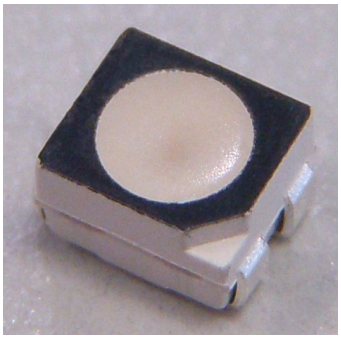
CLD-CT1238.008

Cree® PLCC4 3 in 1 SMD LED CLV1L-FKB



PRODUCT DESCRIPTION

Cree PLCC full-color LEDs offer high-intensity light output and a wide viewing angle in an industry-standard package. Designed to work in a wide array of environmental conditions, Cree PLCC full-color LEDs are suited for indoor video screen, decorative lighting and amusement applications.

FEATURES

- Size (mm):3.2 x 2.8
- Dominant Wavelength:
  Red (619 - 624nm)
  Green (520 - 535nm)
  Blue (460 - 475nm)
- Luminous Intensity (mcd)
  Red (450 - 1010)
  Green (900 - 1800)
  Blue (180 - 403)
- Moisture Sensitivity Level: 5a
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Full-Color Video Screen
- Decorative lighting
- Amusement

Cree, Inc.
4600 Silicon Drive
Durham, NC 27703
USA Tel: +1.919.313.5300

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Items	Symbol	Absolute Maximum Rating			Unit
		R	G	B	
Forward Current Note 1	I_F	35	20	20	mA
Peak Forward Current Note 2	I_{FP}	200	100	100	mA
Reverse Voltage	V_R	5	5	5	V
Power Dissipation	P_D	91	80	80	mW
Operation Temperature	T_{opr}	-40 ~ +100			°C
Storage Temperature	T_{stg}	-40 ~ +100			°C
Junction Temperature	T_J	110	110	110	°C
Junction/ambient 1 chip on	R_{THJA}	336	507	474	°C/W
Junction/solder point 1 chip on	R_{THJS}	138	322	298	°C/W

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 = 20 mA (R) I_F = 15 mA (G) I_F = 15 mA (B)	λ_{DOM}	619~624	520~535	460~475	nm
Spectral bandwidth at 50% I_{REL} max	I_F = 20 mA (R) I_F = 15 mA (G) I_F = 15 mA (B)	Δ λ	24	38	28	nm
Forward Voltage	I_F = 20 mA (R) I_F = 15 mA (G) I_F = 15 mA (B)	$V_{F(avg)}$	2.0	3.1	3.1	V
		$V_{F(max)}$	2.6	4.0	4.0	V
Luminous Intensity	I_F = 20 mA (R) I_F = 15 mA (G) I_F = 15 mA (B)	$I_{V(min)}$	450	900	180	mcd
		$I_{V(avg)}$	680	1250	235	mcd
Reverse Current (max)	V_R = 5 V	I_R	10	10	10	μA

Note: Continuous reverse voltage can cause LED damage.

INTENSITY BIN LIMIT (RED I_F = 20 mA, GREEN I_F = 15 mA, BLUE I_F = 15 mA)

Red

Bin Code	Min.(mcd)	Max.(mcd)
J	450	560
km	505	635
K	560	710
np	635	805
M	710	900
qr	805	1010

Green

Bin Code	Min.(mcd)	Max.(mcd)
N	900	1120
st	1010	1260
P	1120	1400
vw	1260	1600
Q	1400	1800

Blue

Bin Code	Min.(mcd)	Max.(mcd)
E	180	224
bc	202	252
F	224	280
de	252	318
G	280	355
fg	318	403

Tolerance of measurement of luminous intensity is ±10%.

COLOR BIN LIMIT (RED I_F = 20 mA, GREEN I_F = 15 mA, BLUE I_F = 15 mA)

Red

Bin Code	Min.(nm)	Max.(nm)
RB	619	624

Green

Bin Code	Min.(nm)	Max.(nm)
G7	520	525
G23	522.5	527.5
G8	525	530
G45	527.5	532.5
G9	530	535

Blue

Bin Code	Min.(nm)	Max.(nm)
B3	460	465
B23	462.5	467.5
B4	465	470
B45	467.5	472.5
B5	470	475

Tolerance of measurement of dominant wavelength is ±1 nm.

ORDER CODE TABLE*

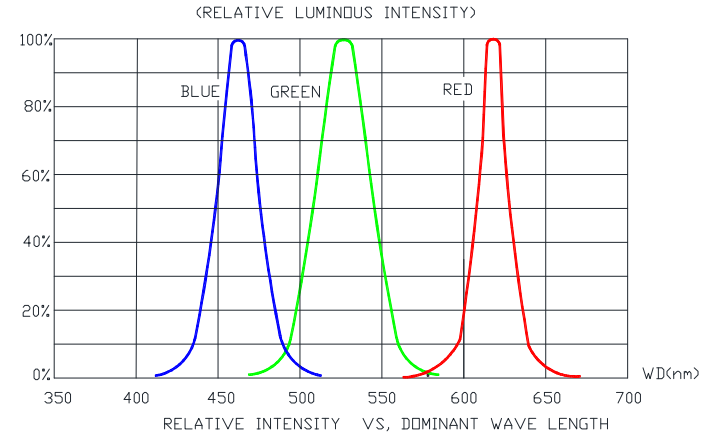
Kit Number	Color	Luminous Intensity (mcd)		Dominant Wavelength (nm)				Package
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)	
CLV1L-FKB-CJqrNQEfgBB79353	Red	450	1010	RB	619	RB	624	Reel
	Green	900	1800	G7	520	G9	535	Reel
	Blue	180	403	B3	460	B5	475	Reel
CLV1L-FKB-CJ1N1E1BB7B3B3	Red	Any 1 intensity bin from J(450)-qr(1010)		RB	619	RB	624	Reel
	Green	Any 1 intensity bin from N(900)-Q(1800)		Any 1 hue bin from G7(520)-G9(535)				Reel
	Blue	Any 1 intensity bin from E(180)-fg(403)		Any 1 hue bin from B3(460)-B5(475)				Reel

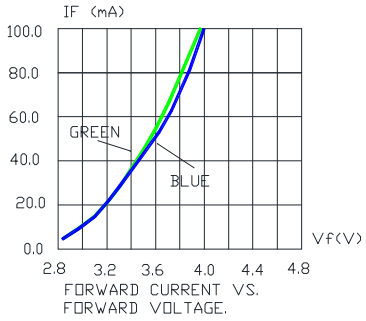
Notes:
1. The above kit numbers represent the order codes which include multiple intensity-bin and color-bin codes. Only one intensity-bin code and one color-bin code will be shipped on each reel. Single intensity-bin code and single color-bin code will be orderable in certain quantities. For example, any 1 intensity bin from N - P means only 1 intensity bin (N or st or P or vw or Q) will be shipped by Cree. For example, any 1 color bin from G7 - G9 means only 1 color bin (G7 or G23 or G8 or G45 or G9) will be shipped by Cree.
2. Please refer to the "Cree LED Lamp Reliability Test Standards" document [#1] for reliability test conditions.
3. Please refer to the "Cree LED Lamp Soldering & Handling" document[#2] for information about how to use this LED product safely.

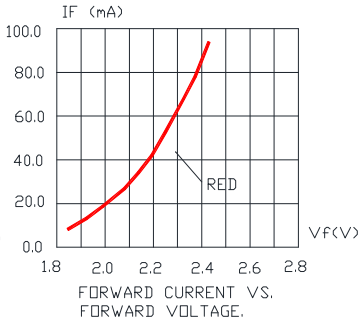
#1: Refer to http://www.cree.com/led-components/media/documents/LED_Lamp_Reliability_Test_Standard.pdf

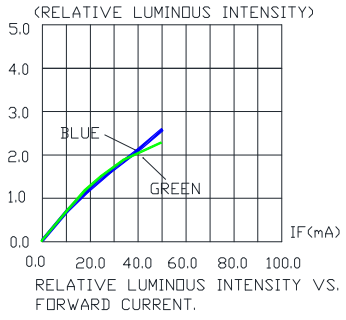
#2: Refer to http://www.cree.com/led-components/media/documents/sh-HB.pdf

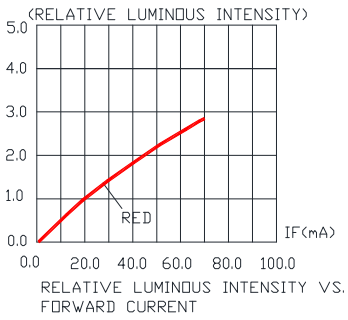
GRAPHS





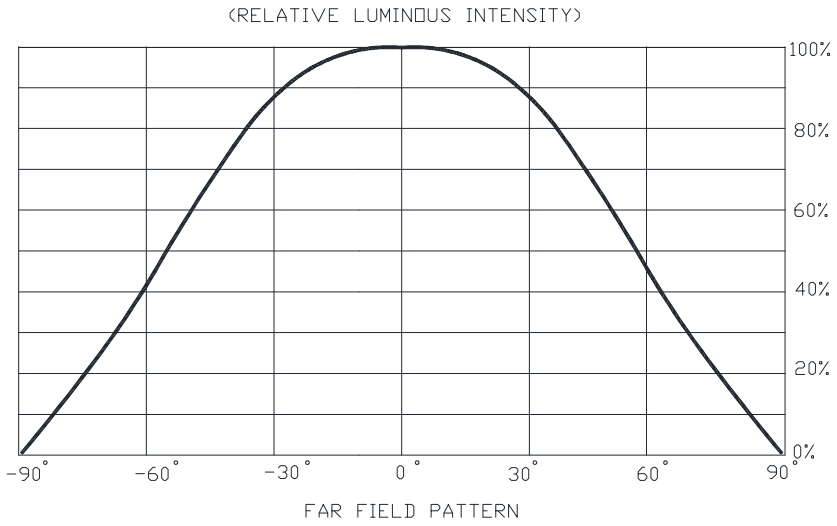




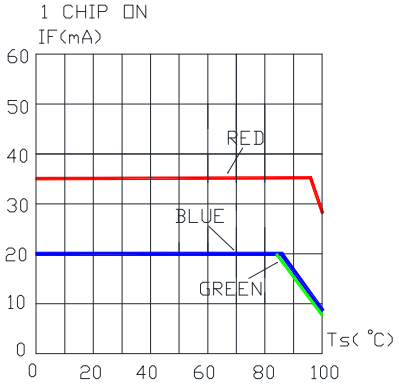


The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

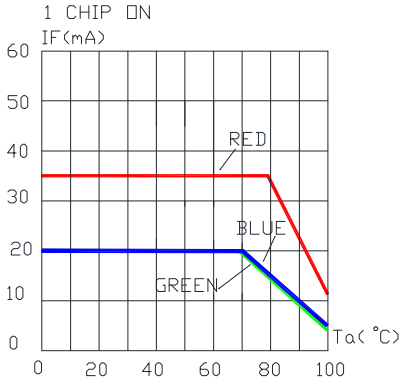
GRAPHS



FAR FIELD PATTERN



MAXIMUM FORWARD DC CURRENT
VS, SOLDER POINT TEMPERATURE.

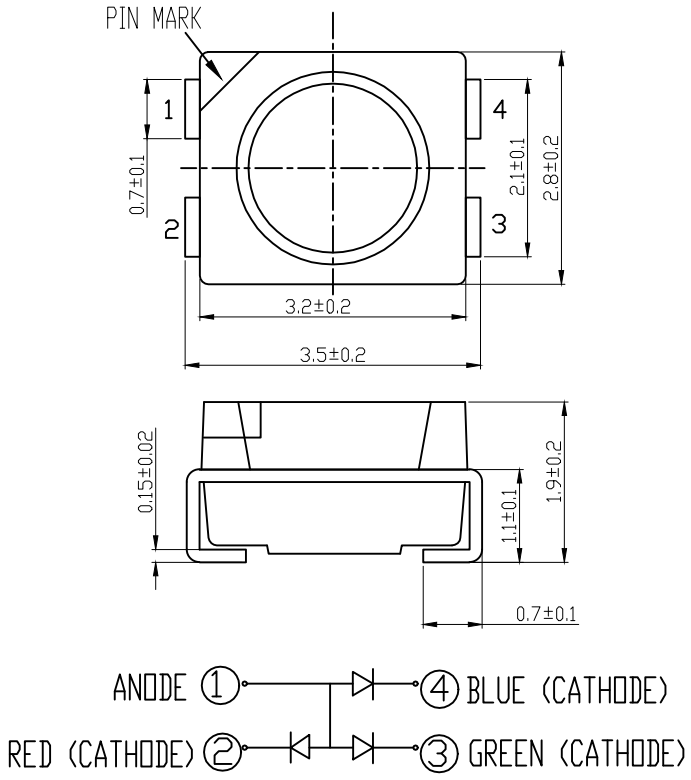


MAXIMUM FORWARD DC CURRENT
VS, AMBIENT TEMPERATURE.

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 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 by EU member states on January 2, 2013 and amended on March 31, 2015 by EU Directive 2015/863/EU.

RoHS Declarations for this product can be obtained from your Cree representative or from the Product Ecology section of the Cree website.

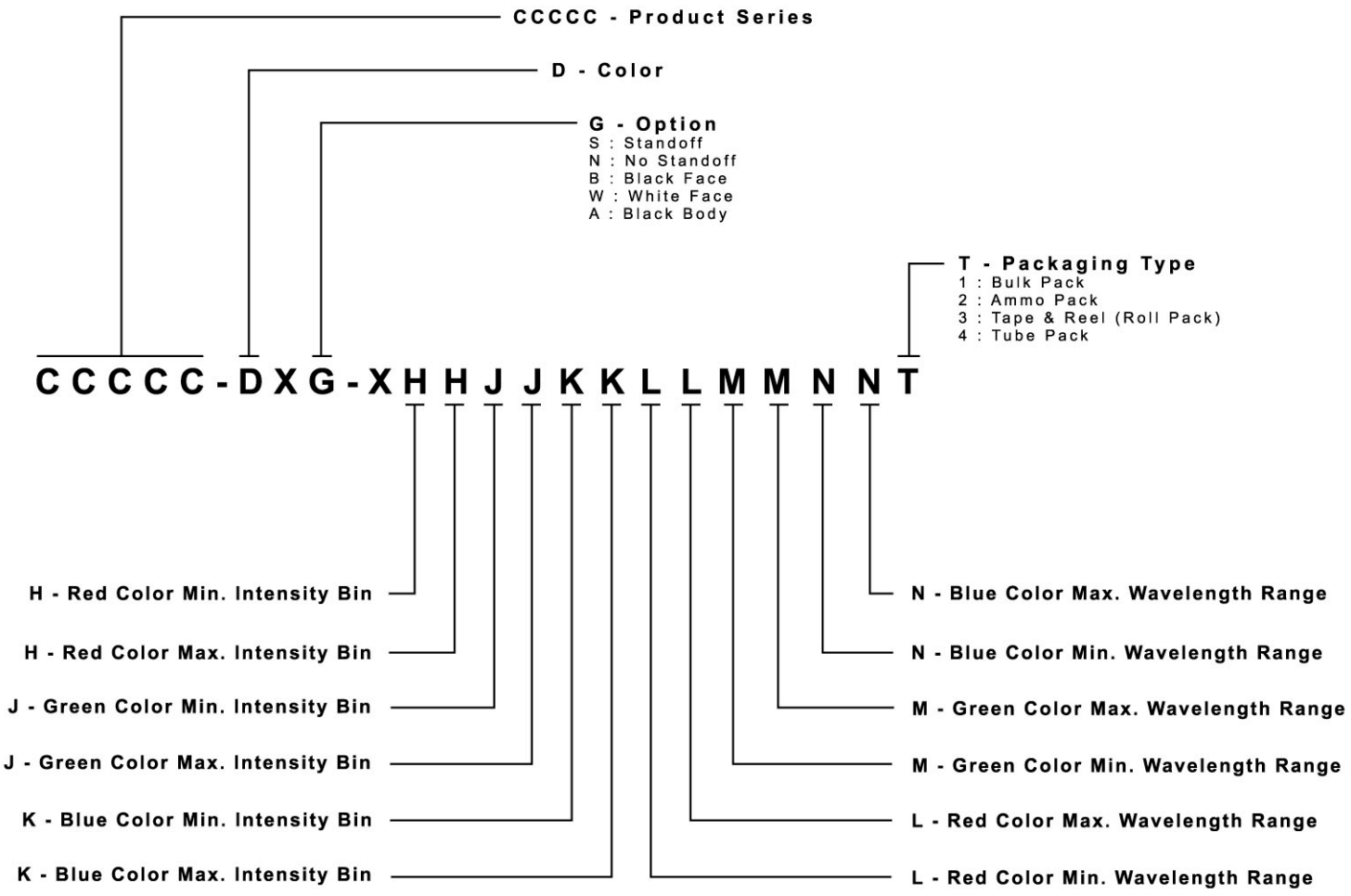
Vision Advisory Claim

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

KIT NUMBER SYSTEM

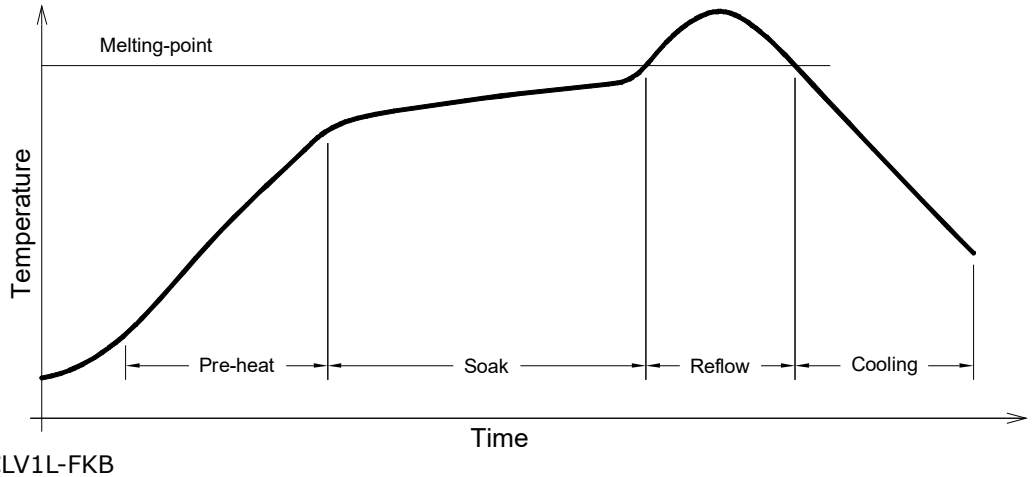
Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness. Sorted LEDs are packaged for shipping in various convenient options. Please refer to the "Cree LED Lamp Packaging Standard" document for more information about shipping and packaging options.

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



REFLOW SOLDERING

- The CLV1L-FKB is rated as a MSL 5a product.
- The recommended floor life out of bag is 24hrs.
- The temperature profile is as below.



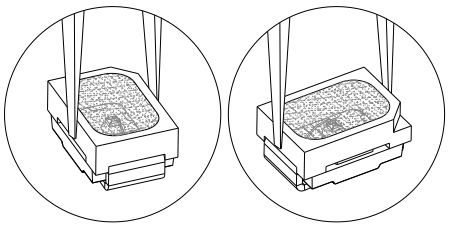
Use only with CLV1L-FKB

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

Refer to "http://www.cree.com/led-components/media/documents/sh-HB.pdf" for soldering & handling details.

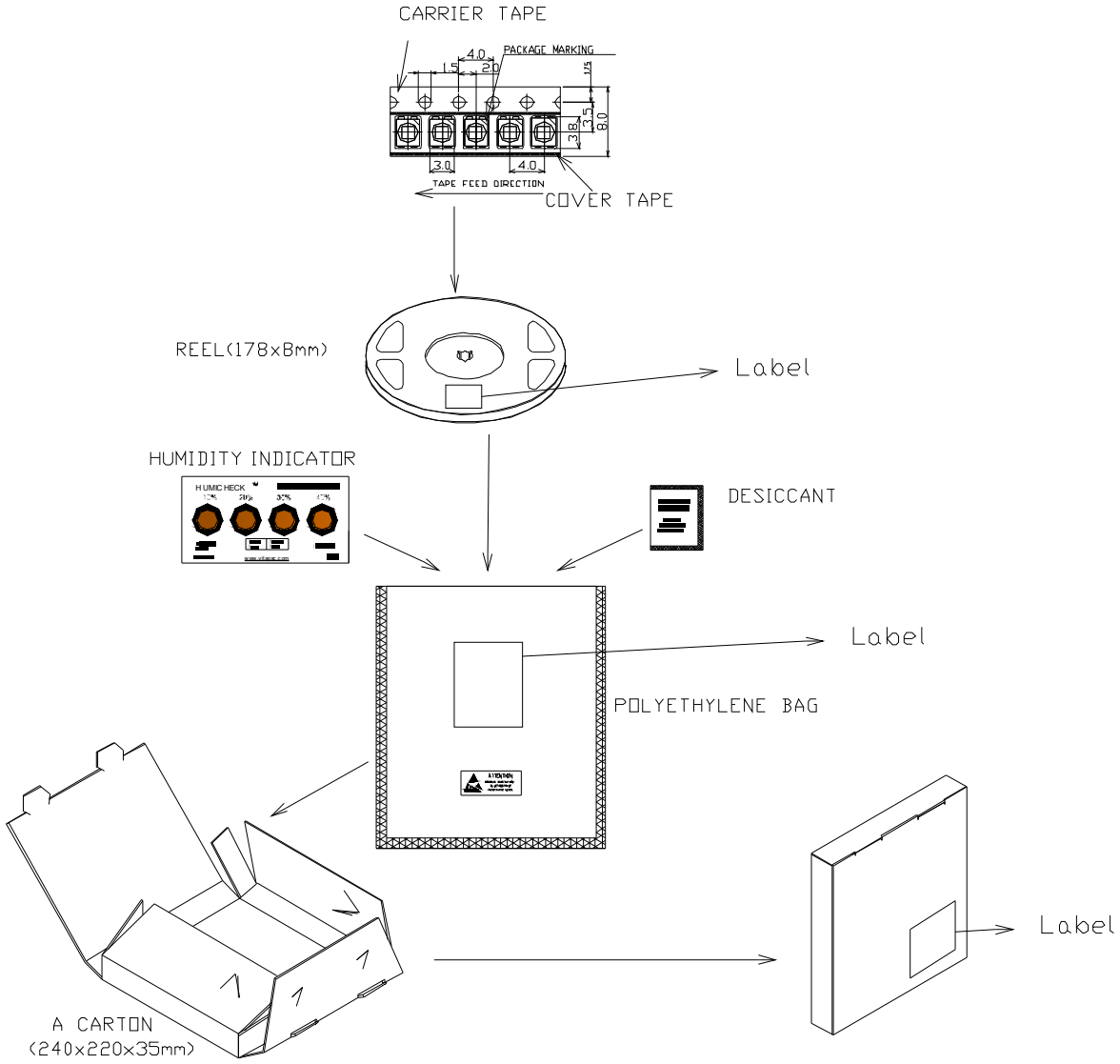
NOTES

- 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 CLV1L-FKB is rated as a MSL 5a product.
- 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 2000 pcs per reel.



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Click to view similar products for Standard LEDs - SMD ***category:***

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Other Similar products are found below :

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