAPHS

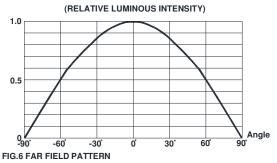










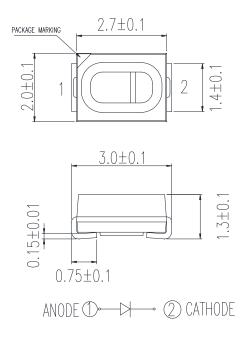


The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.



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

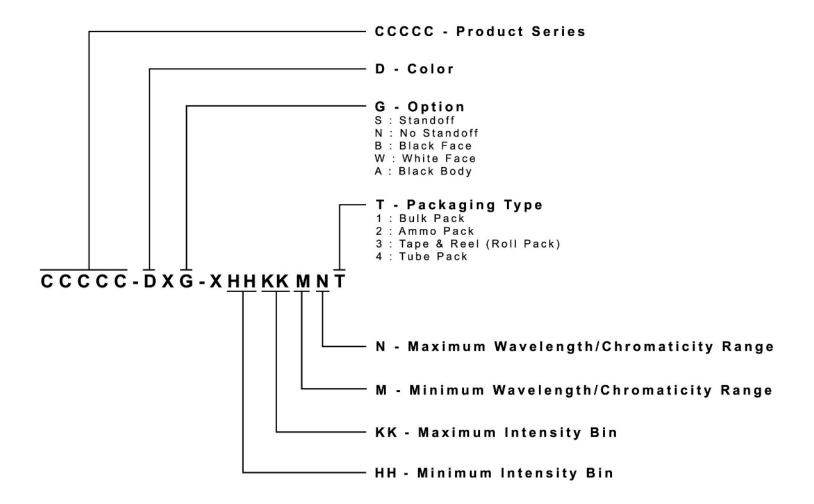
Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.



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 2500 pcs per reel.

