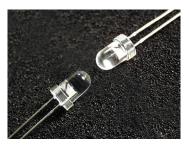


Cree® 5-mm Round LED C503T-WAN Data Sheet

Round LEDs offer superior light output for excellent readability in sunlight and dependable performance. They provide extremely stable light output over long periods of time.

These lamps are made with an advanced optical-grade epoxy offering superior high-temperature and high-moisture resistance performance in lighting and illumination applications.



FEATURES

- Size (mm): 5
- Color Temperatures (K):
 » Cool White :Min . (4600) / Typical (9000)
- Luminous Intensity (mcd)
 » Cool White (8200-32500)
- Viewing angle: 15 degrees
- Lead-Free
- RoHS-Compliant

APPLICATIONS

- Torch
- Light Strip
- Channel Letter
- Retail Display Lighting



Absolute Maximum Ratings ($T_A = 25^{\circ}C$)

Items	Symbol	Absolute Maximum Rating	Unit	
Forward Current	I _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 ~ +95	°C	
Storage Temperature	T _{stg}	-40 ~ +100	°C	
Lead Soldering Temperature	T _{sol}	Max. 260°C for 3 sec. max. (3 mm from the base of the epoxy bulb)		

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

Typical Electrical & Optical Characteristics $(T_A = 25^{\circ}C)$

Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V _F	I _F = 20 mA	V		3.4	4.0
Forward Voltage	V _F	$I_{_F} = 1.0 \ \mu A$	V	1.7		2.5
Reverse Current	I _R	$V_{R} = 5 V$	μΑ			100
Luminous Intensity	I _v	$I_F = 20 \text{ mA}$	mcd	8200	14000	
Chromaticity Coordinates	х	$I_F = 20 \text{ mA}$			0.3100	
	У	$I_{F} = 20 \text{ mA}$			0.3200	
50% Power Angle	201/2	$I_F = 20 \text{ mA}$	deg		15	

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Intensity Bin Limit ($I_F = 20 \text{ mA}$)

Cool White

Bin Code	Min. (mcd)	Max. (mcd)
ZO	8200	12000
A0	12000	16800
В0	16800	23500

Tolerance of measurement of luminous intensity is $\pm 15\%$.

Color Bin Limit ($I_F = 20 \text{ mA}$)

Bin Code	Sub- bin	x	У		
		0.2545	0.2480		
	14/5	0.2633	0.2410		
	Wa	0.2545	0.2245		
		0.2450	0.2290		
		0.2633	0.2410		
	Wb	0.2720	0.2340		
	VVD	0.2640	0.2200		
W1		0.2545	0.2245		
VVI		0.2545	0.2480		
	14/-	0.2640	0.2670		
	Wc	0.2720	0.2575		
		0.2633	0.2410		
		0.2633	0.2410		
	Wd	0.2720	0.2575		
	vva	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		
VVZ		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
Code	DIN	0.2830	0.3050
		0.2950	0.3210
	Wj	0.2998	0.3028
		0.2998	0.2905
		0.2895	0.2905
	Wk	0.2998	0.3028
		0.3045	0.2865
		0.2960	0.2760
W3		0.2950	0.3210
		0.3070	0.3370
	Wm	0.3100	0.3150
		0.2998	0.3028
		0.2998	0.3028
		0.3100	0.3150
	Wn	0.3130	0.2970
		0.3045	0.2865
		0.3070	0.3370
		0.3185	0.3485
	Wp	0.3200	0.3270
		0.3100	0.3150
		0.3100	0.3150
		0.3200	0.3270
	Wq	0.3215	0.3075
		0.3130	0.2970
W4		0.3185	0.3485
		0.3300	0.3600
	Wr	0.3300	0.3390
		0.3200	0.3270
		0.3200	0.3270
	14/-	0.3300	0.3390
	Ws	0.3300	0.3180
		0.3215	0.3075

VF Bin Limit ($I_F = 20 \text{ mA}$)

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.

Bin Code	Sub- bin	×	У	
	Wt	0.3300	0.3600	
		0.3455	0.3725	
	VVL	0.3443	0.3535	
		0.3443 0.353 0.3300 0.339 0.3300 0.339 0.3443 0.353 0.3443 0.353 0.3430 0.334 0.3430 0.318 0.3455 0.372 0.3610 0.385	0.3390	
	Wu 0.3443 0.3 0.3430 0.3	0.3300	0.3390	
		0.3443	0.3535	
		0.3430	0.3345	
W5		0.3180		
00.5	Wv	0.3455	0.3725	
		0.3610	0.3850	
	VVV	0.3585	0.3680	
		0.3443	0.3535	
	Ww	0.3443	0.3535	
		0.3585	0.3680	
	VVVV	0.3560	0.3510	
		0.3430	0.3345	

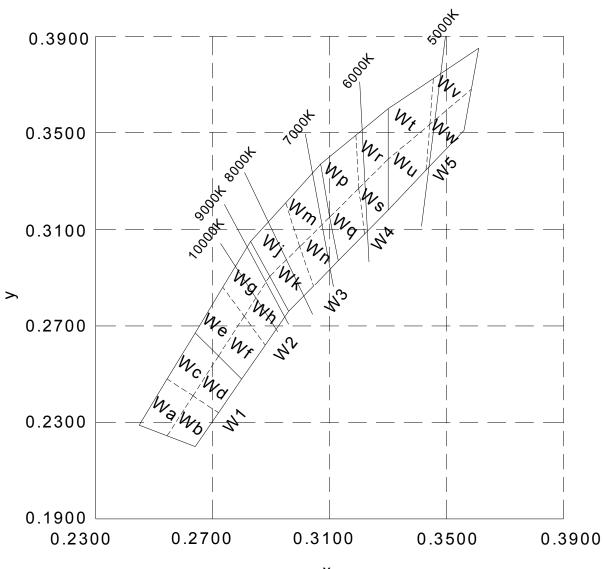
Tolerance of measurement of the color coordinates is ± 0.01 .

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CIE Chromaticity Diagram



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Order Code Table*

Color Kit Number		Viewing Angle	Luminous Intensity (mcd)		Color Bin Code
		Viewing Angle	Min.	Max.	Color Bin Code
Cool White	C503T-WAN-CZ0B0151	15	8200	23500	W1,W2,W3,W4,W5

Notes:

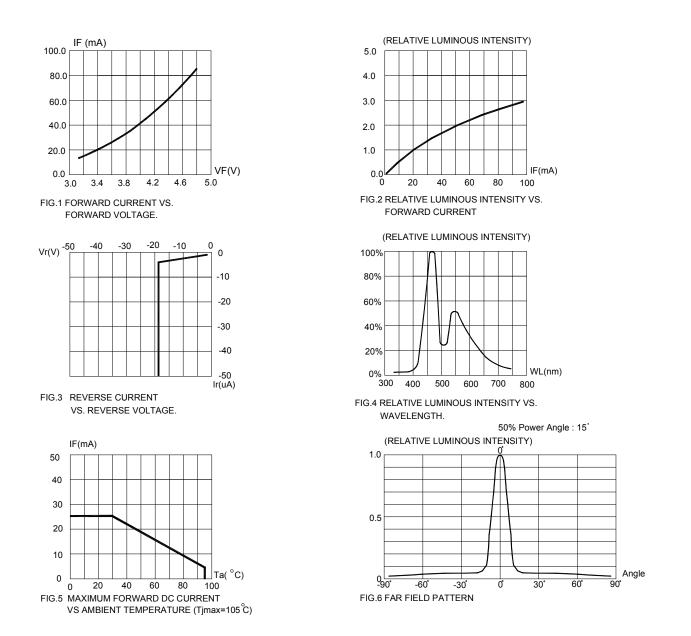
- The above kit numbers represent order codes that include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each reel. Single intensity-bin codes and single color-bin codes will not be orderable.
- Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
- Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

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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.

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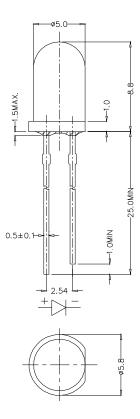


Mechanical Dimensions

All dimensions are in mm. Tolerance is ± 0.25 mm unless otherwise noted.

An epoxy meniscus may extend about 1.5 mm down the leads.

Burr around bottom of epoxy may be 0.5 mm max.



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.

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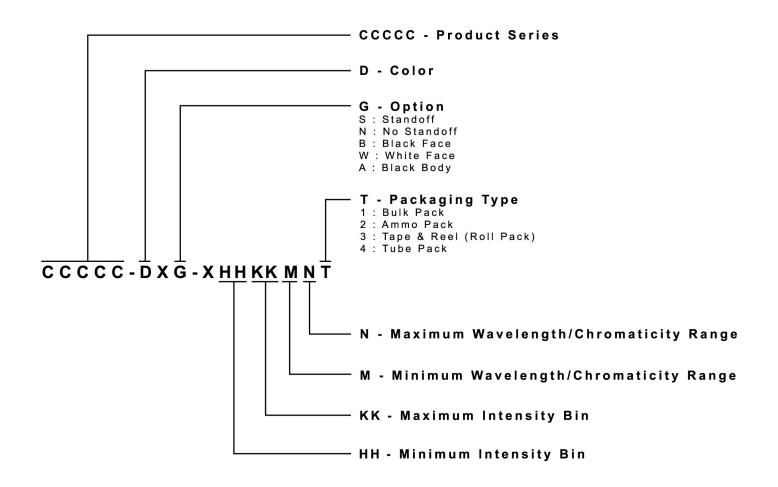
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Kit Number System

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:



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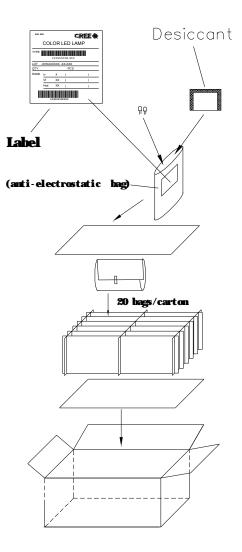
8 CLD-CT204.000



Package

Features:

- 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 shock during transportation.
- The boxes are not water resistant, and they must be kept away from water and moisture.
- The Bulk Pack type of packaging.
- Max 500 pcs per bag.



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