

PRELIMINARY SPEC

Part Number: APH1608RWF/A

WHITE

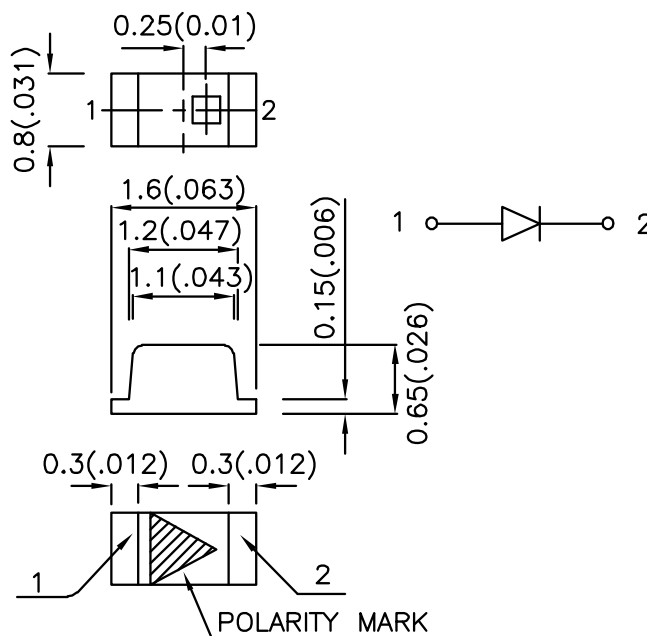


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- 1.6mmX0.8mm SMT LED, 0.65mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- PACKAGE: 2000PCS / REEL .
- MOISTURE SENSITIVITY LEVEL : LEVEL 3.
- ELECTROSTATIC DISCHARGE THRESHOLD (HBM):1000V.
- TYP. COLOR TEMPERATURE:6500K
- COLOR COORDINATES:X=0.33,Y=0.34 ACC. TO CIE1931(WHITE).
- OPTICAL EFFICIENCY:7.9 lm/W(TYP.)
- COLOR REPRODUCTION INDEX:80
- RoHS COMPLIANT.

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.

Description

The source color devices are made with InGaN on SiC 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.

Applications

- traffic signaling.
- backlighting (illuminated advertising , general lighting).
- interior and exterior automotive lighting.
- substitution of micro incandescent lamps.
- reading lamps.
- signal and symbol luminaire for orientation.
- marker lights (e.g. steps, exit ways, etc).
- decorative and entertainment lighting.
- indoor and outdoor commercial and residential architectural lighting.

Selection Guide

Part No.	Dice	Lens Type	Luminous Intensity ^{Note2} Iv(mcd) @ 20 mA		Φ_v (mIm) ^{Note3} @ 20 mA	Viewing Angle ^{Note1}
			Min.	Typ.	Typ.	2 θ 1/2
APH1608RWF/A	WHITE (InGaN)	YELLOW FLUORESCENT	70	140	520	120°

Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value	Unit
Power dissipation	Pt	114	mW
Reverse Voltage	VR	5	V
Junction temperature	TJ	110	°C
Operating Temperature	Top	-40 To +85	°C
Storage Temperature	Tstg	-40 To +100	°C
DC Forward Current	IF	30	mA
Peak Forward Current ^{Note4}	IFM	100	mA
Thermal resistance Junction/ambient ^{Note5}	Rth JA	400	°C/W
Junction/solder point	Rth JS	150	°C/W

Notes:

1. θ 1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
- 2.Luminous intensity is measured by a current pulse of 10ms at a tolerance of \pm 15%.
- 3.The typical data of Luminous Flux can only reflect statistical figures, actual parameters of individual product could differ from the typical data. For the purpose of product enhancement, the typical data is subject to change without prior notice.
- 4.1/10 Duty Cycle, 0.1ms Pulse Width.
- 5.Rth(J-A) Results from mounting on PC board FR4 (pad size \geq 16 mm² per pad),

Electrical / Optical Characteristics at TA=25°C

Parameter	Symbol	Value	Unit
Chromaticity coordinate x acc.to CIE1931 IF=20mA [Typ.]	X ^{Note1}	0.33	-
Chromaticity coordinate y acc.to CIE1931 IF=20mA [Typ.]	Y ^{Note1}	0.34	-
Forward Voltage IF=20mA [Min.]	VF ^{Note2}	2.7	V
Forward Voltage IF=20mA [Typ.]		3.3	
Forward Voltage IF=20mA [Max.]		3.8	
Reverse Current (VR=5V) [Typ.]	IR	0.01	μ A
Reverse Current (VR=5V) [Max.]		10	
Temperature coefficient of x IF=20mA, -10°C \leq T \leq 100°C [Typ.]	TCx	-0.1	10 ⁻³ /°C
Temperature coefficient of y IF=20mA, -10°C \leq T \leq 100°C [Typ.]	TCy	-0.2	10 ⁻³ /°C
Temperature coefficient of VF IF=20mA, -10°C \leq T \leq 100°C [Typ.]	TCv	-2.5	mV/°C

Notes:

- 1.Chromaticity coordinates are measured by a current pulse of 20ms with a tolerance of \pm 0.01 in X and Y color coordinates.
- 2.Forward voltage is measured with a current pulse of 10ms at a tolerance of \pm 0.1V.

Brightness codes

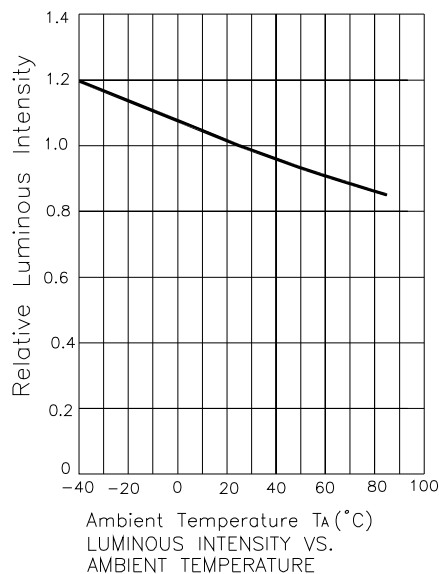
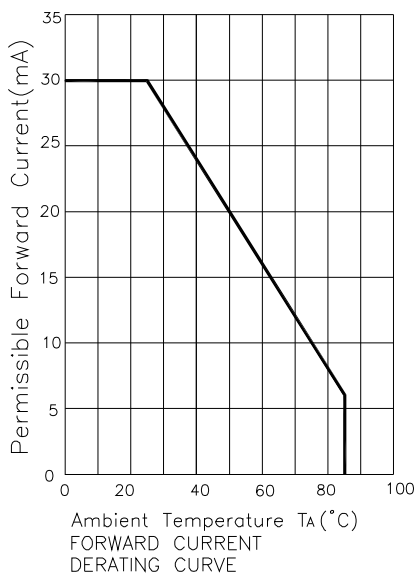
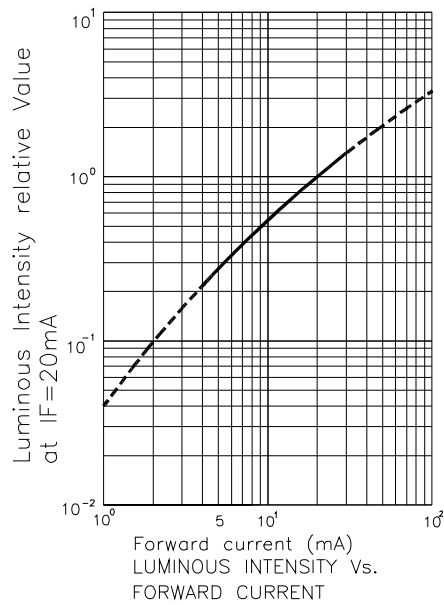
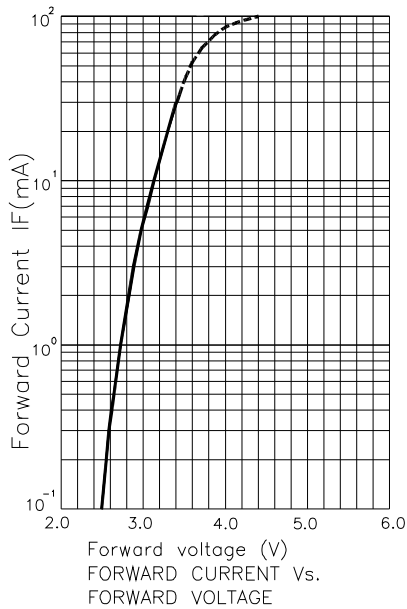
Code.	luminous Intensity ^{Note1} Iv(mcd) @ 20 mA		Φ_v (mlm) ^{Note2} @ 20 mA
	Min.	Max.	Typ.
M	70	130	300
N	110	220	480
P	180	320	710
Q	280	420	960

Notes:

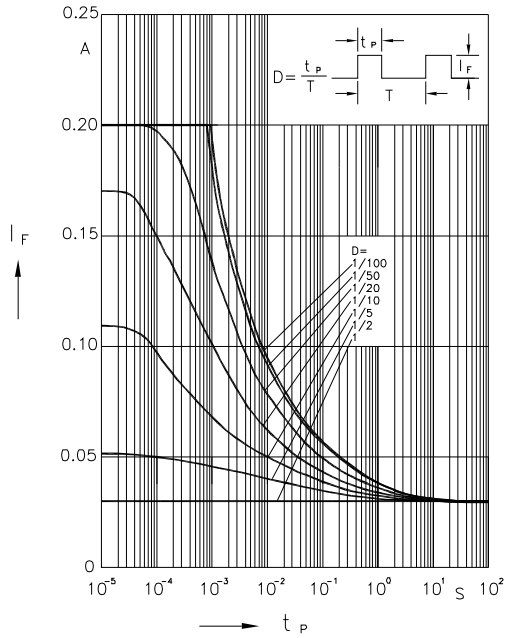
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White

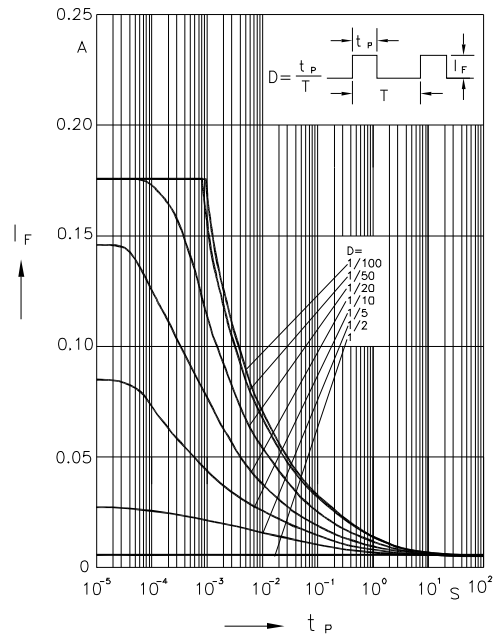
APH1608RWF/A



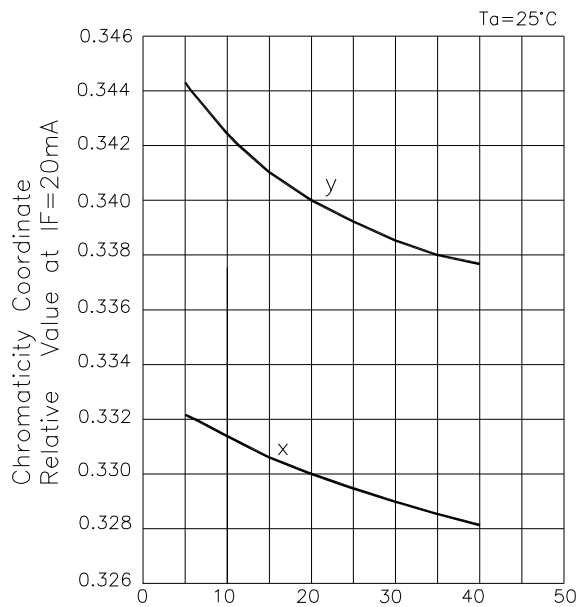
APH1608RWF/A



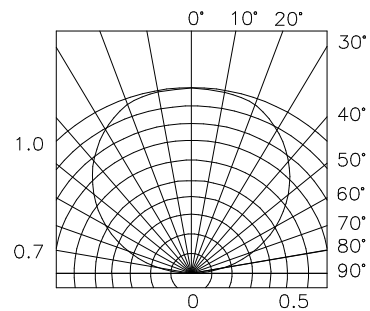
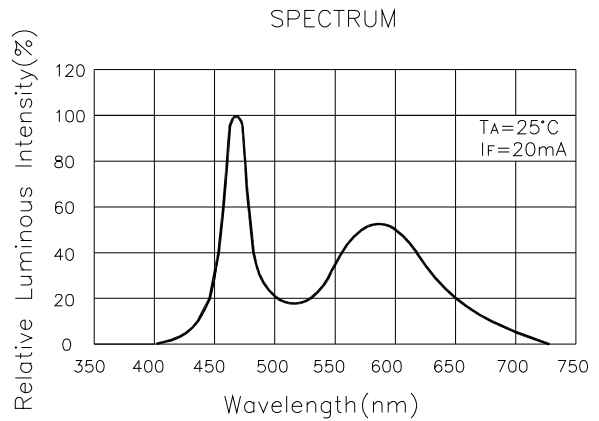
Permissible Pulse Handling Capability
Duty cycle $D = \text{parameter}$, $T_A = 25^\circ\text{C}$



Permissible Pulse Handling Capability
Duty cycle $D = \text{parameter}$, $T_A = 85^\circ\text{C}$

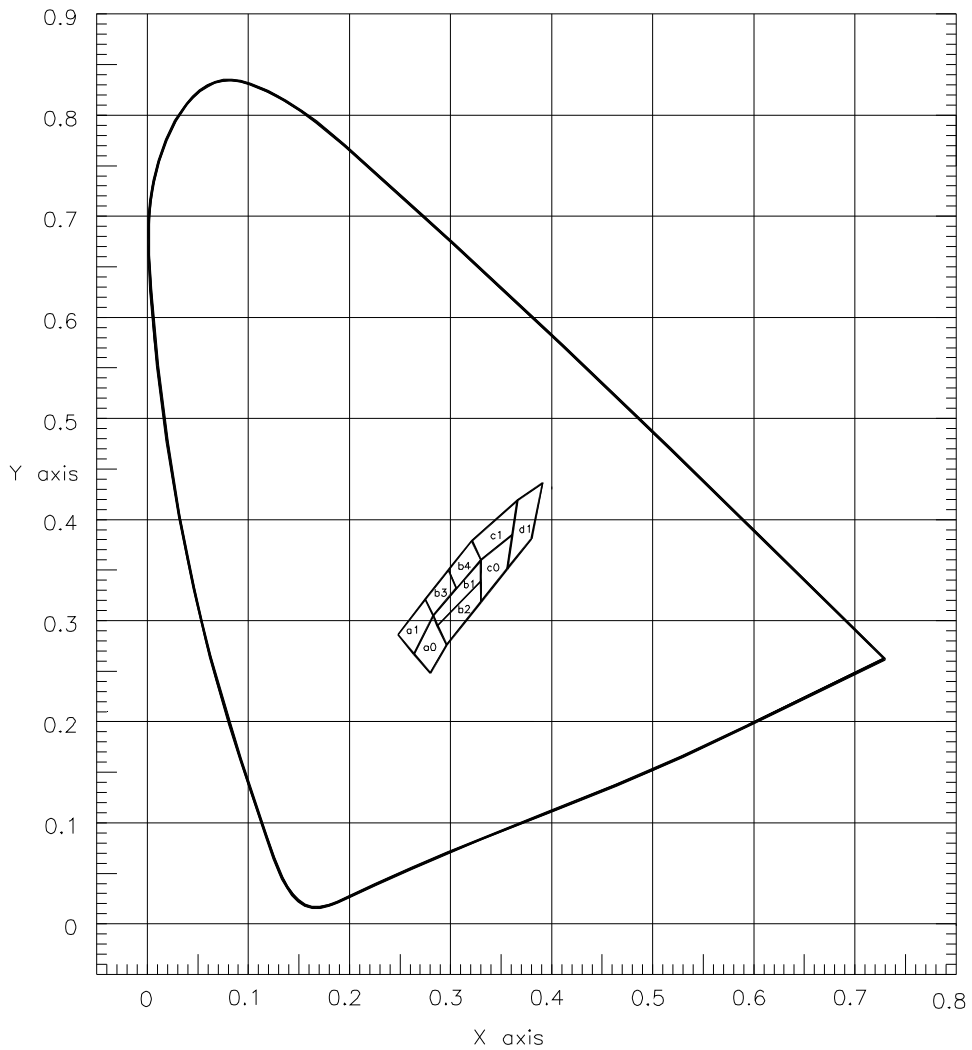


Forward Current (mA)
Chromaticity Coordinate Shift Vs. Forward Current



SPATIAL DISTRIBUTION

Color Codes



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

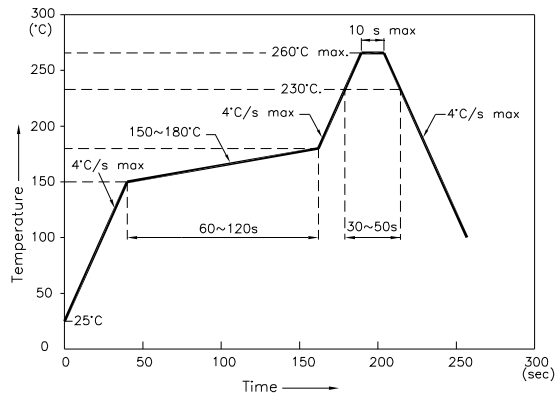
a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248
b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276
c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318

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

T_a=25°, I_F=20mA Measurement Uncertainty of the Color Coordinates: +/-0.01

APH1608RWF/A

Reflow Soldering Profile For Lead-free SMT Process.

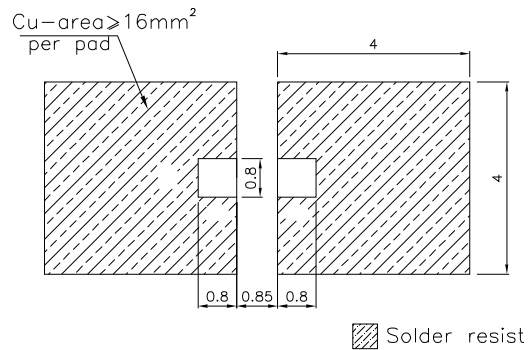
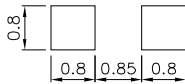


NOTES:

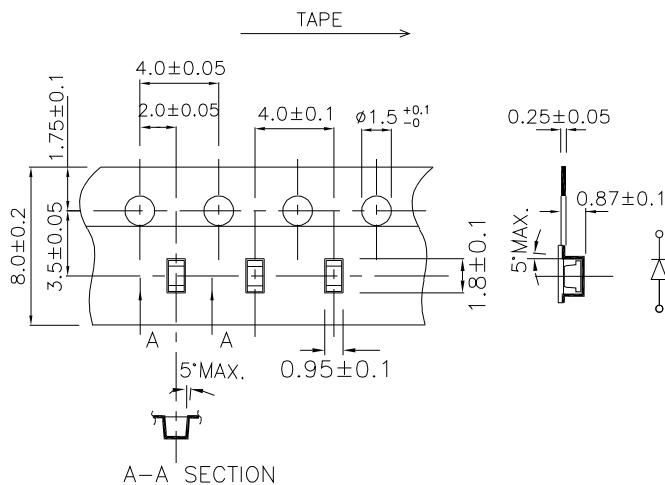
1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

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

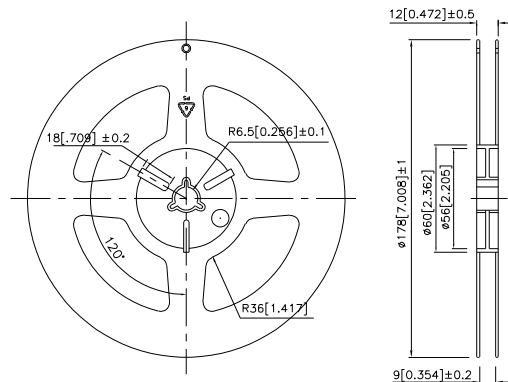
Pad design for improved heat dissipation



Tape Specifications (Units : mm)

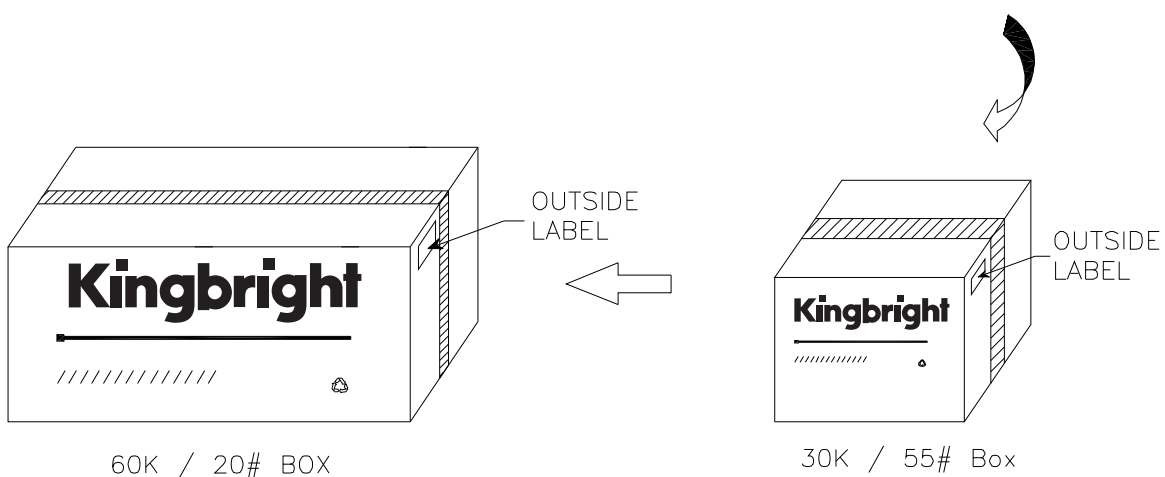
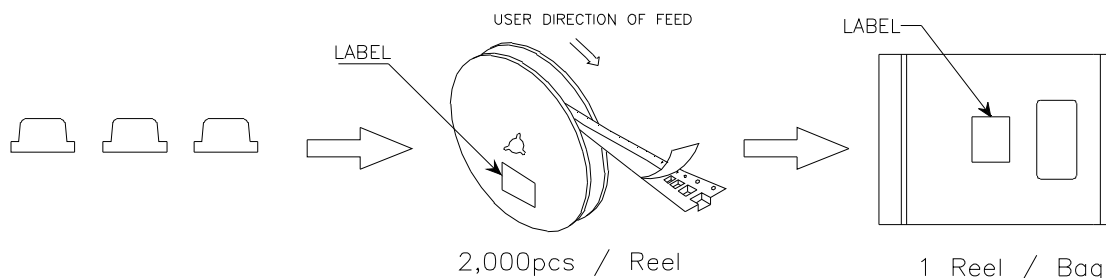



Reel Dimension



PACKING & LABEL SPECIFICATIONS

APH1608RWF/A



Kingbright	
P/NO: APH1608XXX	
QTY: 2,000 pcs	Q.C. Q C xx xx xx PASSED
S/N: XXX	
CODE: XXX	
LOT NO:	
 xxxxxxxxxxxxxxxxxxxxxxxx	
RoHS Compliant	