

Order code	Manufacturer code	Description
56-0236	n/a	KPH-1608QWF-D LED SMD WHITE (RC)
56-0236	n/a	KPH-1608QWF-D LED SMD WHITE (RC)
56-0234	n/a	KPH-1608QWF-D REEL2K LED SMD WHITE (RC)
56-0234	n/a	KPH-1608QWF-D REEL2K LED SMD WHITE (RC)

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The enclosed information is believed to be correct, Information may change 'without notice' due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 04/07/2003



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

P/N: KPH-1608QWF-D

WHITE

### Features

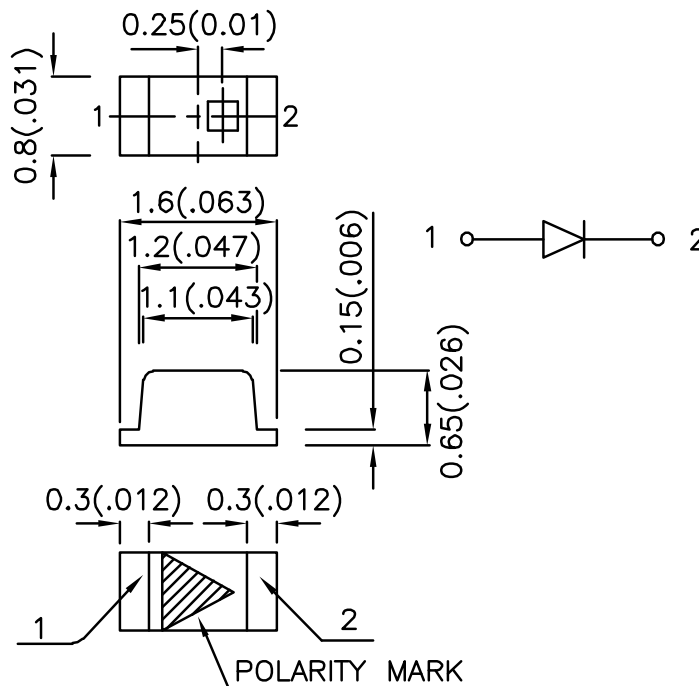
- 1.6mmX0.8mm SMT LED, 0.65mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.
- PACKAGE: 2000PCS / REEL.
- MOISTURE SENSITIVITY LEVEL : LEVEL 3.
- RoHS COMPLIANT.

### Description

The source color devices are made with GaN on Sapphire Light Emitting Diode.

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  $\pm 0.1(0.004)$  unless otherwise noted.
3. Specifications are subject to change without notice.

## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA		Viewing Angle [1]
			Min.	Typ.	θ1/2
KPH-1608QWF-D	WHITE (GaN)	YELLOW FLUORESCENT	110	250	120°

Notes:

- θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
- Luminous intensity/ luminous flux: +/-15%.

## Electrical / Optical Characteristics at T<sub>A</sub>=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
V <sub>F</sub> [1]	Forward Voltage	White	3.5	4.0	V	I <sub>F</sub> =20mA
I <sub>R</sub>	Reverse Current	White		10	uA	V <sub>R</sub> = 5V
X [2]	Chromaticity Coordinates	White	0.33			
Y [2]			0.34			
C	Capacitance	White	100		pF	V <sub>F</sub> =0V;f=1MHz

Notes:

- Forward Voltage: +/-0.1V.
- Chromaticity Coordinates X, Y: +/-0.01.

## Absolute Maximum Ratings at T<sub>A</sub>=25°C

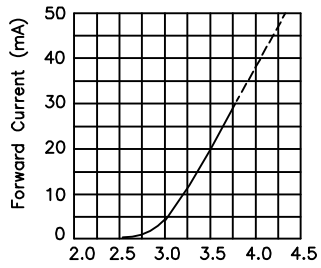
Parameter	White	Units
Power dissipation	105	mW
DC Forward Current	30	mA
Peak Forward Current [1]	150	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	

Note:

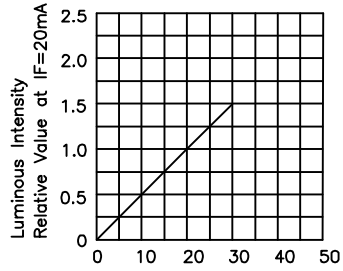
- 1/10 Duty Cycle, 0.1ms Pulse Width.

White

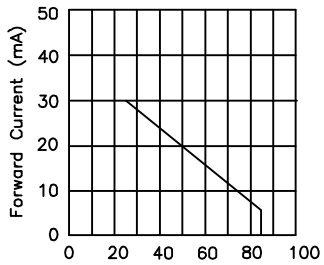
KPH-1608QWF-D



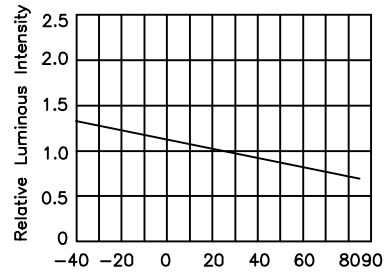
Forward Voltage(V)  
FORWARD CURRENT Vs.  
FORWARD VOLTAGE



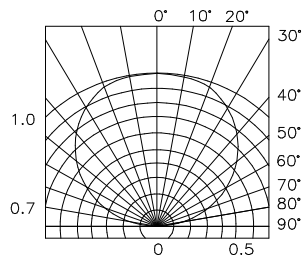
IF-Forward Current (mA)  
LUMINOUS INTENSITY Vs.  
FORWARD CURRENT



Ambient Temperature TA (°C)  
FORWARD CURRENT  
DERATING CURVE



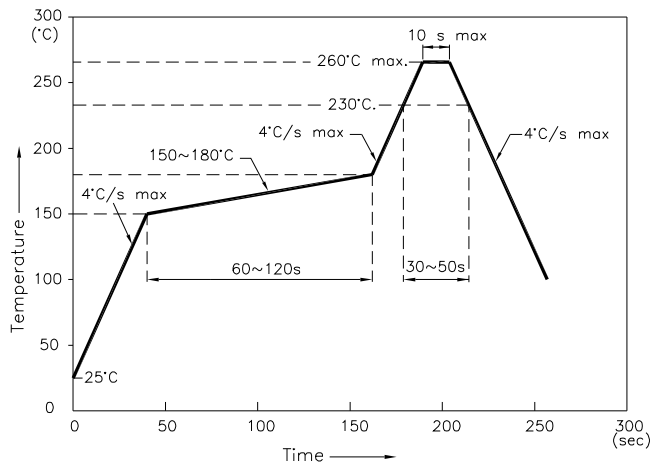
Ambient Temperature TA (°C)  
LUMINOUS INTENSITY Vs.  
AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

## KPH-1608QWF-D

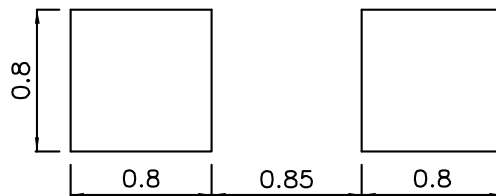
Reflow Soldering Profile For Lead-free SMT Process.



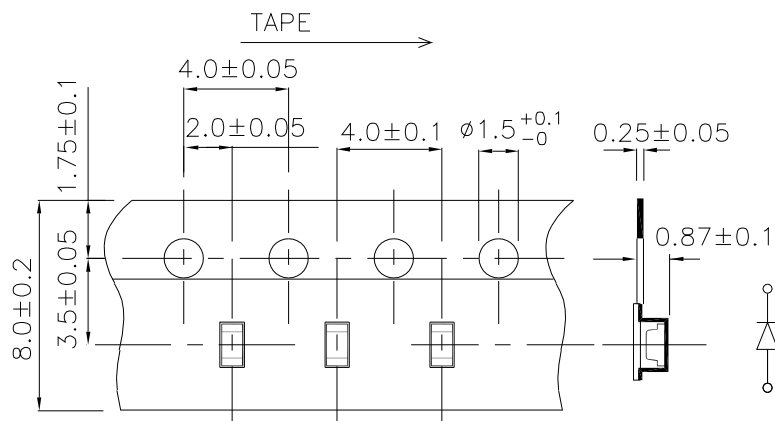
NOTES:

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.

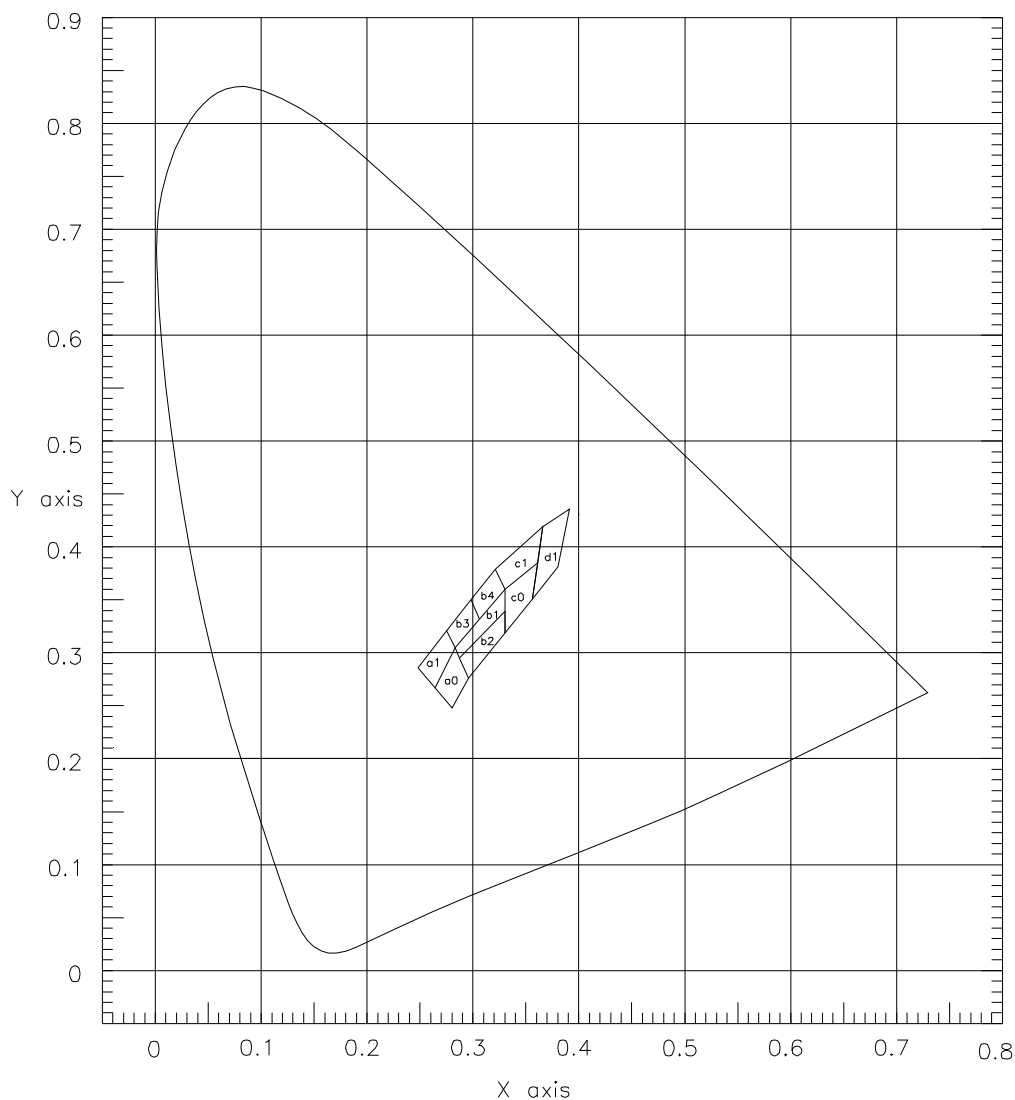
### Recommended Soldering Pattern (Units : mm)



### Tape Specifications (Units : mm)



## KPH-1608QWF-D



		a1			
X		0.248	0.275	0.283	0.264
Y		0.286	0.321	0.305	0.267
		b1			
X		0.283	0.330	0.330	0.287
Y		0.305	0.360	0.339	0.295
		c1			
X		0.321	0.366	0.361	0.330
Y		0.379	0.419	0.385	0.360

		a0			
X		0.264	0.283	0.296	0.280
Y		0.267	0.305	0.276	0.248
		b2			
X		0.287	0.330	0.330	0.296
Y		0.295	0.339	0.318	0.276
		c0			
X		0.330	0.361	0.356	0.330
Y		0.360	0.385	0.351	0.318

		b3			
X		0.275	0.298	0.306	0.283
Y		0.321	0.350	0.332	0.305
		b4			
X		0.298	0.321	0.330	0.306
Y		0.350	0.379	0.360	0.332
		d1			
X		0.366	0.391	0.380	0.356
Y		0.419	0.436	0.381	0.351

Ta=25°, IF=20mA

Measurement Uncertainty of the Color Coordinates: +/-0.01