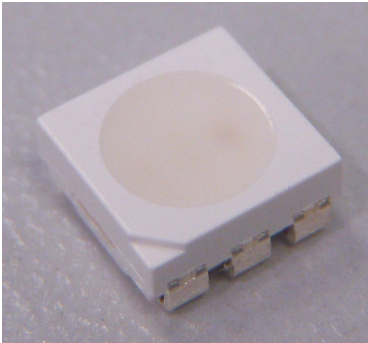


## CLV6F-FKW: PLCC6 3 in 1 SMD LED



### PRODUCT DESCRIPTION

These SMD LEDs are packaged in an industry standard PLCC6 package. These high performance tricolor SMT LEDs are designed to work in a wide range of applications. A wide viewing angle and high brightness make these LEDs suitable for indoor signage applications.

### FEATURES

- Size (mm): 5.5 x 5.5
- Dominant Wavelength
  - Red (619 - 624nm)
  - Green (520 - 540nm)
  - Blue (460 - 475nm)
- Luminous Intensity (mcd)
  - Red (805 - 1600)
  - Green (1800 - 3550)
  - Blue (450 - 900)
- Moisture Sensitivity Level: 3
- 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 <sup>Note 1</sup>	$I_F$	50	35	35	mA
Peak Forward Current <sup>Note 2</sup>	$I_{FP}$	200	100	100	mA
Reverse Voltage	$V_R$	5	5	5	V
Power Dissipation	$P_D$	130	126	140	mW
Operation Temperature	$T_{opr}$	-40 ~ +85			$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-40 ~ +100			$^\circ\text{C}$
Junction Temperature	$T_J$	110	110	110	$^\circ\text{C}$
Junction/ambient	$R_{THJA}$	280	350	320	$^\circ\text{C}/\text{W}$
Junction/solder point	$R_{THJS}$	150	200	160	$^\circ\text{C}/\text{W}$

**Note:**

1. Single-color light
2. Pulse width  $\leq 0.1$  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	$I_F = 20\text{mA}$	$\lambda_{DOM}$	619~624	520~540	460~475	nm
Spectral bandwidth at 50% $I_{REL}$ max	$I_F = 20\text{mA}$	$\Delta \lambda$	24	38	28	nm
Forward Voltage	$I_F = 20\text{mA}$	$V_{F(avg)}$	2.1	2.8	2.8	V
		$V_{F(max)}$	2.6	3.6	4.0	V
Luminous Intensity	$I_F = 20\text{mA}$	$I_{V(min)}$	805	1800	450	mcd
		$I_{V(avg)}$	1120	2500	620	mcd
Reverse Current (max)	$V_R = 5\text{V}$	$I_R$	10	10	10	$\mu\text{A}$

\* Continuous reverse voltage can cause LED damage.

## INTENSITY BIN LIMIT

Red (20 mA)			Green (20 mA)			Blue (20 mA)		
Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)
qr	805	1010	R	1800	2240	J	450	560
N	900	1120	z1a	2020	2520	km	505	635
st	1010	1260	S	2240	2800	K	560	710
P	1120	1400	1b1c	2520	3175	np	635	805
vw	1260	1600	T	2800	3550	M	710	900

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

## COLOR BIN LIMIT

Red (20 mA)			Green (20 mA)			Blue (20 mA)		
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			
			Ga	535	540			

\* Tolerance of measurement of dominant wavelength is  $\pm 1$  nm.

**ORDER CODE TABLE**

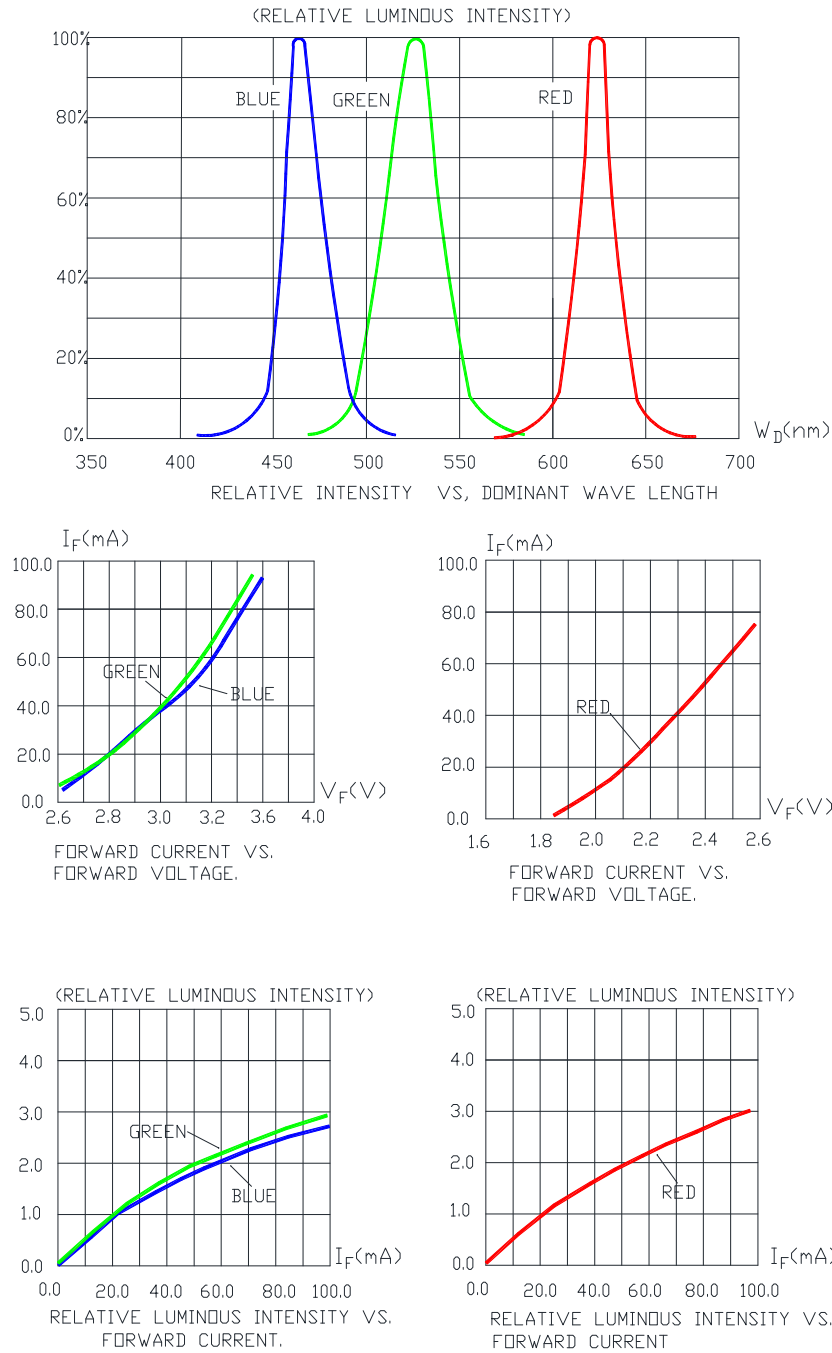
Kit Number	Color	Luminous Intensity (mcd)		Dominant Wavelength (nm)				Package
		Min.	Max.	Color Bin	Min.(nm)	Color Bin	Max.(nm)	
CLV6F-FKW-CqrvwRTJMBB7a353	Red	Any 1 Intensity bin from qr(805) - vw(1600)		RB	619	RB	624	Reel
	Green	Any 1 Intensity bin from R(1800) - T(3550)		Any 1 hue bin from G9(530)-Ga(540)				Reel
	Blue	Any 1 Intensity bin from J(450) - M(900)		Any 1 hue bin from B3(460)-B5(475)				Reel
CLV6F-FKW-Cqr1R1J1BB7D3C3	Red	Any 1 Intensity bin from qr(805) - vw(1600)		RB	619	RB	624	Reel
	Green	Any 1 Intensity bin from R(1800) - T(3550)		Any 1 hue bin from G9(530)-Ga(540)				Reel
	Blue	Any 1 Intensity bin from J(450) - M(900)		Any 1 hue bin from B3(460)-B5(475)				Reel

**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.

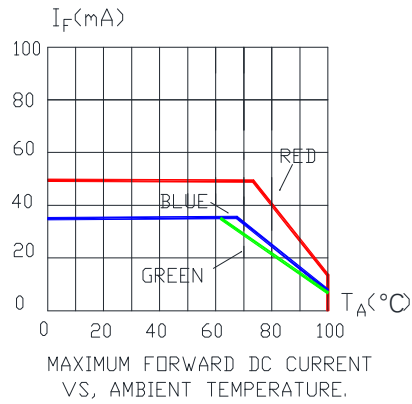
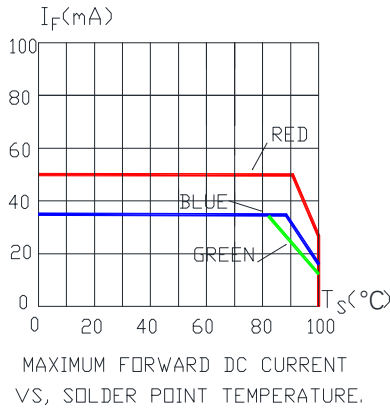
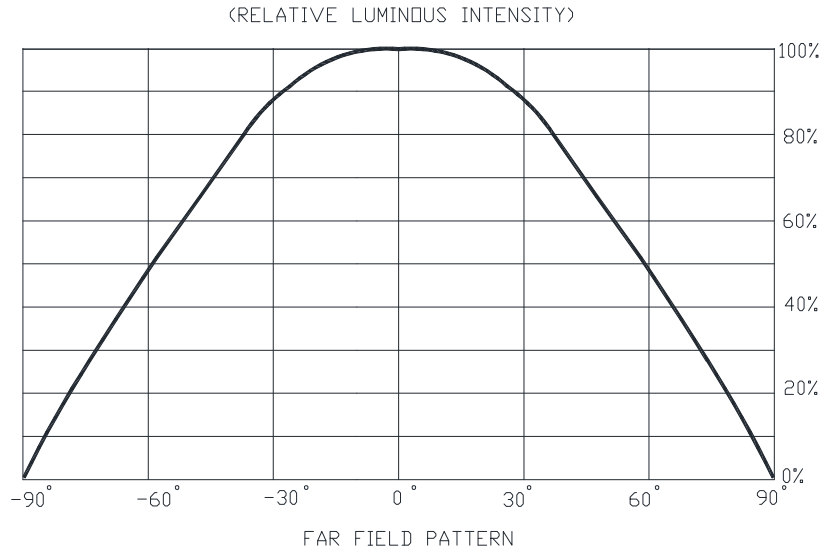
GRAPHS

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.



GRAPHS

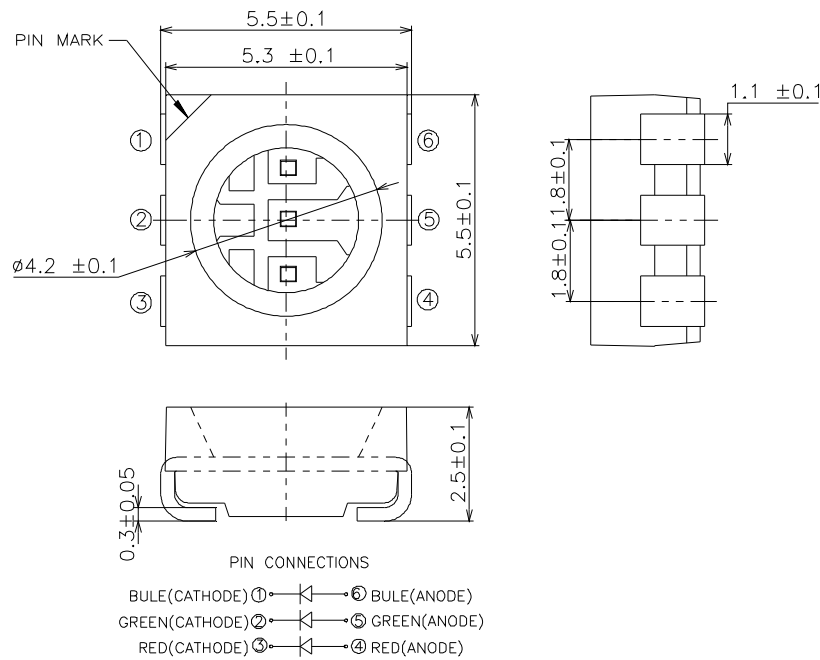
The data below are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.



## MECHANICAL DIMENSIONS

All dimensions are in mm.

Tolerance of measurement of the dimension is  $\pm 0.1$ .



## 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.

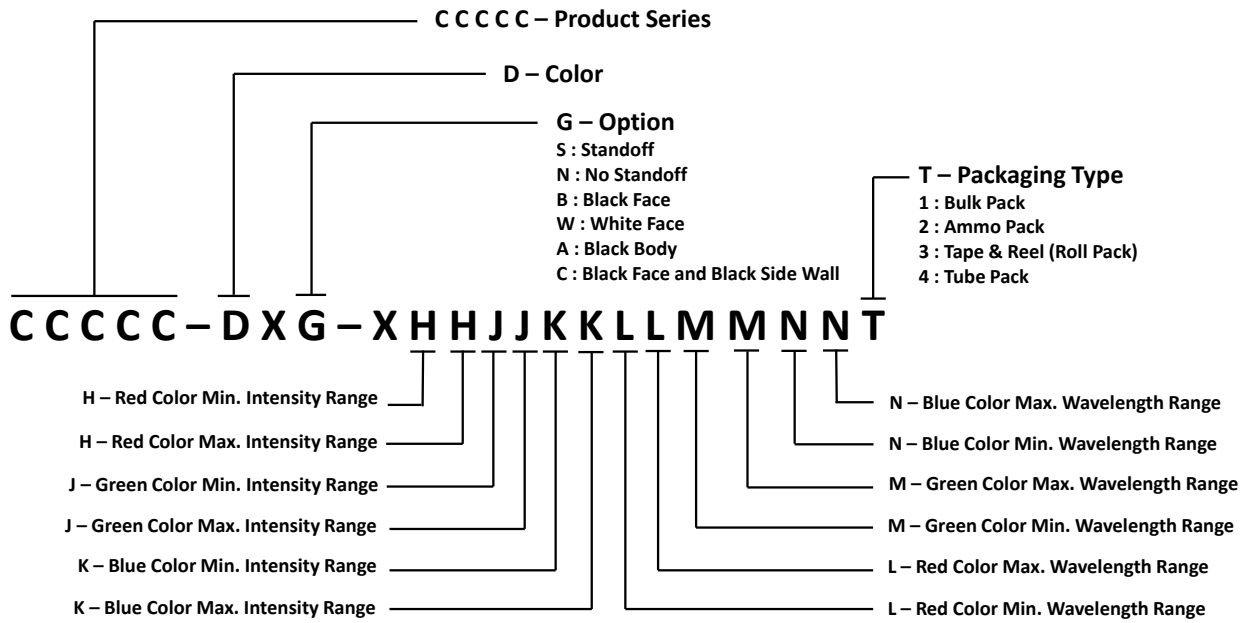
### Vision Advisory

**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.

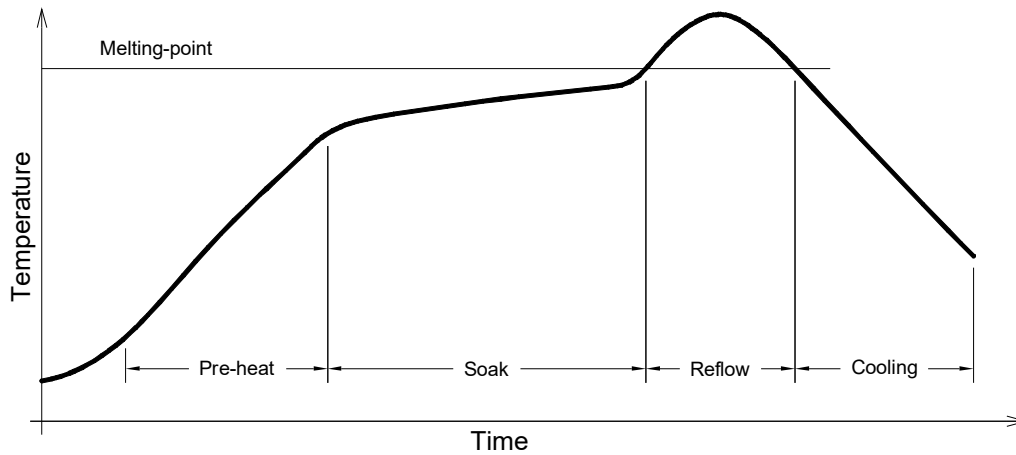
Cree LEDs are sold by order codes in combinations of bins called kits. Order codes are configured in the following manner:





## REFLOW SOLDERING

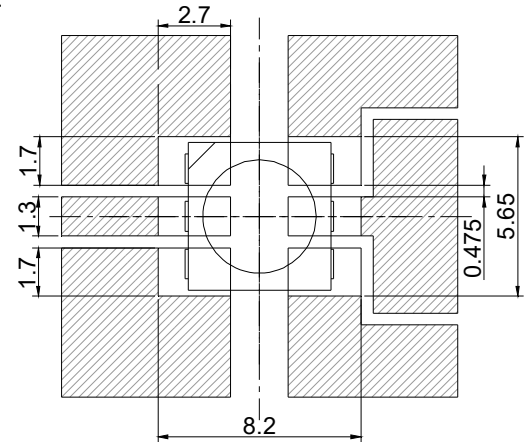
- The CLV6F-FKW is rated as a MSL L3 product.
- The recommended floor life out of bag is 168hrs.
- The best practices suggestion is to bake 24-hour/80°C before use.
- The temperature profile is as below.



### Use only with CLV6F-FKW

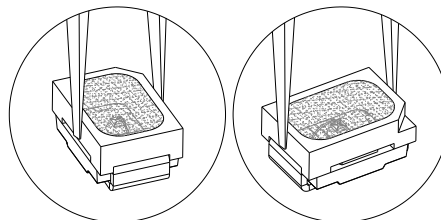
Solder
Average ramp-up rate = 4°C/s max
Preheat temperature = 150°C ~200°C
Preheat time = 120s max
Ramp-down rate = 6°C/s max
Peak temperature = 250°C max
Time within 5°C of actual Peak Temperature = 10s max
Duration above 217°C is 60s max

### Soldering pad:



## NOTES

- The packaging sizes of these SMD products are very small and the resin is still soft after solidification. Users are required to handle with care. Never touch the resin surface of SMD products.
- To avoid damaging the product's surface and interior device, it is recommended to choose a special nozzle to pick up the SMD products during the process of SMT production. If handling is necessary, take special care when picking up these products. The following method is necessary:



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 3000 pcs per reel.

