Kingbright

KA-8080/2 SERIES

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- ●High efficient lightsource.
- ●Designed for high current operation.
- ●Low thermal resistance.
- ●Encapsulation : Silicone resin.
- ●Compatible with IR-reflow processes.
- ●ESD protection .
- ●Package : 500pcs / reel.
- ●RoHS compliant.

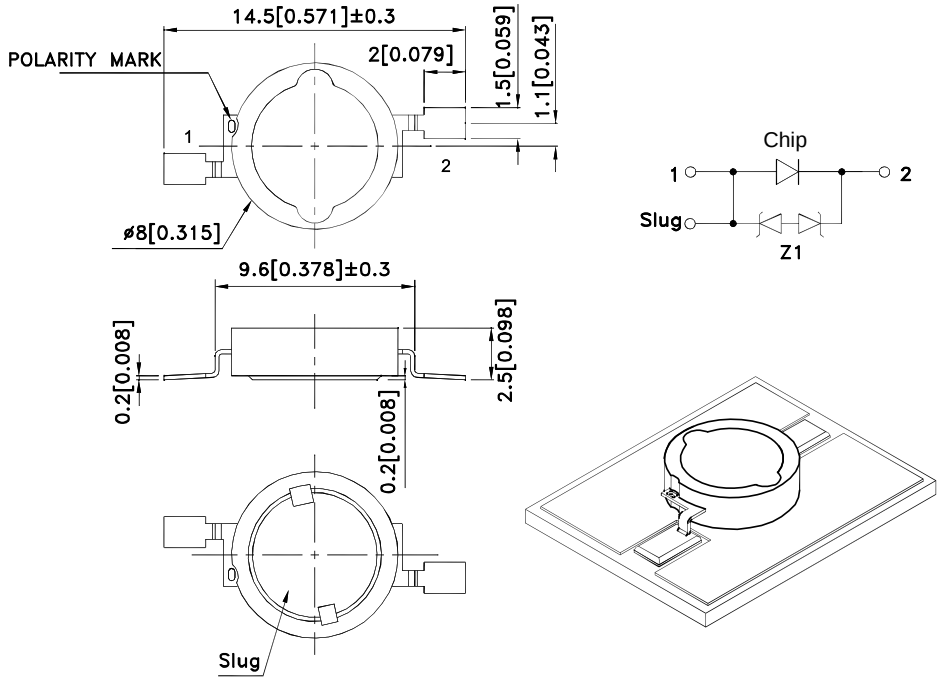
Applications

- ● Substitution of micro incandescent lamps.
- ● Portable light source.
- ● Signal and symbol luminaire for orientation.
- ● Marker lights (e.g. steps, exit ways, etc).
- ● Decorative and entertainment lighting.
- ● Commercial and residential lighting.
- ● Emergency-vehicle lighting.

Application Note

Static electricity and surge damage the LEDS.
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
All devices, equipment and machinery must be electrically grounded.

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.

Flux Characteristics at 500mA Ambient Temperature, T_a = 25°C

Color	Part No.	Luminous Flux (lm) @ 500mA [1]			Typical Luminous Flux (lm) [1]
		Code.	Min.	Max.	Typ.
Reddish-Orange (AlGaInP)	KA-8080SE9Z1S/2	B7	29	35	45
		B8	35	42	
		B9	42	50	
		B10	50	60	
Super Bright Yellow (AlGaInP)	KA-8080SY9Z1S/2	B7	29	35	50
		B8	35	42	
		B9	42	50	
		B10	50	60	
Deep-Red (AlGaInP)	KA-8080SUR10Z1S/2	B3	14	17	20
		B4	17	20	
		B5	20	24	

Note:
1. Minimum luminous flux performance guaranteed within published operating conditions.Kingbright maintains tolerance of +/-15% on flux.

Optical Characteristics at 500mA Ambient Temperature, T_a = 25°C

Color	Dominant Wavelength [1] λ_D			Typical Spectral Halfwidth [2] (nm) $\Delta\lambda 1/2$	Typical Temperature Coefficient of Dominant Wavelength (nm/°C) $\Delta\lambda_D/\Delta T$	Typical Viewing Angle [3] (degrees) $2\theta 1/2$
	Min.	Typ.	Max.			
Reddish-Orange	619nm	623nm	629nm	22	0.03	120°
Super Bright Yellow	586nm	591nm	594nm	23	0.07	120°
Deep-Red	650nm	660nm	670nm	20	0.12	120°

Notes:
1.Dominant wavelength is derived from the CIE 1931 Chromaticity diagram and represents the perceived color.
2.Spectral width at 1/2 of the peak intensity.
3.Viewing angle is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

Electrical Characteristics at 500mA Ambient Temperature, T_a = 25°C

Color	Forward Voltage V_f [1] (V)			Typical Temperature Coefficient of Forward Voltage [2] (mV/°C) $\Delta V_f/\Delta T$	Typical Thermal Resistance (°C/W) $R_{th\ j\text{-}slug}$
	Min.	Typ.	Max.		
Reddish-Orange	2.0	2.7	3.3	-2.8	12
Super Bright Yellow	2.0	2.5	3.1	-2.6	12
Deep-Red	-	2.5	3.2	-2.5	9

Notes:
1.Kingbright maintains a tolerance of +/- 0.1V on forward voltage measurements.
2.Measured between 25 °C < T_J < 110 °C at I_F = 500 mA.

Absolute Maximum Ratings

Parameter	Reddish-Orange/Super Bright Yellow/Deep-Red
DC Forward Current (mA) [1]	500
Peak Pusled Forward Current (mA)	700
Average Forward Current (mA)	500
Reverse Voltage (V)	5
ESD Sensitivity	8000V HBM
LED Junction Temperature (°C)	110
Operation Temperature (°C)	-40 to+ 100
Storage Temperature (°C)	-40 to+ 110
Soldering Temperature (°C)	260 For 5 Seconds

Note:
1. Proper current derating must be observed to maintain junction temperature below the maximum.

Moisture Sensitivity

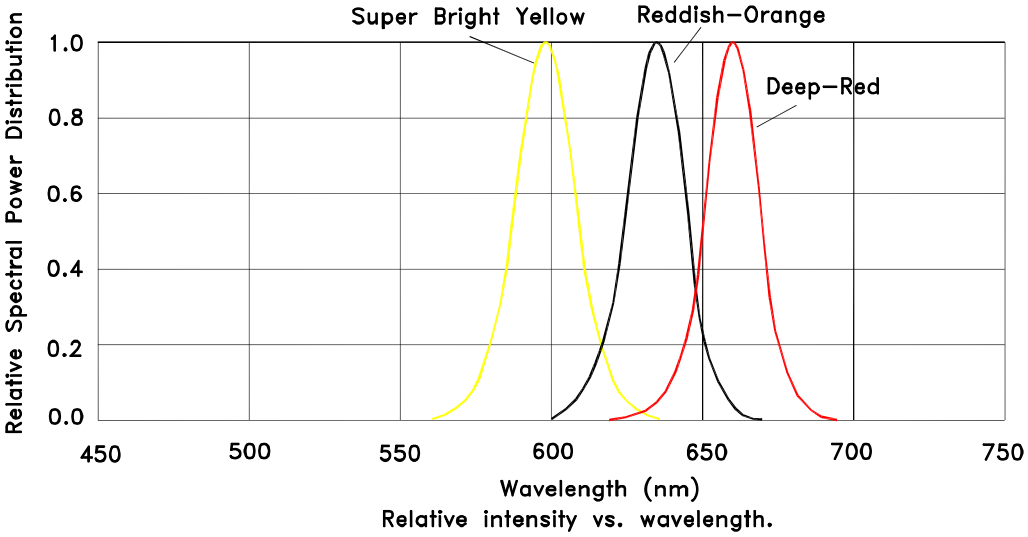
KA-8080/2 LEDs are packaged in airtight and moisture-resistant bags to prevent moisture absorption which may lead to catastrophic failure in reflow soldering process. Kingbright recommends that the devices must be baked before soldering if they are removed from the original package, and are exposed to environmental conditions for longer than the durations (unit: days) defined in the table below. Recommended baking conditions are 24 hours at 80ºC.

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

Storage Conditions

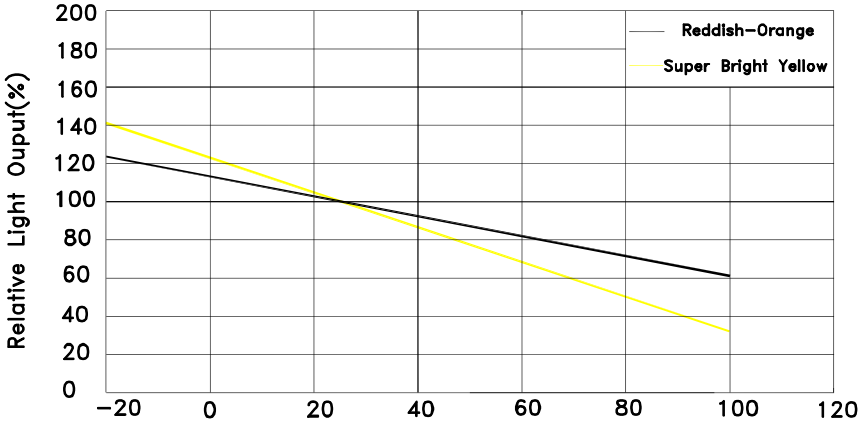
After being removed from the original sealed package, KA-8080/2 LEDs should be stored at a temperature of 25 ºC with a relative humidity lower than 10%. Under such conditions, storage duration is excluded from the exposure duration as defined in the Moisture Sensitivity section.

Wavelength Characteristics T_a = 25°C

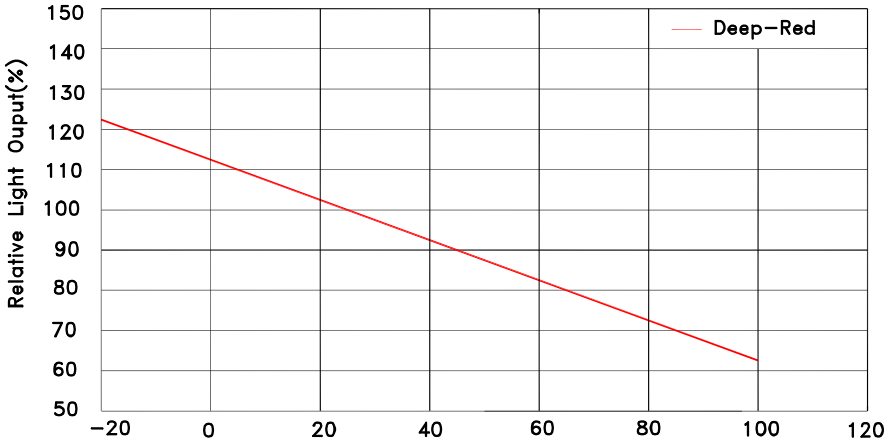


Relative intensity vs. wavelength.

Light Output Characteristics



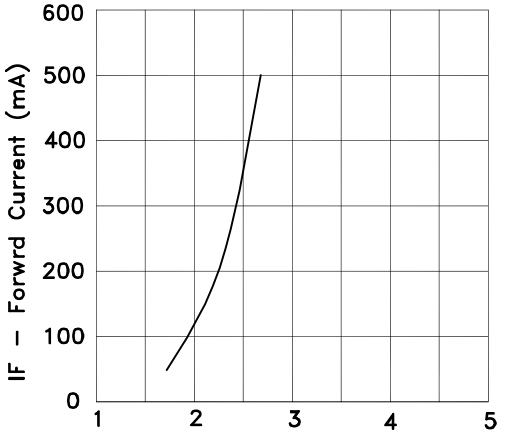
Relative light output vs. Ambient temperature.



Relative light output vs. Ambient temperature.

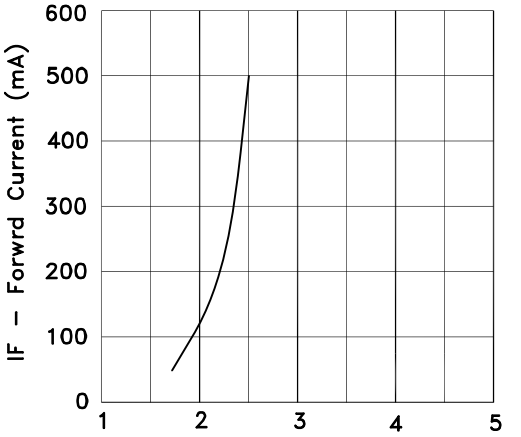
Forward Current Characteristics, T_a = 25°C

Reddish-Orange



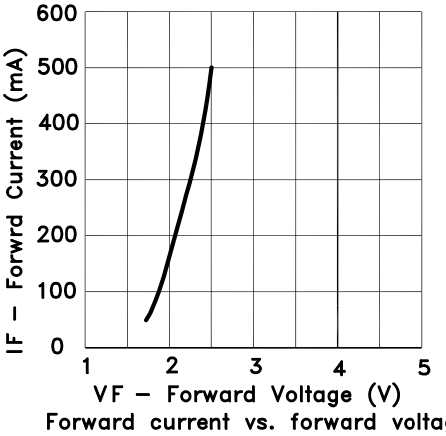
Forward current vs. forward voltage.

Super Bright Yellow



Forward current vs. forward voltage.

Deep-Red



Forward current vs. forward voltage.

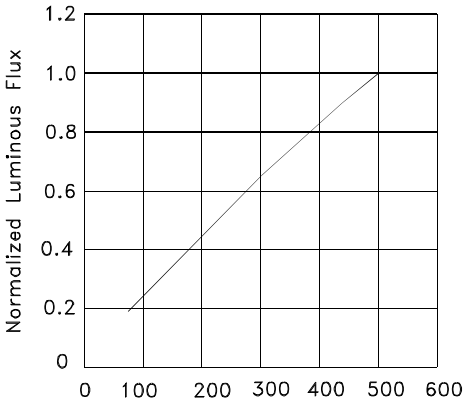
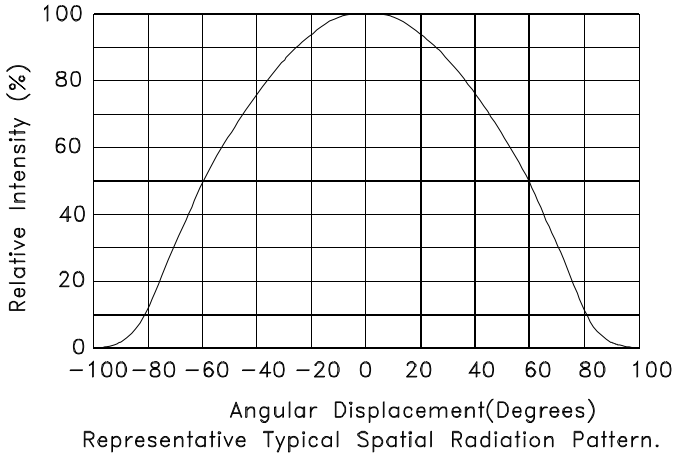


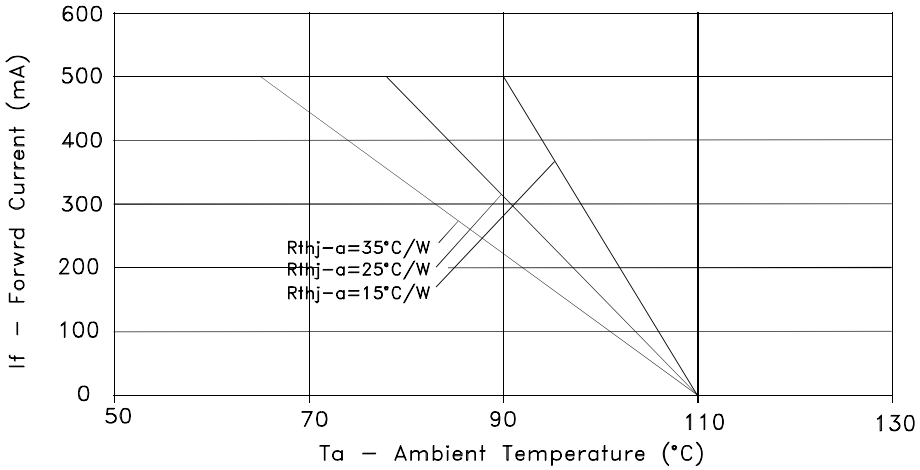
Figure c. Relative luminous vs. forward current at Ta= 25°C maintained.

Representative Typical Spatial Radiation Pattern

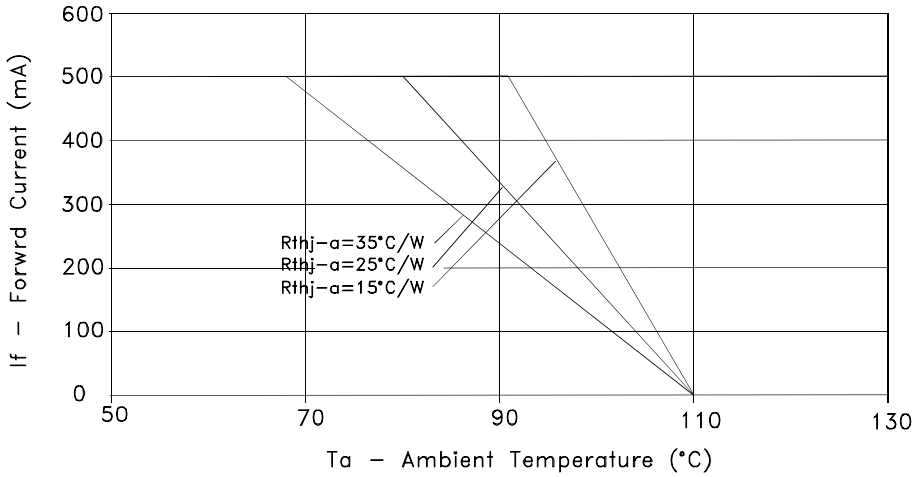


Representative Typical Spatial Radiation Pattern.

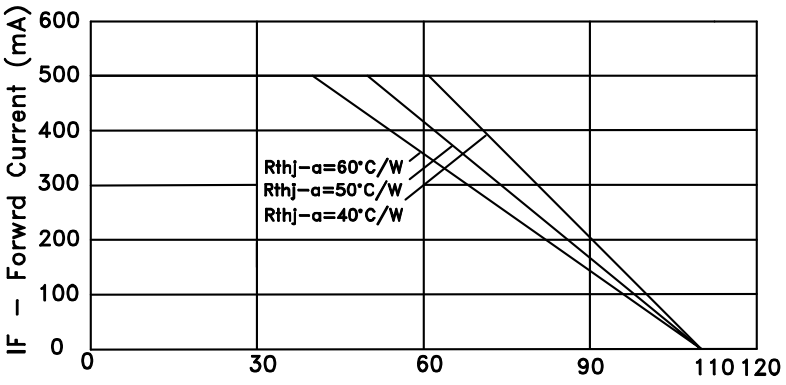
Current Derating Curves



Maximum forward current vs. ambient temperature, based on Tjmax = 110°C for reddish-orange.



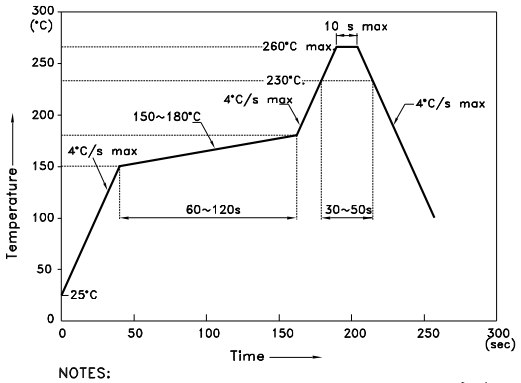
Maximum forward current vs. ambient temperature, based on Tjmax= 110°C for super bright yellow.



Maximum forward current vs. ambient temperature, based on Tjmax.=110°C for Deep-Red

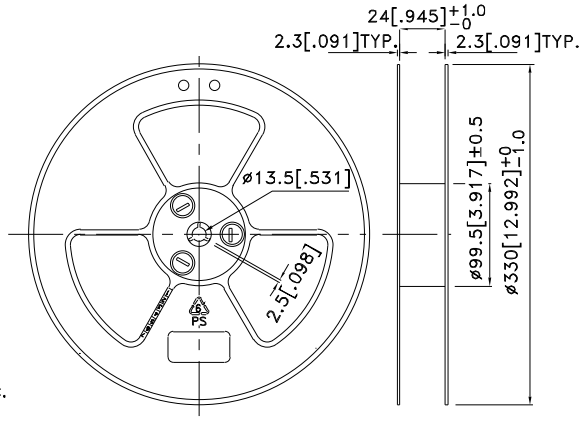
Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.

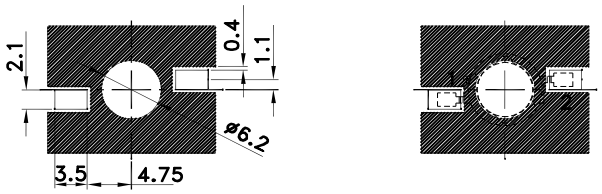


NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Reel Dimension

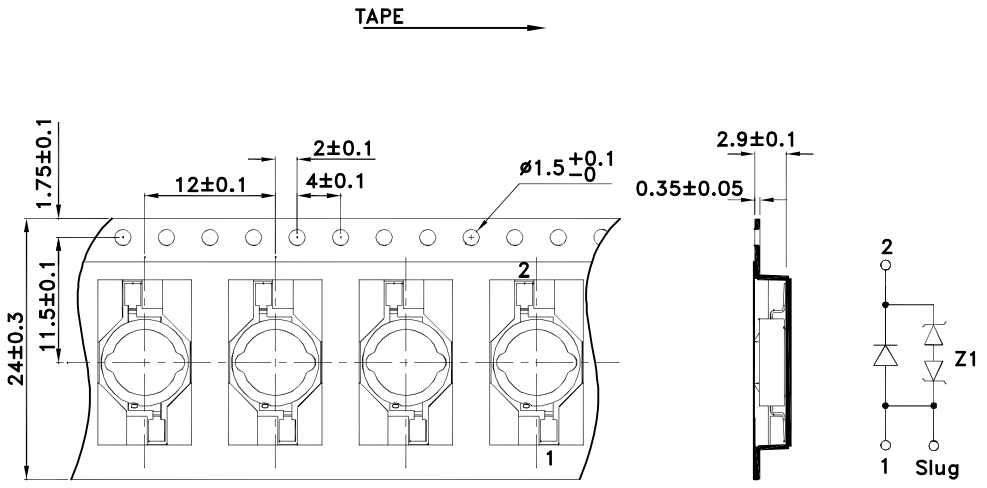


Recommended Soldering Pattern
(Units : mm ; Tolerance: ± 0.1)



Solder resist

Tape Dimensions
(Units : mm)



PACKING & LABEL SPECIFICATIONS **KA-8080/2 SERIES**