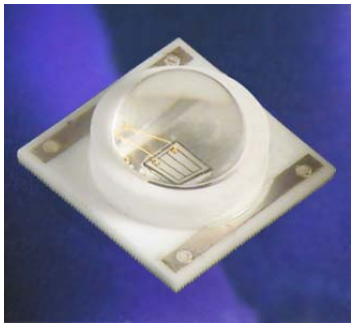
KTDG-8080/2 SERIES



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- ●Dimensions : 8.0mm X 8.0mm X 4.2mm.
- ●Full portfolio of color and white LEDs
- ●Electrically isolated thermal path.
- ●Super high flux output and high luminance.
- ●Designed for high current operation.
- ●Low thermal resistance.
- ●Compatible with IR-reflow processes.
- ●ESD protection .
- ●Package : 500pcs / reel.
- ●RoHS compliant.

Material :

Package : Ceramics

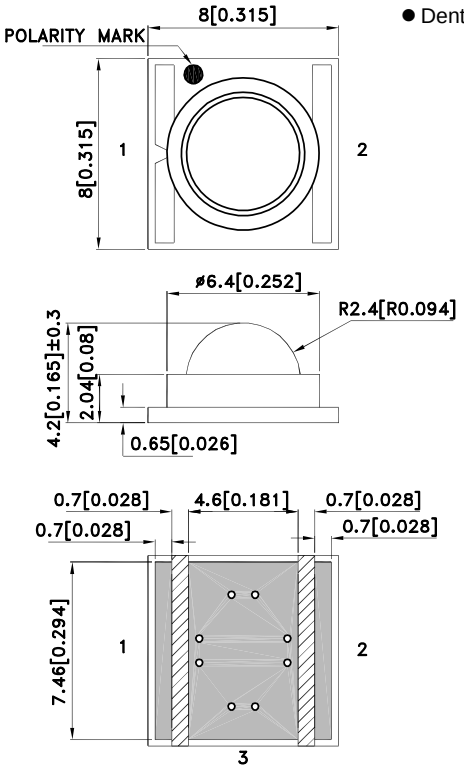
Encapsulation : Silicone resin with glass lens

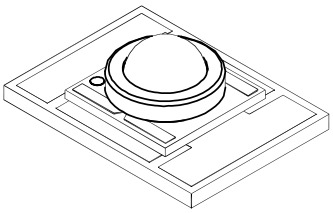
Electrodes : Silver plating

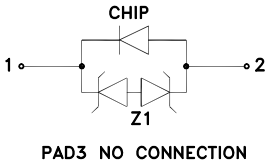
Applications

- ● Outdoor lighting: parking area, roadway, pedestrian.
- ● Portable and personal lighting.
- ● Indoor lighting: downlights, accent lights.
- ● Retail display lighting: display case, refrigerated display.
- ● Architectural and landscape lighting.
- ● Emergency-vehicle lighting.
- ● Transportation.
- ● Dental and medical.

Package Dimensions







Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25[±0.01]unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

Selection Guide

Part No.	Color	Dominant Wavelength Range(nm)			Base Order Codes Luminous Flux (lm) [1]			
					@ 350mA			@ 500mA
		Min.	Typ.	Max.	Code.	Min.	Max.	Typ.
KTDG-8080SE9Z1S/2	Reddish-Orange	619	623	629	B6	24	29	50
					B7	29	35	
					B8	35	42	
KTDG-8080SY9Z1S/2	Super Bright Yellow	586	591	594	B6	24	29	53
					B7	29	35	
					B8	35	42	
KTDG-8080ZG10Z1S/2	Green	520	530	535	B10	50	60	80
					B11	60	70	
					B12	70	80	
KTDG-8080QB10Z1S/2	Blue	450	458	465	B2	12	14	21
					B3	14	17	
					B4	17	20	
					B5	20	24	

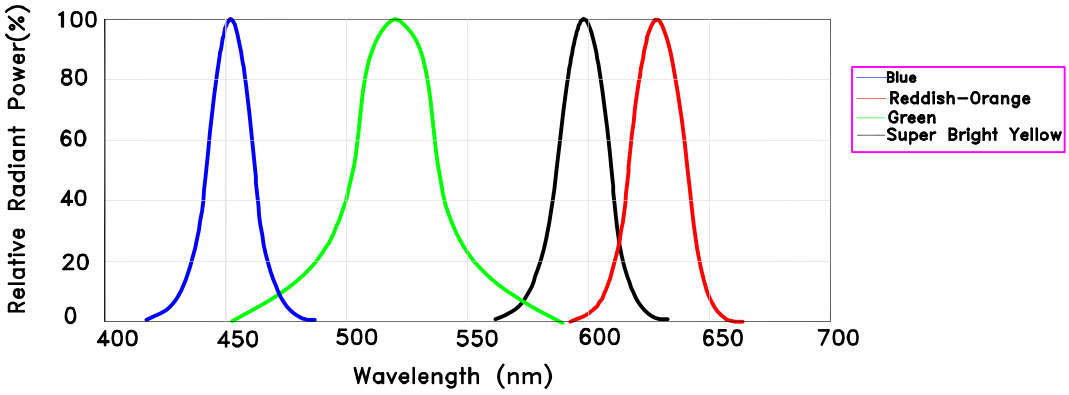
Note:
1. Kingbright maintains tolerance of +/-15% on flux and power measurements.

Characteristics- Blue,Reddish-Orange,Super Bright Yellow,Green

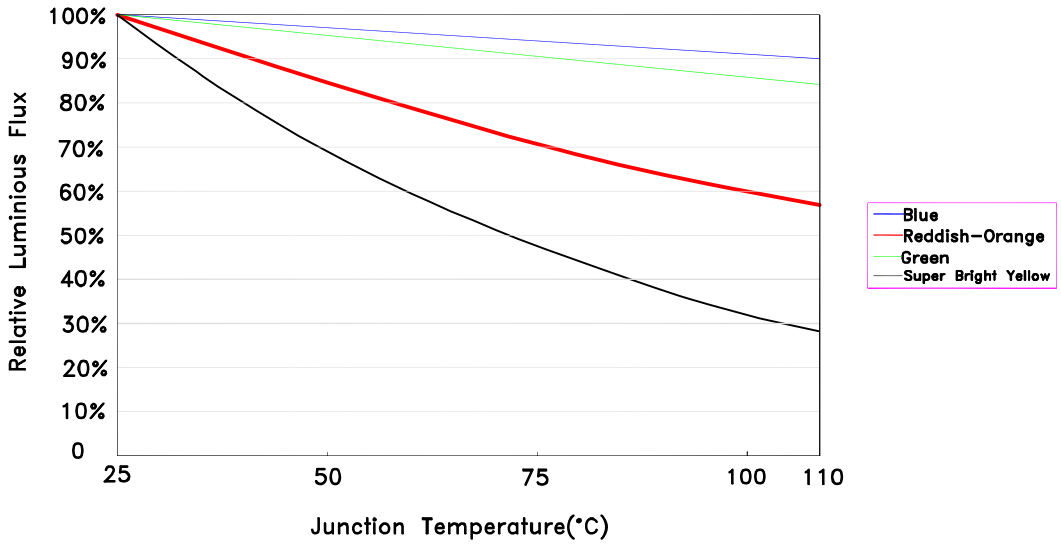
Parameter	Unit	Minimum	Typical	Maximum
Thermal Resistance (junction to solder point)	°C/W		15	
Viewing Angle (FWHM)	degrees		90	
Temperature coefficient of voltage (Blue)	mV/°C		-3.2	
Temperature coefficient of voltage(Reddish-Orange, Super Bright Yellow)	mV/°C		-3.0	
Temperature coefficient of voltage(Green)	mV/°C		-2.3	
ESD - Withstand voltage (HBM per Mil-Std-883D)	V		8000	
DC Forward Current	mA			500
Reverse Voltage	V			5
Forward Voltage (@350mA) [1] (Blue) [1]	V		3.2	3.6
Forward Voltage (@350mA) [1] (Reddish-Orange) [1]	V		2.5	3.3
Forward Voltage (@350mA) [1] (Super Bright Yellow) [1]	V		2.4	3.1
Forward Voltage (@350mA) [1] (Green) [1]	V		3.3	3.8
Forward Voltage (@500mA) [1] (Blue) [1]	V		3.3	3.6
Forward Voltage (@500mA) [1] (Reddish-Orange) [1]	V		2.7	3.3
Forward Voltage (@500mA) [1] (Super Bright Yellow) [1]	V		2.5	3.1
Forward Voltage (@500mA) [1] (Green) [1]	V		3.4	3.8
LED Junction Temperature	°C			110

Note:
1.Forward Voltage: + / -0.1V.

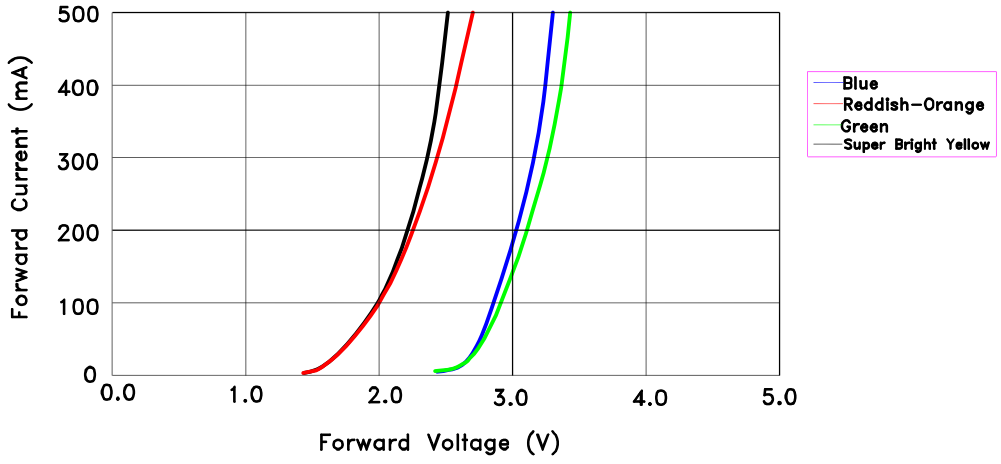
Relative Spatial Power Distribution



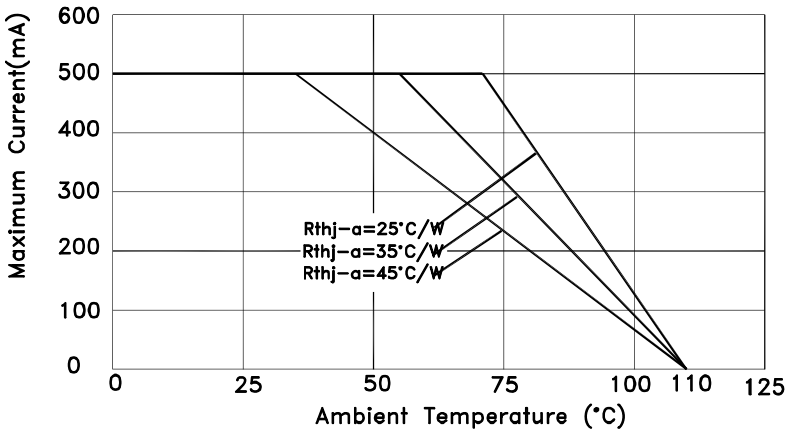
Relative Flux vs. Junction Temperature(I_F=350mA)



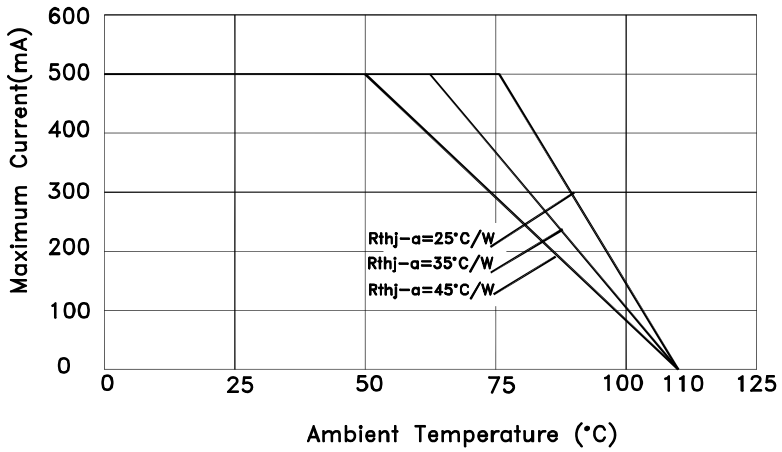
Electrical Characteristics(Tj=25°C)



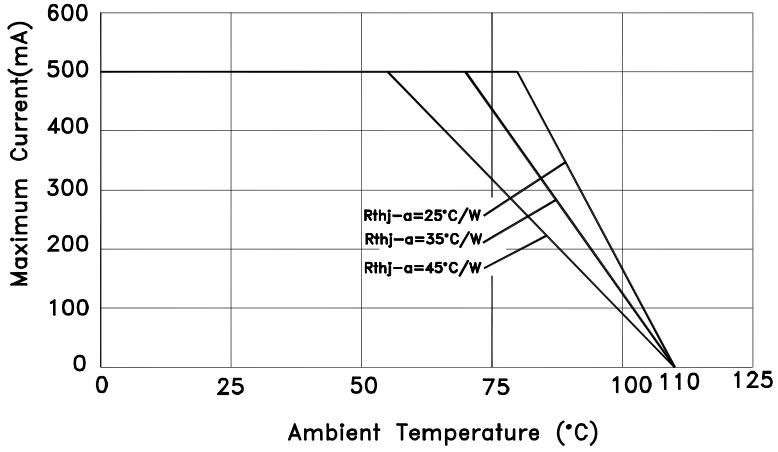
Thermal Design



Blue
Green

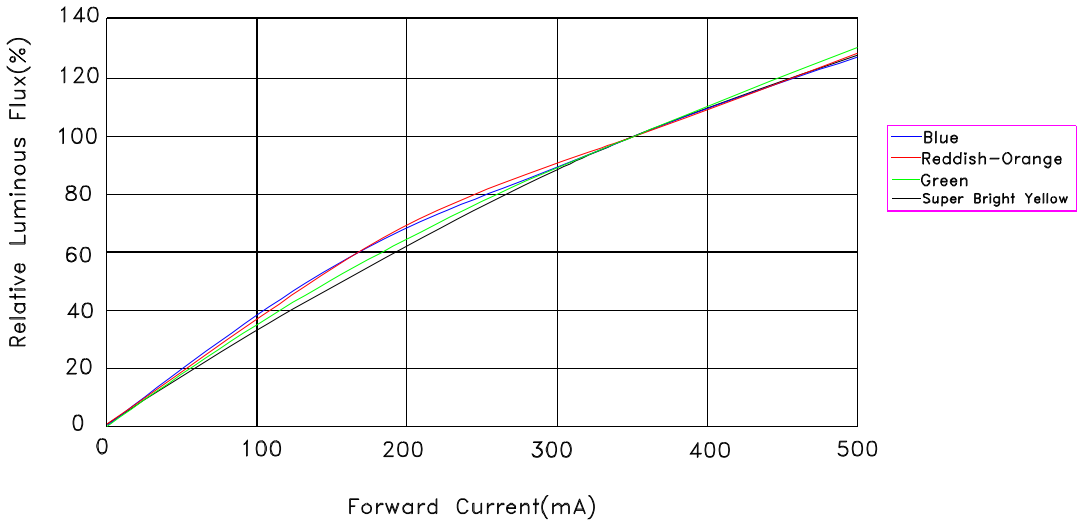


Reddish-Orange

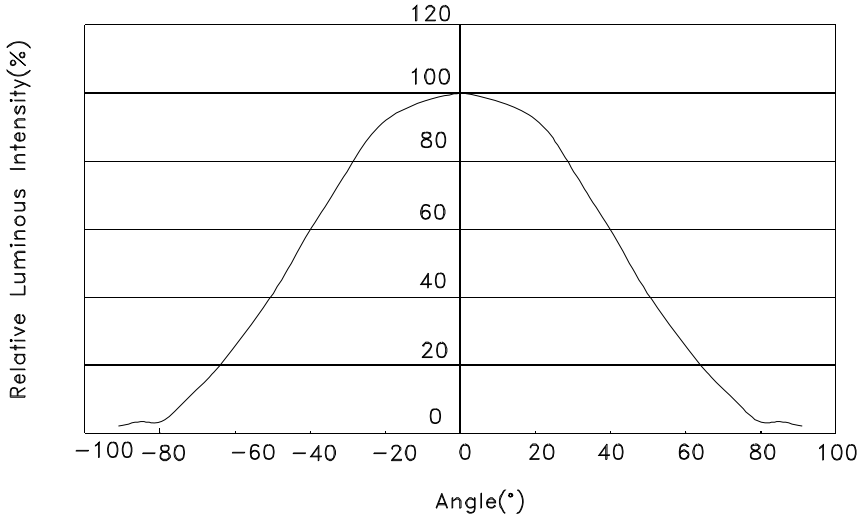


Super Bright Yellow

Relative Flux. vs Current(Tj=25°C)

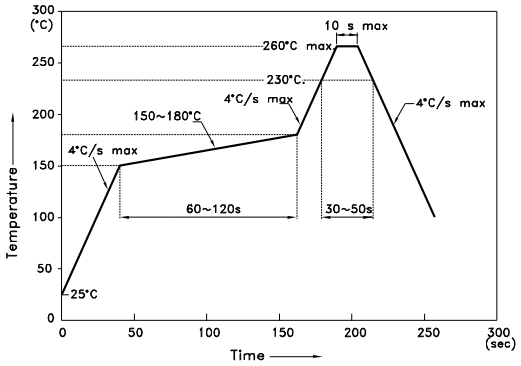


Typical Spatial Distribution



Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.



NOTES:
1.We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2.Don't cause stress to the epoxy resin while it is exposed to high temperature.
3.Number of reflow process shall be 2 times or less.

Heat Generation:

1.Thermal design of the end product is of paramount importance.Please consider the heat generation of the LED when making the system design. The coefficient of temperature increase per input electric power is affected by the thermal resistance of the circuit board and density of LED placement on the board ,as well as other components. It is necessary to avoid intense heat generation and operate within the maximum ratings given in this specification.

2.Please determine the operating current with consideration of the ambient temperature local to the LED and refer to the plot of Permissible Forward current vs. Ambient temperature on CHARACTERISTICS in this specification. Please also take measures to remove heat from the area near the LED to improve the operational characteristics on the LED.

3.The equation ① indicates correlation between T_j and T_a ,and the equation ② indicates correlation between T_j and T_s

$T_j = T_a + R_{thj\text{-}a} * W$ …… ①

$T_j = T_s + R_{thj\text{-}s} * W$ …… ②

Tj = dice junction temperature: ℃

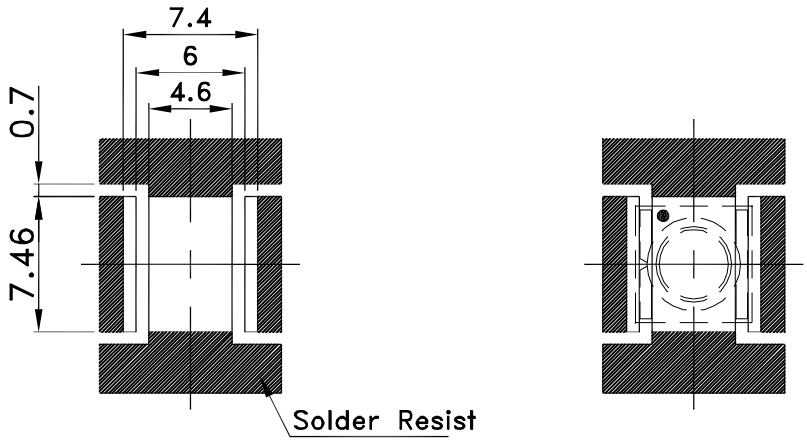
Ta = ambient temperature:℃

Ts = solder point temperature:℃

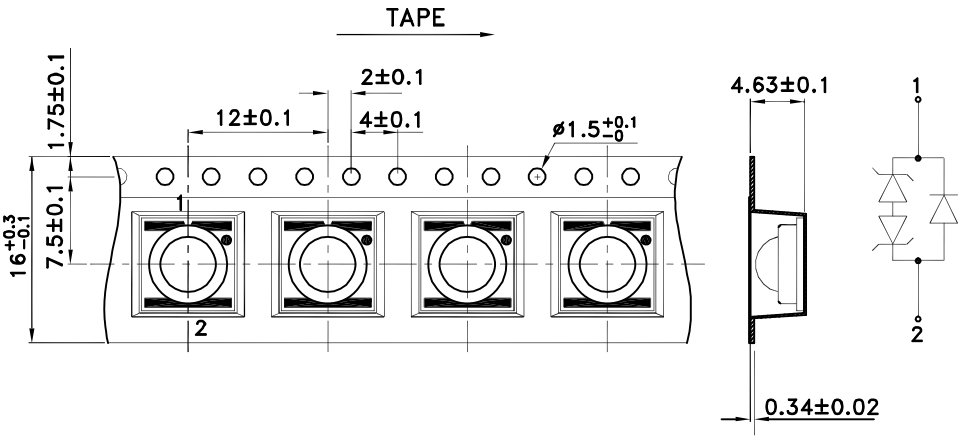
$R_{thj\text{-}a}$ = heat resistance from dice junction temperature to ambient temperature : ℃ /W

$R_{thj\text{-}s}$ = heat resistance from dice junction temperature to Ts measuring point : ℃ /W

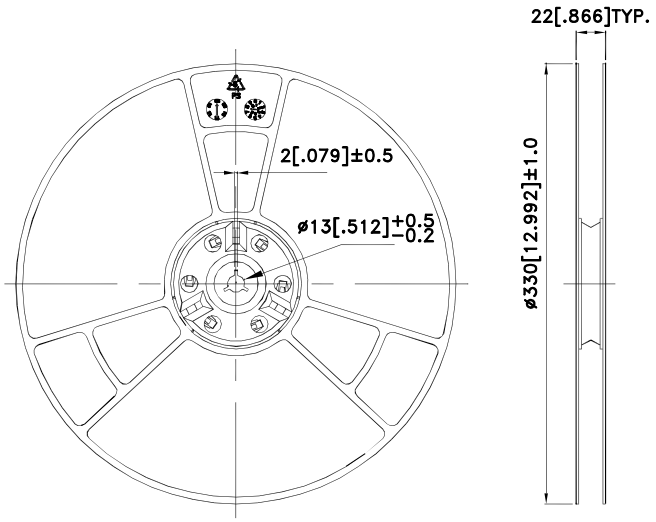
Recommended soldering pad dimensions
(Units : mm ; Tolerance: ± 0.1)



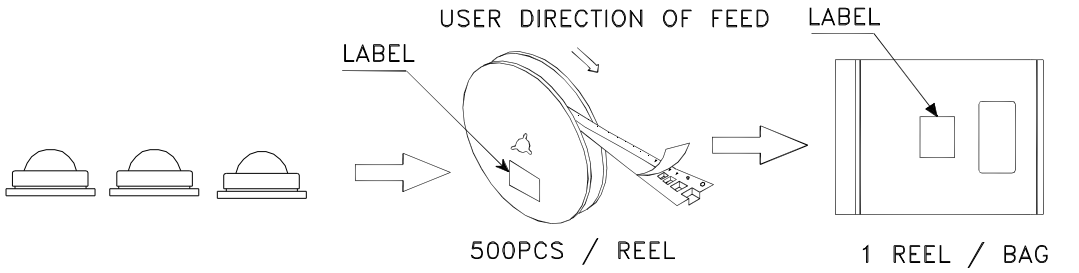
Tape Dimensions
(Units : mm)

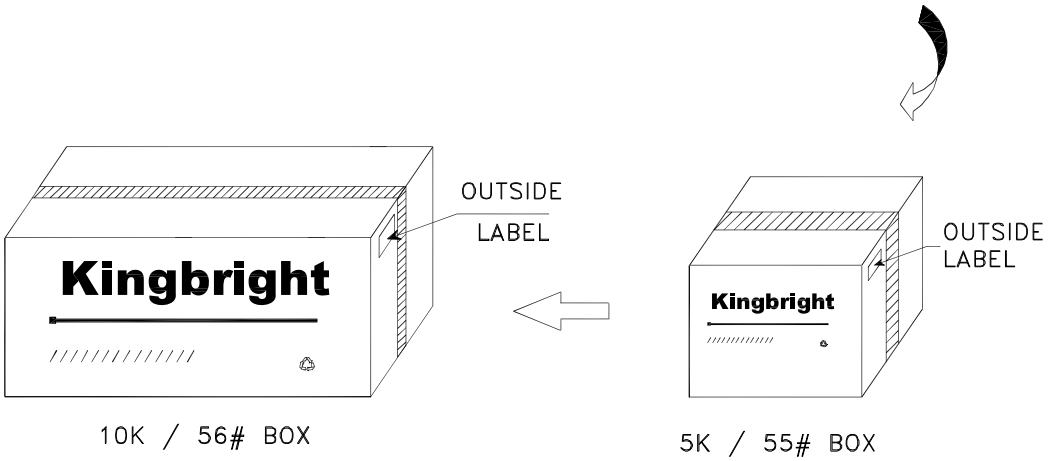


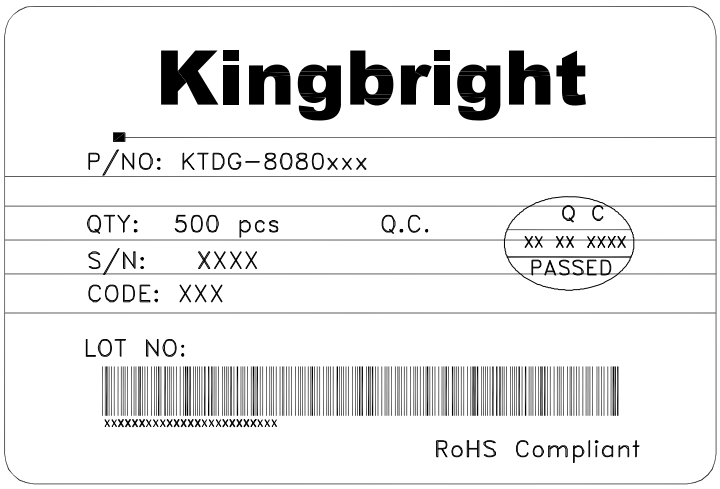
Reel Dimension



PACKING & LABEL SPECIFICATIONS **KTDG-8080/2**







Moisture Sensitivity

KTDG-8080 LEDs are packaged in airtight and moisture-resistant bags to prevent moisture absorption which may lead to catastrophic failure in reflow soldering process. Kingbright recommends that the devices must be baked before soldering if they are removed from the original package, and are exposed to environmental conditions for longer than the durations (unit: days) defined in the table below. Recommended baking conditions are 24 hours at 80°C .

Temperature	Maximum Percent Relative Humidity						
	30%	40%	50%	60%	70%	80%	90%
30°C	9	5	4	3	1	1	1
25°C	12	7	5	4	2	1	1
20°C	17	9	7	6	2	2	1

Baking Procedure

1. Remove LEDs or reel of LEDs from the moisture-resistant bag.
2. Bake the real at 80°C for 24 hours.
3. Reflow solder LEDs within 1 hour after baking.
4. Keep unused LEDs in an environment where relative humidity is below 10%.
   Caution: Baking temperature must not exceed 80°C .

Storage Conditions

After being removed from the original sealed package, KTDG-8080 LEDs must be stored at a temperature of 25 ºC with a relative humidity lower than 10%. If the actual storage condition is unknown, it is recommended to bake the LEDs according to the conditions list above 1 hour before reflow soldering to avoid damage of components.