

# APHB1608ZGSYKC Datasheet



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DiGi Electronics Part Number	APHB1608ZGSYKC-DG
Manufacturer	<a href="#">Kingbright</a>
Manufacturer Product Number	APHB1608ZGSYKC
Description	LED GRN/YLW CLEAR 4SMD
Detailed Description	Green, Yellow 525nm Green, 590nm Yellow LED Indication - Discrete 3.3V Green, 2V Yellow 0603 (1608 Metric)

This model APHB1608ZGSYKC is available at DiGi.Electronics.

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## Purchase and inquiry

Manufacturer Product Number:

APHB1608ZGSYKC

Series:

-

Color:

Green, Yellow

Lens Color:

Colorless

Millicandela Rating:

350mcd Green, 150mcd Yellow

Lens Size:

1.60mm x 0.80mm

Current - Test:

20mA Green, 20mA Yellow

Mounting Type:

Surface Mount

Wavelength - Peak:

515nm Green, 590nm Yellow

Package / Case:

0603 (1608 Metric)

Size / Dimension:

1.60mm L x 0.80mm W

Base Product Number:

APHB1608

Manufacturer:

Kingbright

Product Status:

Active

Configuration:

Independent

Lens Transparency:

Clear

Lens Style:

Rectangle with Flat Top

Voltage - Forward (Vf) (Typ):

3.3V Green, 2V Yellow

Viewing Angle:

130°

Wavelength - Dominant:

525nm Green, 590nm Yellow

Features:

-

Supplier Device Package:

4-SMD

Height (Max):

0.65mm

## Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

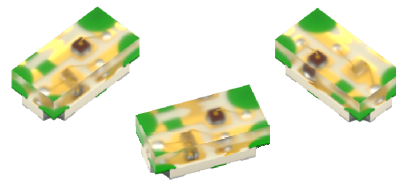
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Moisture Sensitivity Level (MSL):

3 (168 Hours)

ECCN:

EAR99



# APHB1608ZGSYKC

1.6 x 0.8 x 0.5 mm Bi-Color Surface Mount LED

## DESCRIPTIONS

- The Green source color devices are made with InGaN on Sapphire Light Emitting Diode
- The Super Bright Yellow device is made with AlGaInP (on GaAs substrate) light emitting diode chip
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

## FEATURES

- 1.6 x 0.8 mm SMD LED, 0.5 mm thickness
- Compatible with reflow soldering
- Available in various color combination
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- Halogen-free
- RoHS compliant

## APPLICATIONS

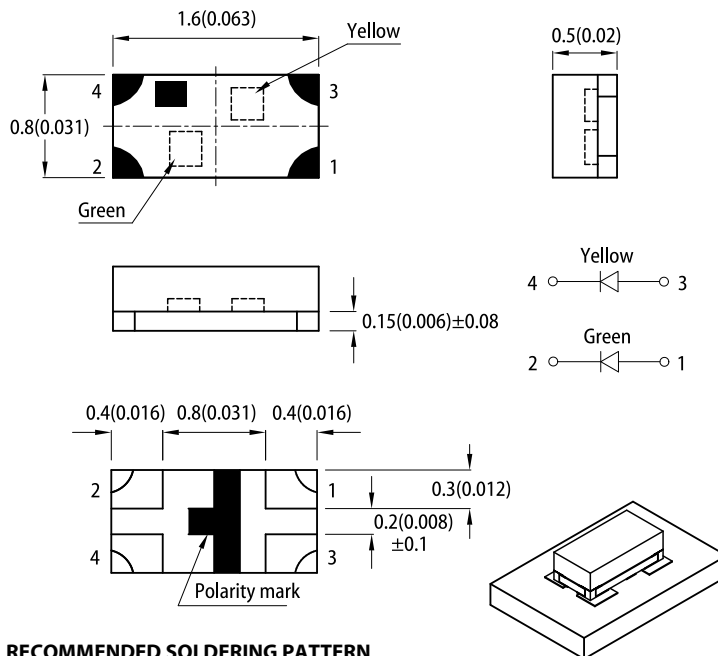
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

## ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

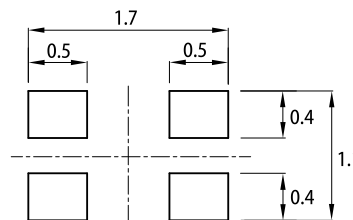


## PACKAGE DIMENSIONS



## RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



- Notes:
1. All dimensions are in millimeters (inches).
  2. Tolerance is ±0.15(0.006") 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 Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
APHB1608ZGSYKC	■ Green (InGaN)	Water Clear	200	400	130°
	■ Super Bright Yellow (AlGaInP)		80	150	

Notes:  
 1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.  
 2. Luminous intensity / luminous flux: +/-15%.  
 3. Luminous intensity value is traceable to CIE127-2007 standards.

**ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C**

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I <sub>F</sub> = 20mA	λ <sub>peak</sub>	Green Super Bright Yellow	515 590	-	nm
Dominant Wavelength I <sub>F</sub> = 20mA	λ <sub>dom</sub> <sup>[1]</sup>	Green Super Bright Yellow	525 590	-	nm
Spectral Bandwidth at 50% Φ REL MAX I <sub>F</sub> = 20mA	Δλ	Green Super Bright Yellow	30 20	-	nm
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[2]</sup>	Green Super Bright Yellow	3.3 2.0	4.1 2.5	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>	Green Super Bright Yellow	-	50 10	μA
Temperature Coefficient of λ <sub>peak</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>λpeak</sub>	Green Super Bright Yellow	0.05 0.12	-	nm/°C
Temperature Coefficient of λ <sub>dom</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>λdom</sub>	Green Super Bright Yellow	0.03 0.07	-	nm/°C
Temperature Coefficient of V <sub>F</sub> I <sub>F</sub> = 20mA, -10°C ≤ T ≤ 85°C	TC <sub>V</sub>	Green Super Bright Yellow	-3.0 -1.9	-	mV/°C

- Notes:  
 1. The dominant wavelength (λ<sub>d</sub>) above is the setup value of the sorting machine. (Tolerance λ<sub>d</sub> : ±1nm. )  
 2. Forward voltage: ±0.1V.  
 3. Wavelength value is traceable to CIE127-2007 standards.  
 4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

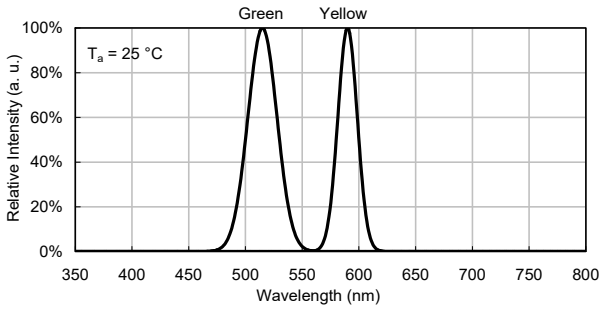
**ABSOLUTE MAXIMUM RATINGS at T<sub>A</sub>=25°C**

Parameter	Symbol	Value		Unit
		Green	Super Bright Yellow	
Power Dissipation	P <sub>D</sub>	102.5	75	mW
Reverse Voltage	V <sub>R</sub>	5	5	V
Junction Temperature	T <sub>j</sub>	115	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85		°C
Storage Temperature	T <sub>stg</sub>	-40 to +85		°C
DC Forward Current	I <sub>F</sub>	25	30	mA
Peak Forward Current	I <sub>FP</sub> <sup>[1]</sup>	150	175	mA
Electrostatic Discharge Threshold (HBM)	-	450	3000	V
Thermal Resistance (Junction / Ambient)	R <sub>th JA</sub> <sup>[2]</sup>	630	730	°C/W
Thermal Resistance (Junction / Solder point)	R <sub>th JS</sub> <sup>[2]</sup>	450	620	°C/W

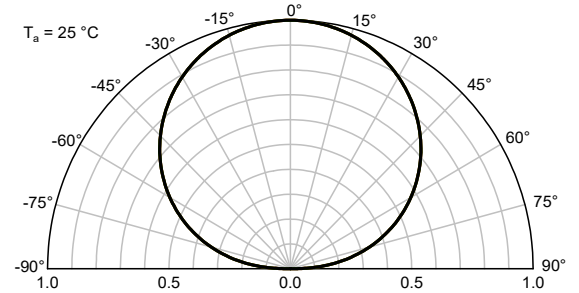
- Notes:  
 1. 1/10 Duty Cycle, 0.1ms Pulse Width.  
 2. R<sub>th JA</sub>, R<sub>th JS</sub> Results from mounting on PC board FR4 (pad size ≥ 16 mm<sup>2</sup> per pad).  
 3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

**TECHNICAL DATA**

**RELATIVE INTENSITY vs. WAVELENGTH**

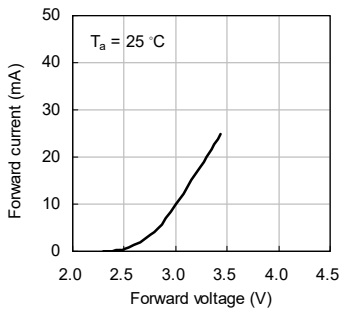


**SPATIAL DISTRIBUTION**

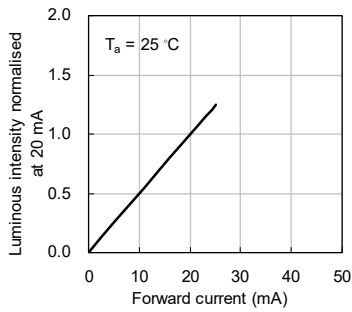


**GREEN**

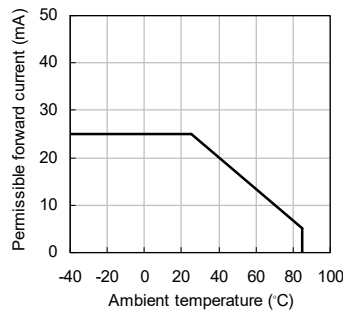
**Forward Current vs. Forward Voltage**



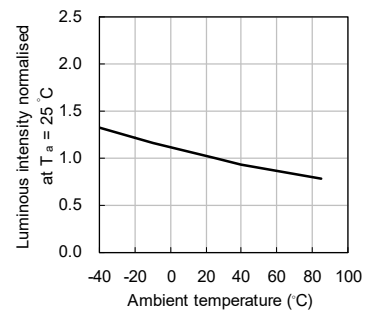
**Luminous Intensity vs. Forward Current**



**Forward Current Derating Curve**

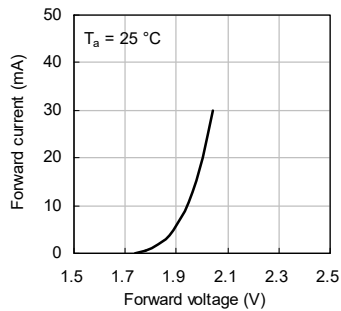


**Luminous Intensity vs. Ambient Temperature**

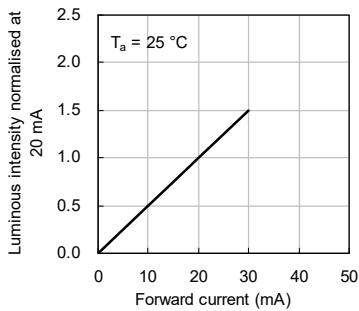


**SUPER BRIGHT YELLOW**

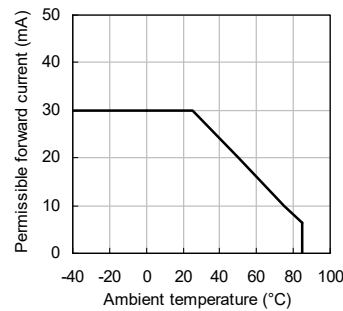
**Forward Current vs. Forward Voltage**



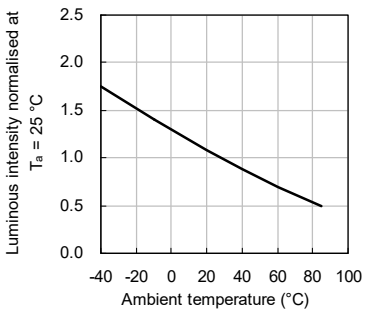
**Luminous Intensity vs. Forward Current**



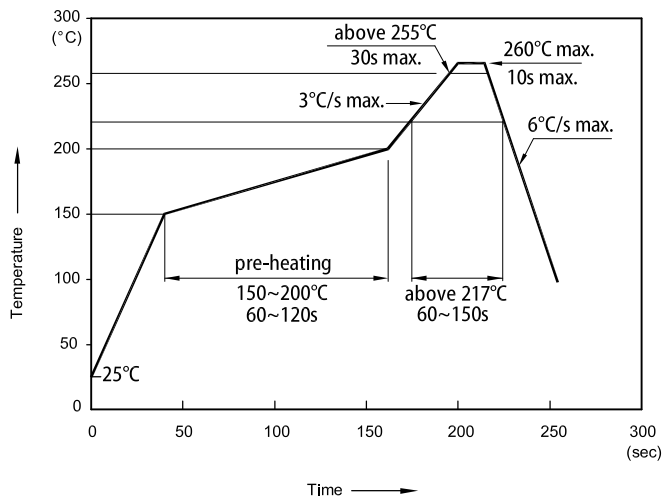
**Forward Current Derating Curve**



**Luminous Intensity vs. Ambient Temperature**

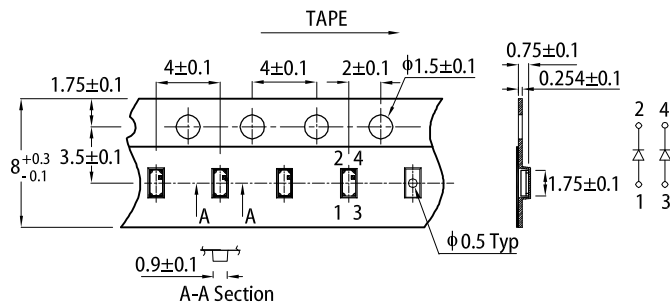


**REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS**

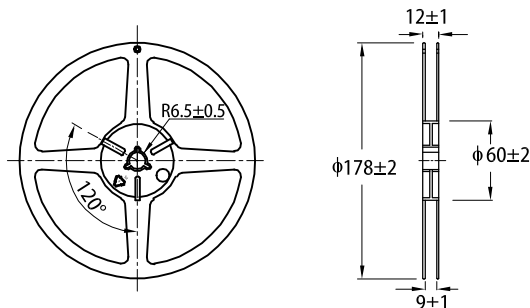


- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
  2. The maximum number of reflow soldering passes is 2 times.
  3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

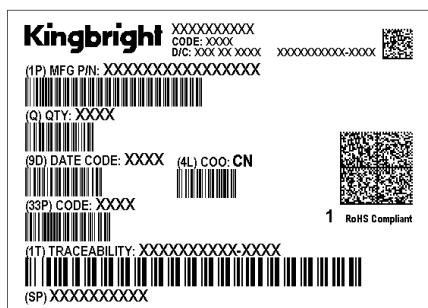
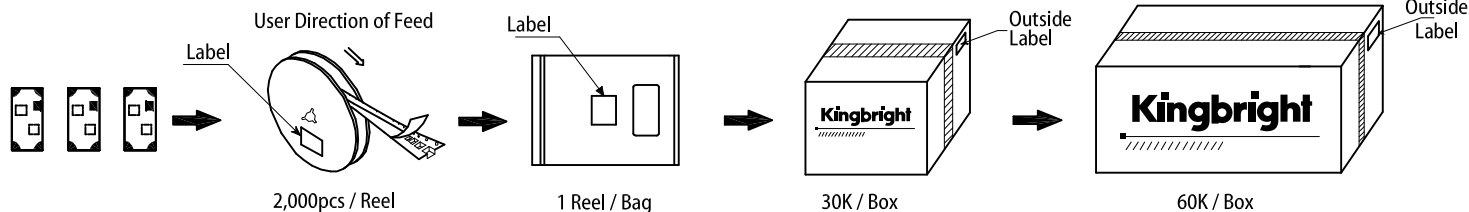
**TAPE SPECIFICATIONS (units : mm)**



**REEL DIMENSION (units : mm)**



**PACKING & LABEL SPECIFICATIONS**



**PRECAUTIONARY NOTES**

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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