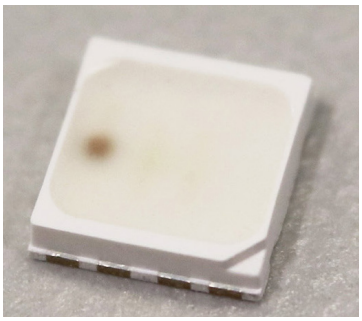
CLQ6A-FKW: PLCC8 3 in 1 SMD LED



PRODUCT DESCRIPTION

These SMD LEDs are packaged in an industry standard PLCC8 package. These high performance 3 color SMT LEDs are designed to work in a wide range of applications. A wide viewing angle and high brightness make these LEDs suitable for signage applications.

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FEATURES

- Size (mm): 5.0 x 5.2 x 1.1
- Dominant Wavelength
  Red (619 - 624nm)
  Green (520 - 535nm)
  Blue (465 - 475nm)
- Luminous Intensity (mcd)
  Red (3000 - 7030)
  Green (7030 - 16800)
  Blue (1824 - 4180)
- Moisture Sensitivity Level: 5a
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Architecture Lighting
- Decorative Lighting
- Amusement

Cree LED / 4001 E. Hwy. 54, Suite 2000 / Durham, NC 27709 USA / +1.919.313.5330 / www.cree-led.com

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Items	Symbol	Absolute Maximum Rating			Unit
		R	G	B	
Forward Current Note 1	I_F	200	180	180	mA
Peak Forward Current Note 2	I_{FP}	500	400	400	mA
Reverse Voltage	V_R	5	5	5	V
Power Dissipation	P_D	520	684	684	mW
Operation Temperature	T_{opr}	-40 ~ +85			°C
Storage Temperature	T_{stg}	-40 ~ +100			°C
Junction Temperature	T_J	110	110	110	°C
Junction/ambient 1 chip on	R_{THJA}	60	110	70	°C/W
Junction/solder point 1 chip on	R_{THJS}	20	70	40	°C/W
Electrostatic Discharge Classification(MIL-STD-883E)	ESD	1000V			

Note:

1. Single-color light
2. Pulse width ≤0.1 msec, duty ≤1/10.

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

Characteristics	Condition	Symbol	Values			Unit
			R	G	B	
Dominant Wavelength	I_F = 100 mA(R) I_F = 100 mA(G) I_F = 100 mA(B)	λ_{DOM}	619~624	520~535	465~475	nm
Spectral bandwidth at 50% I_{REL} max	I_F = 100 mA(R) I_F = 100 mA(G) I_F = 100 mA(B)	$\Delta\lambda$	24	38	28	nm
Forward Voltage	I_F = 100 mA(R) I_F = 100 mA(G) I_F = 100 mA(B)	$V_{F(avg)}$	2.1	3.0	3.1	V
		$V_{F(max)}$	2.6	3.8	3.8	V
Luminous Intensity	I_F = 100 mA(R) I_F = 100 mA(G) I_F = 100 mA(B)	$I_{V(min)}$	3000	7030	1824	mcd
		$I_{V(avg)}$	4500	12000	3000	mcd
Luminous Flux(Reference)	I_F = 100 mA(R) I_F = 100 mA(G) I_F = 100 mA(B)	$\Phi_{V(avg)}$	14	30	8.2	lm
Reverse Current (max)	V_R = 5 V	I_R	100	100	100	μA

* Continuous reverse voltage can cause LED damage.

INTENSITY BIN LIMIT

Red (100 mA)			Green (100 mA)			Blue (100 mA)		
Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)	Bin Code	Min.(mcd)	Max.(mcd)
1L	3000	4180	1R	7030	10100	1H	1824	2560
1M	3590	5020	1S	8200	12000	1J	2130	3000
1N	4180	5860	1T	10100	14400	1K	2560	3590
1P	5020	7030	1U	12000	16800	1L	3000	4180

* Tolerance of measurement of luminous intensity is ±10%.

COLOR BIN LIMIT

Red (100 mA)			Green (100 mA)			Blue (100 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	B4	465	470
			G23	522.5	527.5	B45	467.5	472.5
			G8	525	530	B5	470	475
			G45	527.5	532.5			
			G9	530	535			

* Tolerance of measurement of dominant wavelength is ±1 nm.

ORDER CODE TABLE

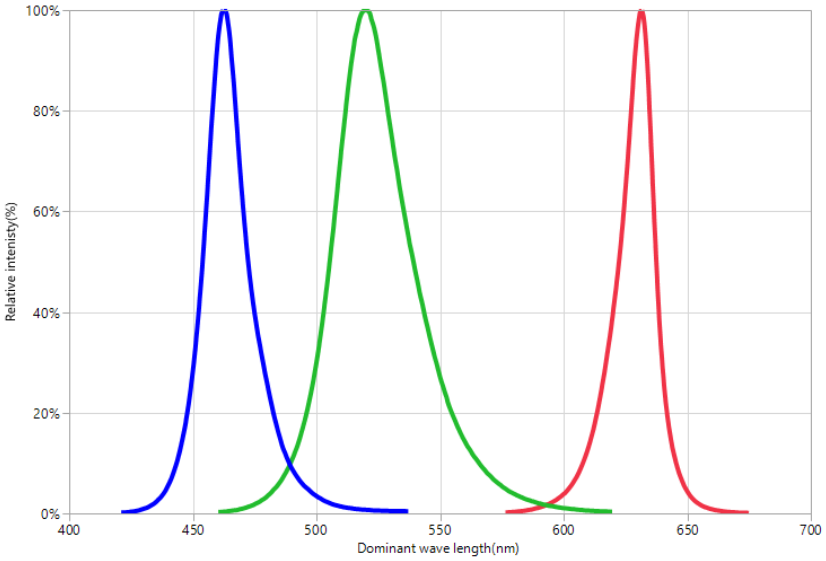
Kit Number	Color	Luminous Intensity (mcd)		Dominant Wavelength (nm)				Package
		Min.	Max.	Color Bin	Min.(nm)	Color Bin	Max. (nm)	
CLQ6A-FKW-C1L1P1R1U1H1LBB79453	Red	3000	7030	RB	619	RB	624	Reel
	Green	7030	16800	G7	520	G9	535	Reel
	Blue	1824	4180	B4	465	B5	475	Reel
CLQ6A-FKW-C1L11R11H1BB7C4S3	Red	Any 1 Intensity bin from 1L(3000) - 1P(7030)		RB	619	RB	624	Reel
	Green	Any 1 Intensity bin from 1R(7030) - 1U(16800)		Any 1 hue bin from G7(520)-G9(535)				Reel
	Blue	Any 1 Intensity bin from 1H(1824) - 1L(4180)		Any 1 hue bin from B4(465)-B5(475)				Reel

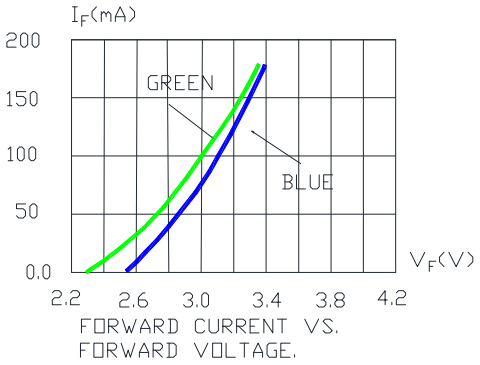
Notes:

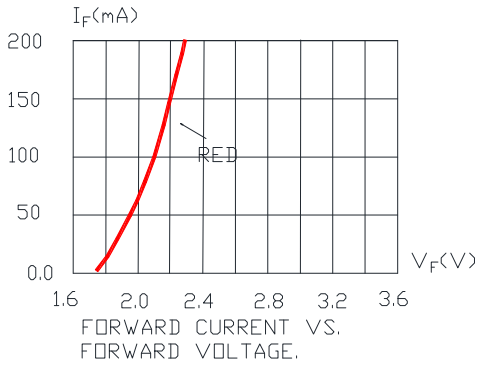
- The above kit numbers represent order codes that include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each bulk. Single intensity-bin code and single color-bin codes will not be orderable.
- Please refer to the HB LED Lamp Reliability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

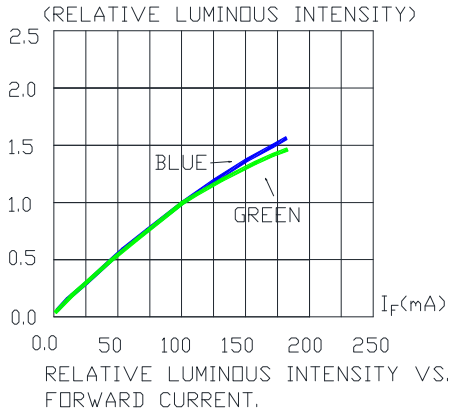
GRAPHS

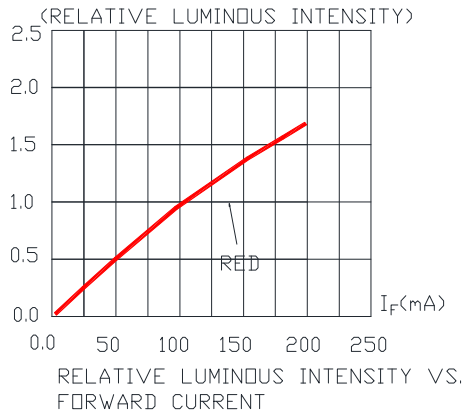
The data below are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.











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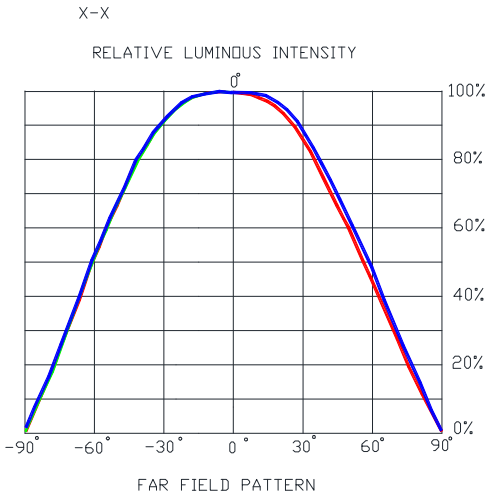
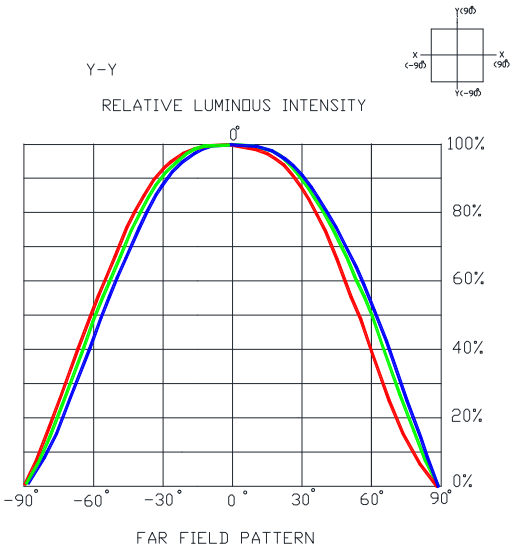
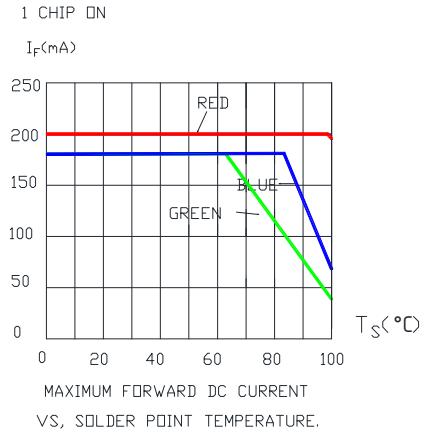
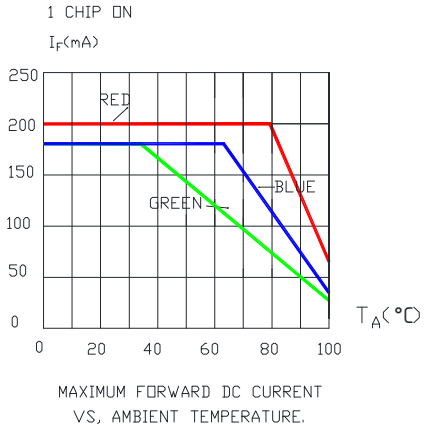




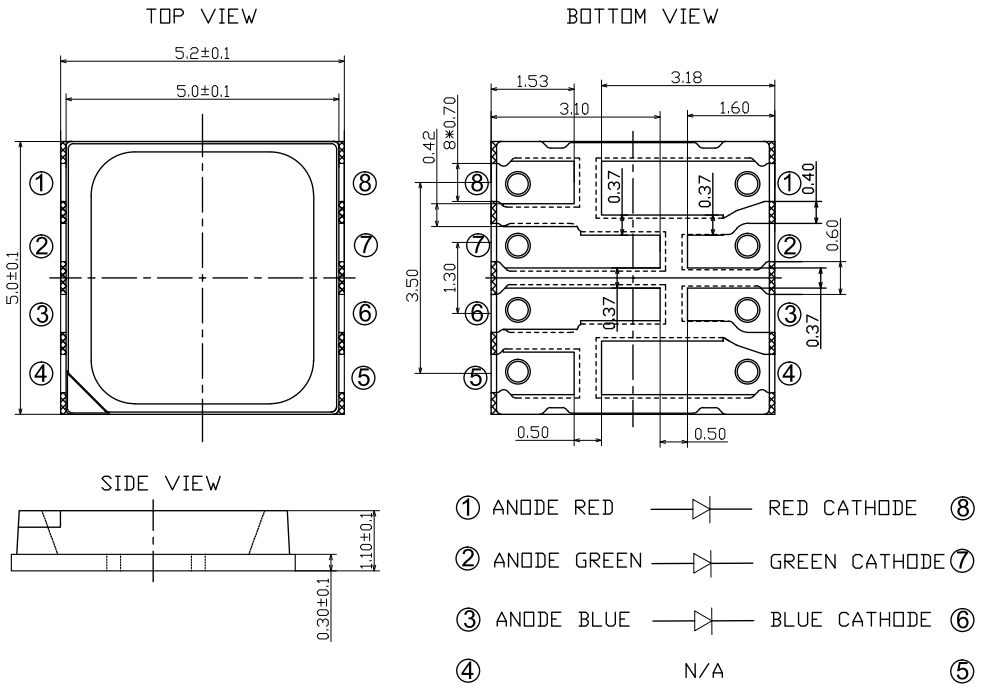




MECHANICAL DIMENSIONS

All dimensions are in mm.

Tolerance of measurement of the dimension is ±0.1.



NOTES

RoHS Compliance

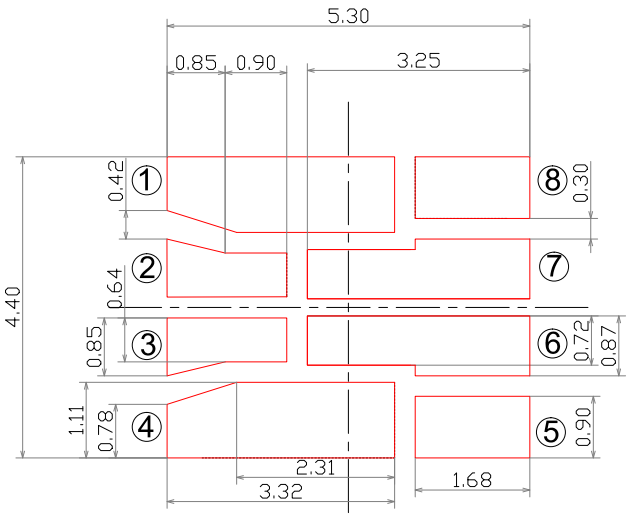
The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS 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.

Solder Pad recommend:

All dimensions are in mm.



• Tolerance of measurement of the dimension is ±0.1.

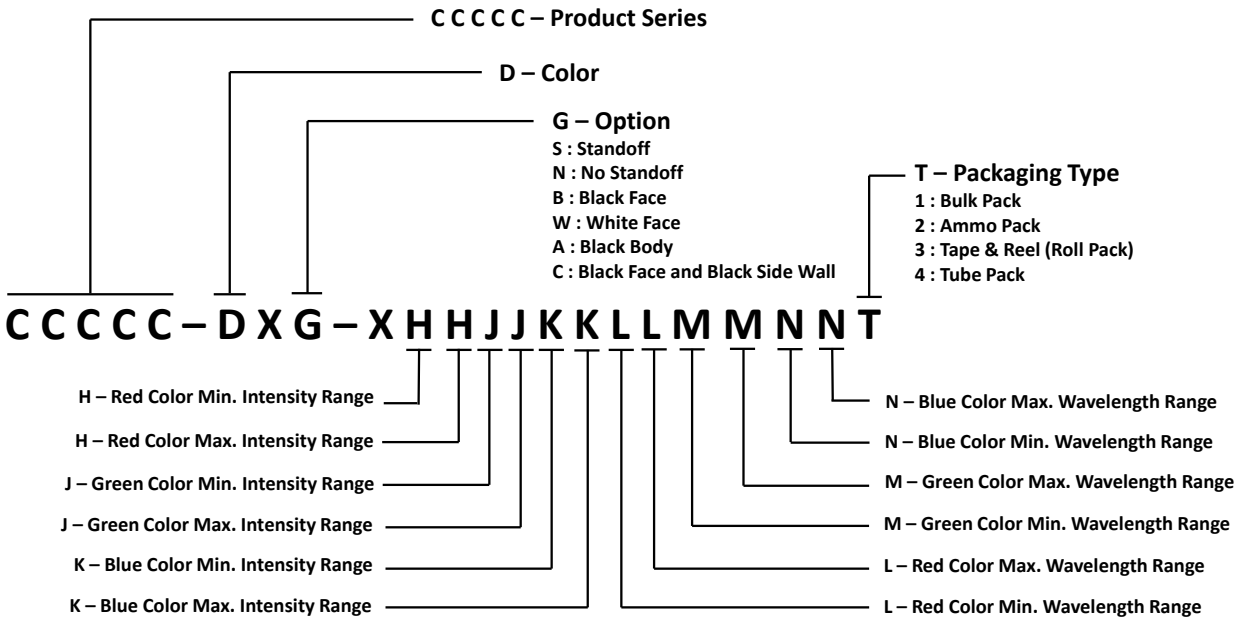
Assembly notes:

- Modification of an SMD LED is not recommended after soldering. If modification cannot be avoided, the modifications must be pre-qualified to avoid damaging the SMD LED.
- Reflow soldering should not be done more than two times(according to model's MSL requirements).
- No stress should be exerted on the package during soldering.
- The package may be affected by environments & assemblies which contain corrosive substance. Please avoid conditions which may cause the LEDs to corrode tarnish or discolor.
- The PCB should not be wrapped after soldering to allow natural cooling down to 40°.

KIT NUMBER SYSTEM

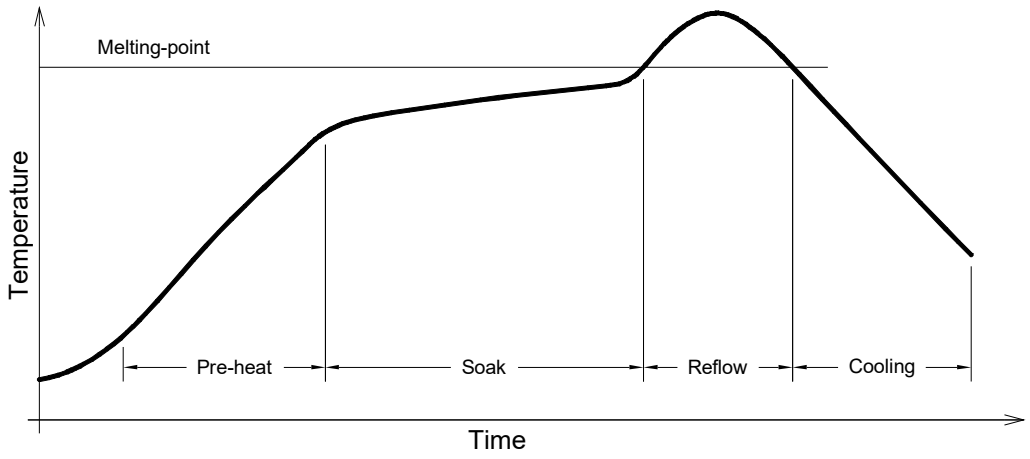
Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness.

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



REFLOW SOLDERING

- The CLQ6A-FKW is rated as a MSL 5a product.
- The recommended floor life out of bag is 24hrs.
- The temperature profile is as below.

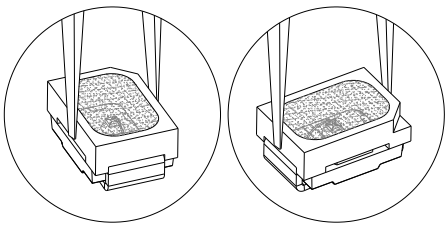


Use only with CLQ6A-FKW

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

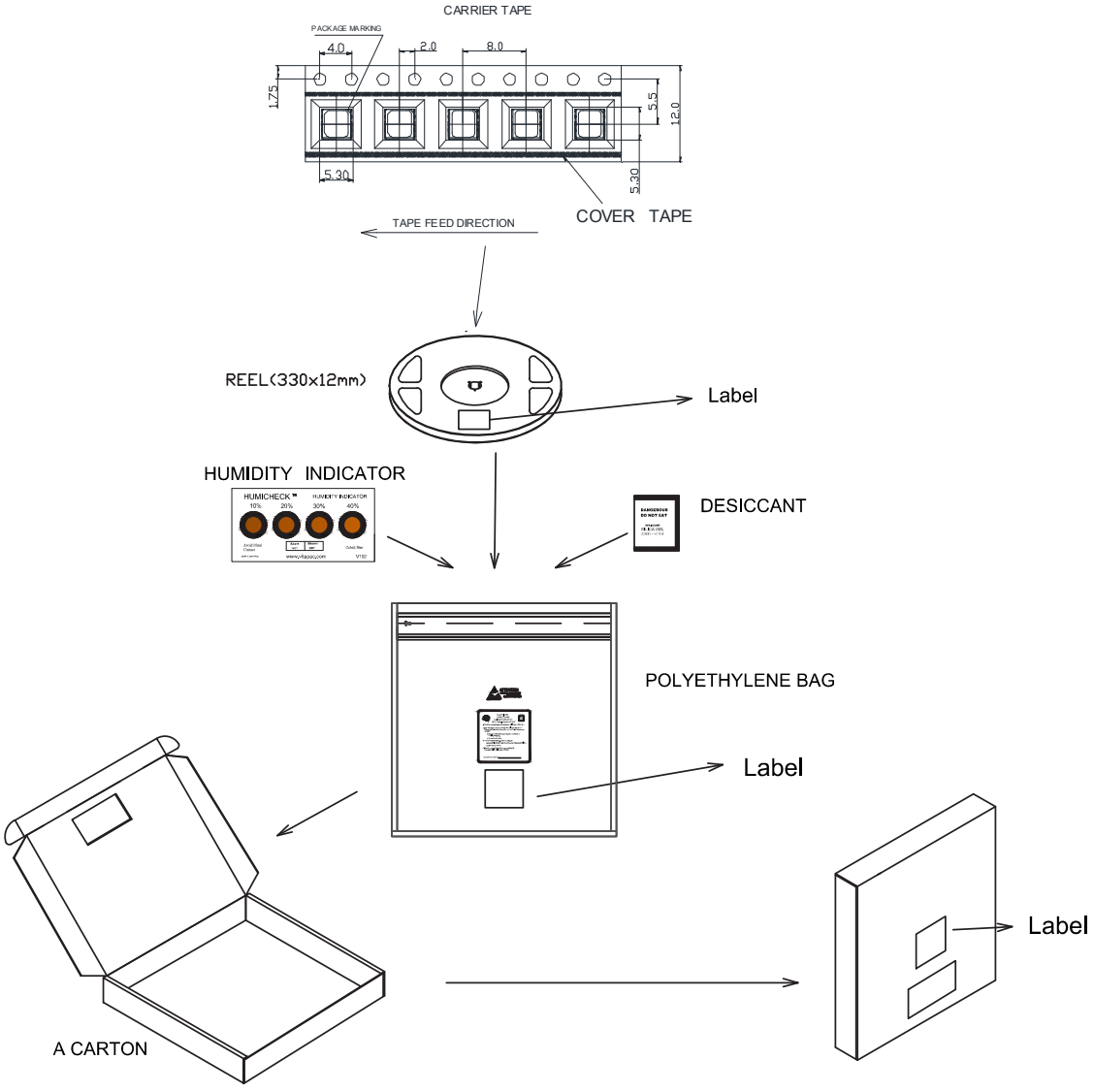
NOTES

- 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 4000 pcs per reel.



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Cree LED:

CLQ6A-FKW-C1L11R11H1BB7C4S3 CLQ6A-FKW-C1L1P1R1U1H1LBB79453