

## C543A-WMN: 5-mm Round White LED



### **PRODUCT DESCRIPTION**

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:
  Cool White :
  Min . (4600K) / Typical (9000K)
- Luminous Intensity (mcd) C543A-WMN:(15000-37500)
- Viewing angles: 20°: C543A-WMN
- · Lead Free
- · RoHS Compliant

## **APPLICATIONS**

- Garden Light
- Channel Letter
- Retail Display Lighting



# ABSOLUTE MAXIMUM RATINGS ( $T_A = 25$ °C)

Items	Symbol	Absolute Maximum Rating	Unit	
Forward Current	l <sub>F</sub>	25	mA	
Peak Forward Current Note 1	I <sub>FP</sub>	100	mA	
Reverse Voltage	$V_{_{\mathrm{R}}}$	5	V	
Power Dissipation	$P_{_{D}}$	100	mW	
Operation Temperature	$T_{opr}$	-40 ~ <b>+</b> 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:

1. Pulse width ≤0.1 msec, duty ≤1/10.

# TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS ( $T_A = 25$ °C)

Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 20 mA	V		3.2	4.0
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 5 V	μA			100
Luminous Intensity	I <sub>v</sub>	I <sub>F</sub> = 20 mA	mcd	15000	22000	
Chromaticity	Х	I <sub>F</sub> = 20 mA			0.2895	
Coordinates	у	I <sub>F</sub> = 20 mA			0.2905	
50% Power Angle	201/2	I <sub>F</sub> = 20 mA	deg		20	

<sup>\*</sup> Continuous reverse voltage can cause LED damage.



## **INTENSITY BIN LIMIT**

Cool White (20 mA) - C543A-WMN						
Bin Code	Min.(mcd) Max.(mcd)					
CC	15000	17500				
DD	17500	20000				
EE	20000	23500				
FF	23500	27000				
GG	27000	30500				
НН	30500	34000				
KK	34000	37500				

<sup>\*</sup> Tolerance of measurement of luminous intensity is ±15%



## **COLOR BIN LIMIT**

## Cool White (20 mA) - C543A-WMN

COOI WIII	10 (=0	1, 00101	
Bin Code	Sub-bin	x	у
		0.2449	0.2288
		0.2497	0.2384
	waı	0.2543	0.2356
	Sub-bin  Wa1  Wa2  Wa3  Wa4  Wb1  Wb2	0.2497	0.2267
		0.2497	0.2267
	W 0	0.2543	0.2356
	Wa1 Wa2 Wa3 Wa4 Wb1	0.2589	0.2328
		Va1  0.2449  0.2497  0.2543  0.2497  0.2543  0.2543  0.2589  0.2545  0.2589  0.2543  0.2589  0.2543  0.2589  0.2543  0.2589  0.2543  0.2589  0.2589  0.2633  0.2589  0.2635  0.2635  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2630  0.2631  0.2635  0.2637  0.2635	0.2245
		0.2449         0.2           0.2497         0.2           0.2543         0.2           0.2497         0.2           0.2497         0.2           0.2543         0.2           0.2545         0.2           0.2545         0.2           0.2545         0.2           0.2589         0.2           0.2589         0.2           0.2543         0.2           0.2589         0.2           0.2589         0.2           0.2589         0.2           0.2589         0.2           0.2589         0.2           0.2589         0.2           0.2635         0.2           0.2693         0.2           0.2693         0.2           0.2640         0.2           0.2633         0.2           0.2635         0.2           0.2635         0.2           0.2635         0.2           0.2635         0.2           0.2635         0.2           0.2677         0.2           0.2677         0.2           0.2677         0.2           0.2720         0.2 </td <td>0.2384</td>	0.2384
	Wa3	0.2545	0.2480
		0.2589	0.2445
		0.2543	0.2356
	Wa4 0.2543 0.235 0.2589 0.244 0.2633 0.241 0.2589 0.232 0.2545 0.224 0.2589 0.232 0.2635 0.229 0.2635 0.229 0.2593 0.222	0.2543	0.2356
		0.2589	0.2445
		0.2633	0.2410
W1		0.2328	
VV I		0.2245	
		0.2589	0.2328
		0.2635	0.2299
		Wa1 0.2449 0.224 0.2497 0.234 0.2543 0.234 0.2497 0.224 0.2543 0.234 0.2589 0.235 0.2545 0.224 0.2545 0.244 0.2545 0.244 0.2543 0.234 0.2589 0.244 0.2589 0.244 0.2589 0.244 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2589 0.235 0.2635 0.225 0.2630 0.225 0.2640 0.225 0.2631 0.2635 0.2632 0.2635 0.2633 0.244 0.2635 0.225 0.2637 0.233	0.2223
		Na1 0.2449 0.2 0.2497 0.2 0.2543 0.2 0.2497 0.2 0.2497 0.2 0.2543 0.2 0.2545 0.2 0.2545 0.2 0.2545 0.2 0.2545 0.2 0.2589 0.2 0.2543 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2589 0.2 0.2635 0.2 0.2637 0.2 0.2635 0.2	0.2223
	W/F O	0.2635	0.2299
	VVDZ	0.2680	0.2270
		0.2640	0.2200
		0.2589	0.2328
	\//h2	0.2633	0.2410
	VVD3	0.2677	0.2375
		0.2635	0.2299
		0.2635	0.2299
	\//h /	0.2677	0.2375
	VVD4	0.2720	0.2340
		0.2680	0.2270

Bin Code	Sub-bin	х	у
		0.2545	0.2480
	\\/o1	0.2593	0.2575
	VVCI	0.2635	0.2534
		0.2589	0.2445
		0.2589	0.2445
	Wc2 Wc3 Wc4	0.2635	0.2534
		0.2677	0.2493
		0.2633	0.2410
		0.2593	0.2575
	Wc3	0.2640	0.2670
		0.2680	0.2623
		0.2635	0.2534
		0.2635	0.2534
	Wod	0.2680	0.2623
	VVC4	0.2720 0.25	0.2575
\ <i>\\1</i> 1	W1	0.2677	0.2493
VVI		0.2633	0.2410
	W/d1	0.2677	0.2493
	vvui	0.2718	0.2451
		0.2677	0.2375
		Wc1 0.2593 0.2635 0.2589 0.2589 0.2635 0.2637 0.2633 0.2640 0.2635 0.2635 0.2635 0.2635 0.2635 0.2635 0.2635 0.2637 0.2677 0.2633 0.2677 0.2633	0.2375
	W/-IO	0.2718	0.2451
	VVUZ	0.2760	0.2410
		0.2720	0.2340
		0.2677	0.2493
	WAS	0.2720	0.2575
	vvus	0.2760	0.2528
		0.2718	0.2451
		0.2718	0.2451
	Wd4	0.2760	0.2528
	vvu-+	0.2800	0.2480
		0.2760	0.2410

Bin Code	Sub-bin	х	у
	VA/- 1	0.2640	0.2670
		0.2688	0.2765
	wei	0.2726	0.2711 0.2623 0.2623 0.2623 0.2711 0.2658 0.2575 0.2765 0.2860 0.2800 0.2711 0.2711 0.2800 0.2740 0.2658 0.2575 0.2658 0.2658 0.2528 0.2604 0.2528 0.2528 0.2604 0.2550 0.2480
	We1  We2  We3  We4  Wf1  Wf2  Wf3	0.2680	0.2623
		We1 0.2640 0.2688 0.2726 0.2680 0.2680 0.2726 0.2726 0.2720 0.2688 0.2735 0.2772 0.2726 0.2726 0.2772 0.2726 0.2764 0.2772 0.2808 0.2764 0.2802 0.2760 0.2802 0.2800 0.2802 0.2808 0.2844 0.2802 0.2802 0.2802 0.2802 0.2844	0.2623
	We2	0.2726	0.2711
	vvez	0.2764	0.2658
		0.2720	0.2575
		0.2688	0.2765
	We3 0.2772 0.2	0.2735	0.2860
		0.2772	0.2800
		0.2711	
		0.2726	0.2711
	We4	0.2772	0.2800
		0.2808	0.2740
W2		0.2764	0.2658
VVZ		0.2720	0.2575
	We1 0.2688 0.27 0.2726 0.27 0.2680 0.26 0.2680 0.26 0.2726 0.27 0.2764 0.26 0.2720 0.25 0.2735 0.28 0.2735 0.28 0.2772 0.28 0.2726 0.27 0.2726 0.27 0.2726 0.27 0.2726 0.27 0.2726 0.27 0.2726 0.27 0.2726 0.27 0.2764 0.26 0.2764 0.26 0.2760 0.25 0.2760 0.25 0.2802 0.26	0.2764	0.2658
		0.2802	0.2604
		0.2528	
		0.2640 0.2 0.2688 0.2 0.2680 0.2 0.2680 0.2 0.2680 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2720 0.2 0.2720 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2726 0.2 0.2764 0.2 0.2764 0.2 0.2802 0.2	0.2528
	\Mf2	0.2802	0.2604
	VV12	0.2840	0.2550
		0.2800	0.2480
		0.2764	0.2658
	/V/f2	0.2808	0.2740
	VVIO	0.2844	0.2680
		0.2802	0.2604
		0.2802	0.2604
	Wf4	0.2844	0.2680
	VVI	0.2880	0.2620
		0.2840	0.2550

\* Tolerance of measurement of the color coordinates is  $\pm 0.01$ 



## **COLOR BIN LIMIT**

## Cool White (20 mA) - C543A-WMN

	ite (20 iii	A) - C545A-WIVIN			
Bin Code	Sub-bin	х	у		
		0.2735	0.2860		
	Wa1	0.2783	0.2955		
	vvgı	0.2817	0.2889		
		Vg1 0.2735 0.286 0.2783 0.295 0.2817 0.286 0.2772 0.286 0.2817 0.286 0.2817 0.286 0.2852 0.283 0.2808 0.274 0.2830 0.305 0.2830 0.305 0.2863 0.297 0.2817 0.286 0.2817 0.286 0.2817 0.286 0.2852 0.283 0.2863 0.297 0.2817 0.286 0.2852 0.283 0.2863 0.297 0.2852 0.283 0.2866 0.275 0.2844 0.266 0.2844 0.266 0.2844 0.266 0.2844 0.266 0.2844 0.266 0.2886 0.275 0.2880 0.263 0.2880 0.263 0.2880 0.263 0.2886 0.275	0.2800		
		0.2772	0.2800		
	Was	0.2817	0.2889		
	vvg2	0.2852	0.2823		
		0.2735 0.2783 0.2817 0.2772 0.2772 0.2817 0.2852 0.2808 0.2783 0.2830 0.2863 0.2817 0.2863 0.2817 0.2863 0.2895 0.2852 0.2808 0.2852 0.2808 0.2852 0.2886 0.2844 0.2844 0.2886 0.2920 0.2880 0.2852 0.2886 0.2920 0.2880 0.2852 0.2886 0.2920	0.2740		
		0.2783	0.2955		
	Was	0.2830	0.3050		
	Wg3	0.2863	0.2978		
		0.2817	0.2889		
		0.2817	0.2889		
	Wg4	0.2863	0.2978		
		0.2895	0.2905		
W2		0.2852	0.2978 0.2889 0.2889 0.2978		
VVZ		0.2735         0.28           0.2783         0.29           0.2817         0.28           0.2772         0.28           0.2817         0.28           0.2817         0.28           0.2852         0.28           0.2808         0.27           0.2783         0.29           0.2863         0.29           0.2817         0.28           0.2863         0.29           0.2851         0.28           0.2863         0.29           0.2852         0.28           0.2852         0.28           0.2852         0.28           0.2852         0.28           0.2844         0.26           0.2844         0.26           0.2886         0.27           0.2880         0.26           0.2852         0.28           0.2852         0.28           0.2852         0.28           0.2895         0.29           0.2886         0.27           0.2886         0.27           0.2886         0.27           0.2886         0.27           0.2886         0.27           0.2886 </td <td>0.2740</td>	0.2740		
	Wg1 0.2735 0.2783 0.2817 0.2772 0.2817 0.2852 0.2808 0.2830 0.2830 0.2863 0.2817 0.2863 0.2817 0.2863 0.2852 0.2852 0.2886 0.2844 0.2886 0.2920 0.2880 Wh1 0.2852 0.2886 0.2920 0.2880 0.2852 0.2886 0.2920 0.2880 0.2852 0.2886 0.2920 0.2886 0.2920 0.2886 0.2928	0.2852	0.2823		
		0.2886	0.2756		
		Wg1 0.2735 0.2783 0.2783 0.2817 0.2772 0.2772 0.2817 0.2852 0.2808 0.2830 0.2863 0.2817 0.2863 0.2817 0.2863 0.2852 0.2852 0.2895 0.2852 0.2886 0.2844 0.2844 0.2886 0.2920 0.2880 0.2852 Wh3 0.2852 0.2886 0.2920 0.2880 0.2852 0.2886 0.2920 0.2880 0.2852 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2886 0.2928 0.2928 0.2886 0.2928 0	0.2680		
		Wg1 0.2735 0.2735 0.2735 0.2735 0.2735 0.2735 0.2817 0.2772 0.2817 0.2852 0.2808 0.2830 0.2863 0.2817 0.2863 0.2817 0.2863 0.2852 0.2852 0.2852 0.2886 0.2844 0.2886 0.2844 0.2886 0.2920 0.2880 0.2880 0.2880 0.2880 0.2880 0.2880 0.2880 0.2880 0.2886 0.2928 0.2928 0.292	0.2680		
	Who	0.2886	0.2756		
	VVIIZ	0.2920	0.2690		
		0.2880	0.2620		
		0.2852	0.2823		
	Wh3	0.2895	0.2905		
	WIII	0.2928	0.2833		
		0.2886	0.2756		
		0.2886	0.2756		
	Wh4	0.2928	0.2833		
	******	0.2960	0.2760		
		0.2920	0.2690		

Bin Code	Sub-bin	х	у
		0.2830	0.3050
	Wj1	0.2890	0.3130
		0.2918	0.3048
		0.2863	0.2978
	Wj1 0.2830 0.2890 0.2918 0.2863 0.2943 0.2943 0.2974 0.2974 0.2974 0.2974 0.2975 0.2975 0.2975 0.2976 0.2976 0.2976 0.2977 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978 0.2978	0.2863	0.2978
	Wio	0.2918	0.3048
	Wj1  0.2830 0.2890 0.2918 0.2863 0.2863 0.2918 0.2947 0.2895 0.2950 0.2974 0.2918 0.2974 0.2918 0.2974 0.2918 0.2974 0.2998 0.2947 0.2975 0.2928 0.2975 0.3003 0.2960 0.2975 0.2998 0.3022 0.2975 0.3022	0.2947	0.2967
		0.2905	
		Wj1 0.2830 0.2890 0.2918 0.2863 0.2918 0.2947 0.2895 0.2997 0.2974 0.2918 0.2974 0.2918 0.2974 0.2918 0.2947 0.2947 0.2998 0.2947 0.2975 0.2928 0.2947 0.2928 0.2975 0.3003 0.2960 0.2975 0.3022 0.2975 0.3022 0.2975	0.3130
	W/:O	0.2950	0.3210
	VVJ3	0.2974	0.3119
		0.2918	0.3048
	Wj1	0.2918	0.3048
W3		0.2974	0.3119
		0.2998	0.3028
		0.2947	0.2967
VVS		0.2895	0.2905
		0.2947	0.2967
		0.2975	0.2890
		0.2928	0.2833
		0.2833	
	\\/\/c2	0.2975	0.2890
	VVKZ	0.3003	0.2813
		0.2960	0.2760
		0.2947	0.2967
	\\/\ <sub>C</sub>	0.2998	0.3028
	VVKS	0.3022	0.2946
		0.2975	0.2890
		0.2975	0.2890
	\/\/k/A	0.3022	0.2946
	V V K-4	0.3045	0.2865
		0.3003	0.2813

Bin Code	Sub-bin	х	у
		0.2950	0.3210
	\\/ma1	0.3010	0.3290
	vvmı	0.3030	0.3190
		0.2974	0.3119
	Wm1 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (	0.2974	0.3119
		0.3030	0.3119
		0.3050	0.3090
		0.2998	0.3028
		0.2950 0.3010 0.3030 0.2974 0.2974 0.3030 0.3050	0.3290
		0.3070	0.3370
	wm3	0.3085	0.3260
		0.3030	0.3190
	Wm2  Wm2  0.2974  0.3010  0.3030  0.3050  0.3098  0.3070  0.3030  0.3085  0.3030  0.3085  0.3030  0.3085  0.3030  0.3010  0.3030  0.3110  0.3050  0.3070  0.3065  0.3070  0.3070  0.3065  0.3070	0.3030	0.3190
		0.3085	0.3260
		0.3100	0.3150
WO		0.3050	0.3090
VV3		0.2998	0.3028
		0.3050	0.3090
		0.3070	0.3005
		0.2946	
		Wm1         0.3030         0.3190           0.2974         0.3119           0.2974         0.3119           0.3030         0.3119           0.3050         0.3090           0.2998         0.3028           0.3010         0.3290           0.3070         0.3370           0.3085         0.3260           0.3030         0.3190           0.3085         0.3260           0.3085         0.3260           0.3100         0.3150           0.3050         0.3090           0.3050         0.3090           0.3070         0.3005           0.3072         0.2946           0.3070         0.3005           0.3070         0.3005           0.3070         0.3090           0.3045         0.2865           0.3050         0.3090           0.3115         0.3060           0.3070         0.3005           0.3070         0.3005           0.3070         0.3005           0.3070         0.3005           0.3070         0.3005           0.3070         0.3005           0.3070         0.3005	0.2946
	Wn2	0.3070	0.3005
	VVIIZ	0.3090	0.2920
		0.3045	0.2865
		0.3050	0.3090
	Wn2	0.3100	0.3150
	VVIIO	0.3115	0.3060
		0.3070	0.3005
		0.3070	0.3005
	\\/n4	0.3115	0.3060
	VV114	0.3130	0.2970
		0.3090	0.2920

\* Tolerance of measurement of the color coordinates is  $\pm 0.01$ 



## **COLOR BIN LIMIT**

## Cool White (20 mA) - C543A-WMN

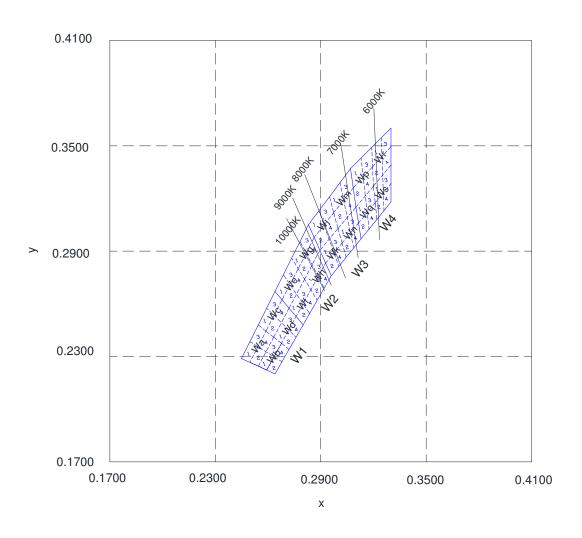
Bin Code	Sub-bin	x	у
		0.3070	0.3370
	Wp1 0.3140 0.332 0.3085 0.326 0.3085 0.326 0.3140 0.332 0.3150 0.3150 0.3150 0.3190 0.345 0.3190 0.349 0.3195 0.33140 0.332 0.3140 0.332 0.3140 0.332	0.3130	0.3430
		0.3320	
		0.3070 0.3370 0.3130 0.3430 0.3140 0.3320 0.3085 0.3260 0.3085 0.3260 0.3140 0.3320 0.3150 0.3210 0.3100 0.3150 0.3130 0.3430 0.3190 0.3490 0.3195 0.3380 0.3140 0.3320	0.3260
			0.3260
	Wp1	0.3140	0.3320
		0.3150	0.3210
		Wp1 0.3070 Wp2 0.3130 Wp2 0.3140 0.3085 0.3140 0.3150 0.3150 0.3190 0.3195 0.3140 0.3195 0.3140 0.3195 0.3140 0.3150 0.3150 0.3150 0.3163 0.3115 0.3163 0.3175 0.3130 Wq2 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3208 0.3208 0.3208 0.3208 0.3208	0.3150
		0.3130	0.3430
	Wp3 0.319 0.314	0.3190	0.3490
		0.3195	0.3380
		0.3140	0.3320
	Wp4	0.3140	0.3320
		0.3195	0.3380
		0.3200	0.3270
W4		/p1	
VV4			0.3150
	Wp1 0.3130 0.3 0.3140 0.3 0.3085 0.3 0.3085 0.3 0.3140 0.3 0.3150 0.3 0.3100 0.3 0.3190 0.3 0.3195 0.3 0.3140 0.3 0.3195 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3163 0.3 0.3150 0.3 0.3163 0.3 0.3150 0.3 0.3150 0.3 0.3150 0.3 0.3163 0.3 0.3163 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3 0.3208 0.3	0.3150	0.3210
		0.3163	0.3118
		0.3060	
		Wp1 0.3070 0.3130 0.3140 0.3085 0.3140 0.3150 0.3190 0.3195 0.3140 0.3195 0.3100 0.3150 0.3150 0.3150 0.3150 0.3150 0.3163 0.3115 0.3163 0.3115 0.3163 0.3175 0.3130 0.3150 0.3163 0.3175 0.3130 0.3150 0.3163 0.3175 0.3130 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3150 0.3163 0.3163 0.3208 0.3163 0.3208 0.3163 0.3208 0.3163 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3208 0.3215	0.3060
	Wp4 Wq1 Wq2	0.3163	0.3118
		0.3175	0.3025
		0.3130	0.2970
		0.3150	0.3210
	\Ma2	0.3200	0.3270
	vvq3	0.3208	0.3173
		0.3163	0.3118
		0.3163	0.3118
	\\/~ 4	0.3208	0.3173
	vvq4	0.3215	0.3075
		0.3175	0.3025

Bin Code	Sub-bin	х	у
		0.3190	0.3490
		0.3245	0.3545
	VVFI	0.3248	0.3438
		0.3195	0.3380
	Wr1 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3 0.3	0.3195	0.3380
		0.3248	0.3438
		0.3250	0.3330
		0.3200	0.3270
		Wr1 0.3190 0.3248 0.3195 0.3248 0.3195 0.3248 0.3250 0.3200 0.3200 0.3248 0.3300 0.3248 0.3300 0.3248 0.3300 0.3250 0.3250 0.3250 0.3208 0.3208 0.3255 0.3208 0.3255 0.3208 0.3255 0.3208 0.3255 0.3208 0.3255 0.3208 0.3255 0.3208	0.3545
	\\/O	0.3300	0.3600
	VVI3	0.3300	0.3495
		0.3248	0.3438
	VA/ A	0.3248	0.3438
		0.3300	0.3495
	VVT4		0.3390
14/4		0.3250	0.3330
VV4	W4	0.3200	0.3270
		0.3250	0.3330
	VVSI		0.3230
		0.3208	0.3173
	Wr1 0.3248 0.3195 0.3195 0.3195 0.3248 0.3250 0.3200 0.3245 0.3300 0.3248 0.3300 0.3248 0.3300 0.3250 0.3250 0.3255 0.3208 0.3255 0.3260 0.3215 0.3255 0.3255 0.3300 0.3255 0.3255 0.3300 0.3255 0.3255 0.3300 0.3255 0.3255 0.3300 0.3255 0.3300 0.3255 0.3300 0.3255 0.3300 0.3255 0.3300 0.3255 0.3300 0.3255 0.3300 0.3300 0.3255 0.3300 0.300 0.300 0.300 0.3000 0	0.3173	
		0.3255	0.3230
	VVSZ	0.3260	0.3130
		0.3215	0.3075
		0.3250	0.3330
	\M^2	0.3300	0.3390
	VVS3	0.3300	0.3285
		0.3255	0.3230
		0.3255	0.3230
	\\/ \^ 4	0.3300	0.3285
	VVS4	0.3300	0.3180
		0.3260	0.3130

\* Tolerance of measurement of the color coordinates is ±0.01



## **CIE CHROMATICITY DIAGRAM**





### **ORDER CODE TABLE**

Color	Viewing	Kit Number	Luminous In	tensity (mcd)	Color Bin Code	Package
Coloi	Angle	KIL NUMBEI	Min.	Max.	Color Bill Code	rackage
Cool White	20°	C543A-WMN-CCCKK141	15000	37500	W1,W2,W3,W4	Bulk

### 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 bulk. Single intensity-bin code and single color-bin codes will not be orderable.
- · Please refer to the HB LED Lamp Reliability Test Standards document for reliability test conditions.
- Please refer to the HB LED Lamp Soldering & Handling document for information about how to use this LED product safely.



### **GRAPHS**

The data below 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.

-40

-30

-20

-10

0

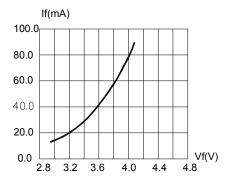
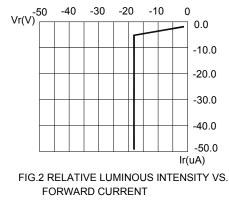


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.



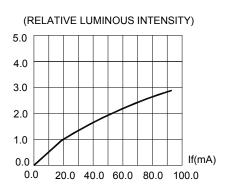


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

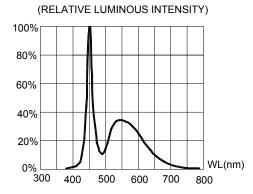


FIG.4 RELATIVE LUMINOUS INTENSITY VS.

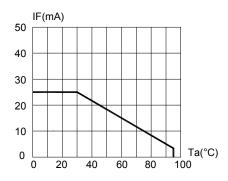


FIG.5 MAXIMUM FORWARD DC CURRENT VS AMBIENT TEMPERATURE (Tjmax=105°C)

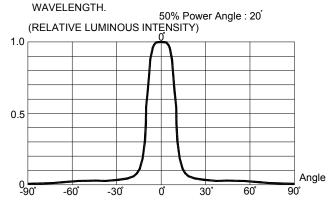


FIG.6 FAR FIELD PATTERN

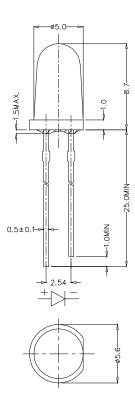


#### **MECHANICAL DIMENSIONS**

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 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 implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree LED representative or from the Product Ecology section of the Cree LED website.

### **Vision Advisory**

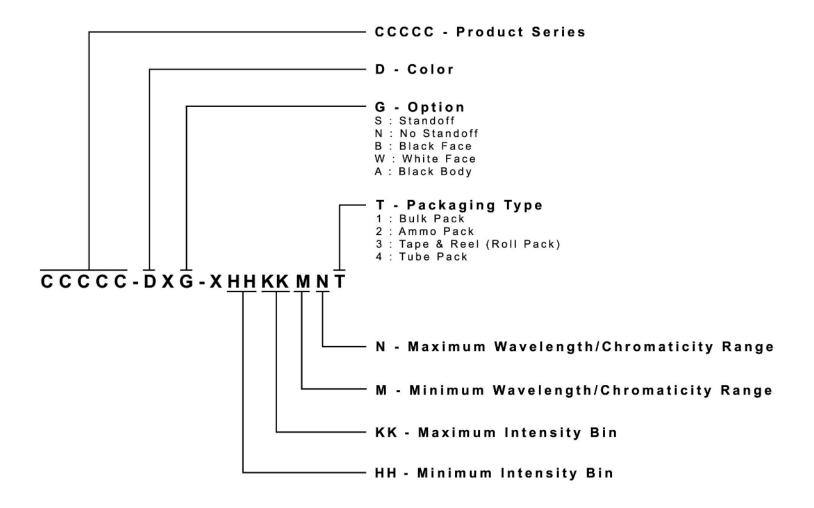
WARNING: Do not look at an exposed lamp in operation. Eye injury can result.



### **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.

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



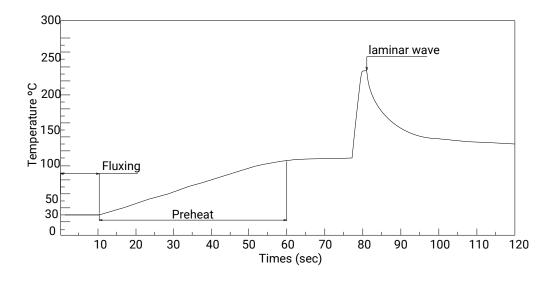


### **SOLDERING GUIDELINES**

The LED soldering specification is shown below(suitable for both leaded solder & lead-free solder):

Manual Soldering		Solder Dipping	
Soldering iron	35 W max	Preheat	110 °C max
Temperature	300 °C max	Preheat time	60 seconds max
		Solder-bath temperature	260 °C Max
Soldering time	3 seconds max	Dipping time	5 seconds max
Position	Not less than 3 mm from the base of the package.	Position	Not less than 3 mm from the base of the package.

- Manual soldering onto the PCB is not recommended because soldering time is uncontrollable.
- · The recommended wave soldering is as below:



- · Do not apply any stress to the LED package, particularly when heated.
- · Only bottom preheat is suggested & should not preheat on top in order to reduce thermal stress experienced by the LEDs.
- The LEDs must not be re used once they have been extracted from PCB.
- After soldering the LEDs, the package should be protected from mechanical shock or vibration until the LEDs have reached 40 °C or below.
- Precautions must be taken as mechanical stress on the LEDs may be caused by PCB warpage or from the clinching and cutting of the LED leads.
- · When it is necessary to clam the LEDs during soldering, it is important to ensure no mechanical stress is exerted on the LEDs.
- · Cut the LED lead at normal room temperature. Lead cutting at high temperature may cause failure of the LEDs.
- Please refer to the HB LED Lamp Soldering & Handling document for information about how to use this LED product safely.



### **PACKAGING**

- 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 types of packaging.
- Max 500 pcs per bag.

