

Kingbright

3.0x2.0mm SURFACE MOUNT LED LAMP

PRELIMINARY SPEC



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Part Number: AA3020RWC/A

WHITE

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.

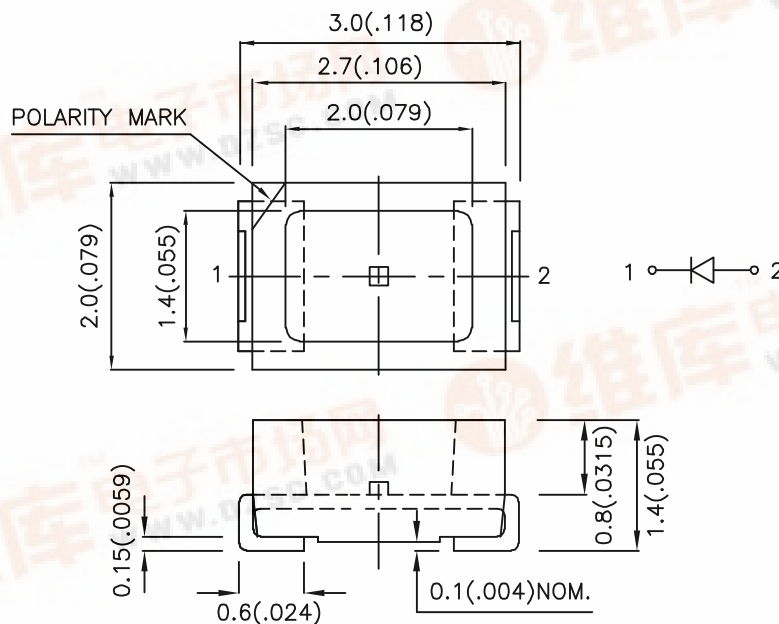
Features

- 3.0MM X 2.0MM, 1.4MM HIGH, ONLY MINIMUM SPACE REQUIRED.
- SUITABLE FOR COMPACT OPTOELECTRONIC APPLICATIONS.
- LOW POWER CONSUMPTION.
- PACKAGE : 2000PCS / REEL.
- MOISTURE SENSITIVITY LEVEL : LEVEL 4.
- ELECTROSTATIC DISCHARGE THRESHOLD (HBM):1000V.
- TYP. COLOR TEMPERATURE:6500K
- COLOR COORDINATES:X=0.33,Y=0.34 ACC. TO CIE1931(WHITE).
- OPTICAL EFFICIENCY:9.5 lm/W(TYP.)
- COLOR REPRODUCTION INDEX:80.
- RoHS COMPLIANT.

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.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
3. Specifications are subject to change without notice.

Selection Guide

Part No.	Dice	Lens Type	luminous Intensity ^{Note2} Iv(mcd) @ 20 mA		Φ_v (mm) ^{Note3} @ 20 mA	Viewing Angle ^{Note1}
			Min.	Typ.	Typ.	2 θ 1/2
AA3020RWC/A	WHITE (InGaN)	WATER CLEAR	70	125	630	90°

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P _t	114	mW
Reverse Voltage	V _R	5	V
Junction temperature	T _J	110	°C
Operating Temperature	T _{op}	-40 To +85	°C
Storage Temperature	T _{stg}	-40 To +100	°C
DC Forward Current	I _F	30	mA
Peak Forward Current ^{Note4}	I _{FM}	100	mA
Thermal resistance Junction/ambient ^{Note5} Junction/solder point	R _{th JA} R _{th JS}	300 140	°C/W °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.R_{th}(J-A) Results from mounting on PC board FR4 (pad size $\geq 16 \text{ mm}^2$ per pad),

Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Value	Unit
Chromaticity coordinate x acc.to CIE1931 I _F =20mA [Typ.]	X ^{Note1}	0.33	-
Chromaticity coordinate y acc.to CIE1931 I _F =20mA [Typ.]	Y ^{Note1}	0.34	-
Forward Voltage I _F =20mA [Min.]	V _F ^{Note2}	2.7	V
Forward Voltage I _F =20mA [Typ.]		3.3	
Forward Voltage I _F =20mA [Max.]		3.8	
Reverse Current (V _R =5V) [Typ.]	I _R	0.01	μA
Reverse Current (V _R =5V) [Max.]		10	
Temperature coefficient of x I _F =20mA, -10°C $\leq$ T $\leq$ 100°C [Typ.]	TC _x	-0.1	10 ⁻³ /°C
Temperature coefficient of y I _F =20mA, -10°C $\leq$ T $\leq$ 100°C [Typ.]	TC _y	-0.2	10 ⁻³ /°C
Temperature coefficient of V _F I _F =20mA, -10°C $\leq$ T $\leq$ 100°C [Typ.]	TC _v	-2.5	mV/°C

Notes:

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

Brightness codes

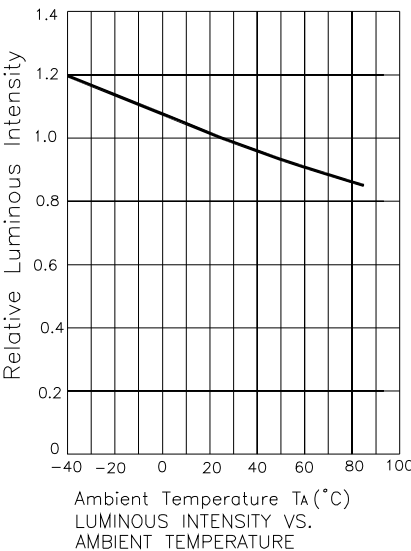
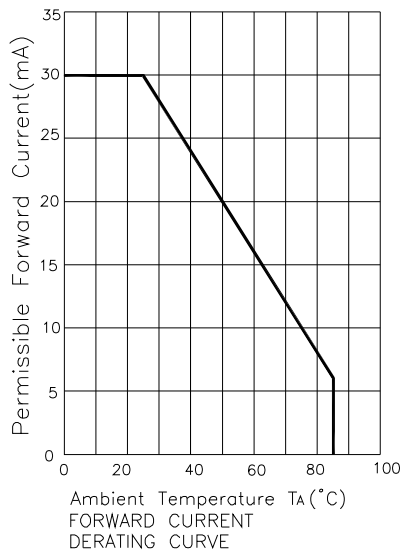
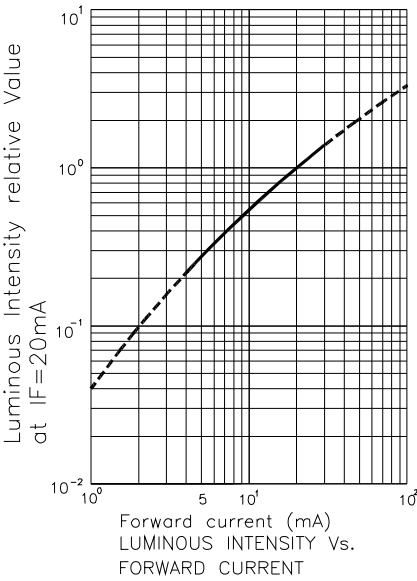
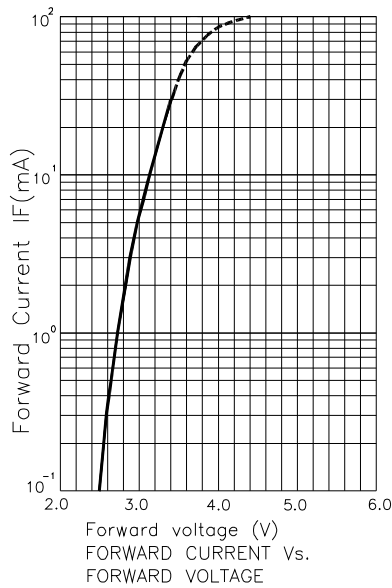
luminous Intensity ^{Note1} Iv(mcd) @ 20mA			Φ_v (mlm) ^{Note2} @ 20mA
Code.	Min.	Max.	Typ.
M	70	130	480
N	110	220	710
P	180	320	960
Q	280	420	1270

Notes:

- 1.Luminous intensity is measured by a current pulse of 10ms at a tolerance of $\pm 15\%$.
2.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.

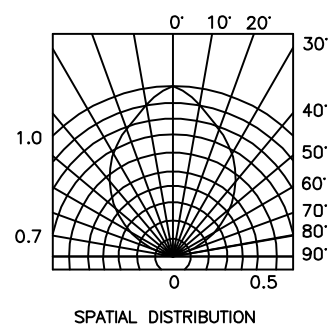
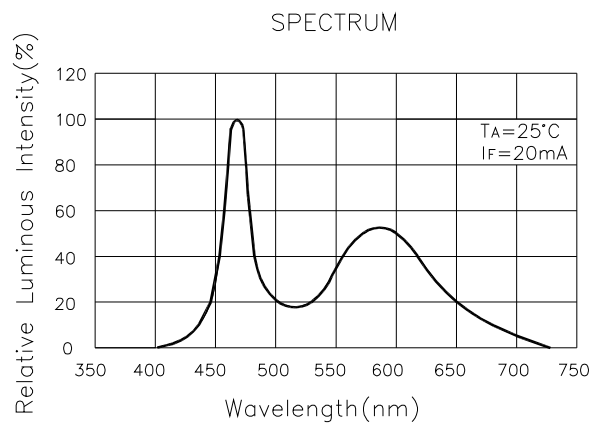
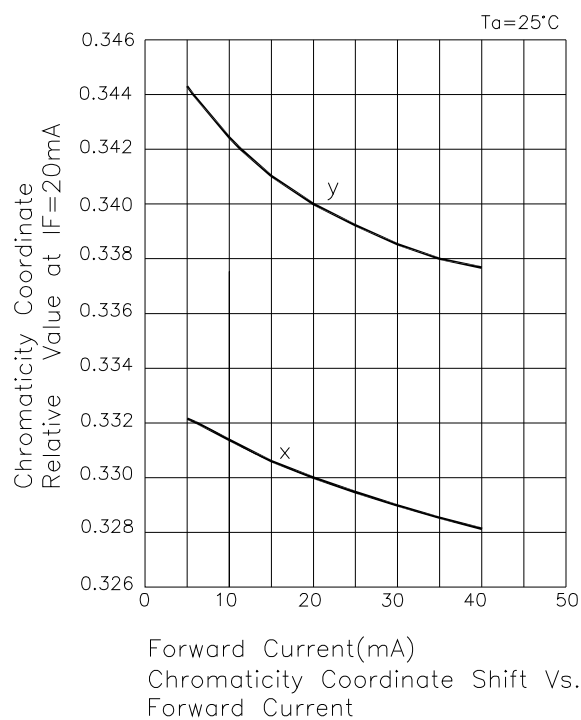
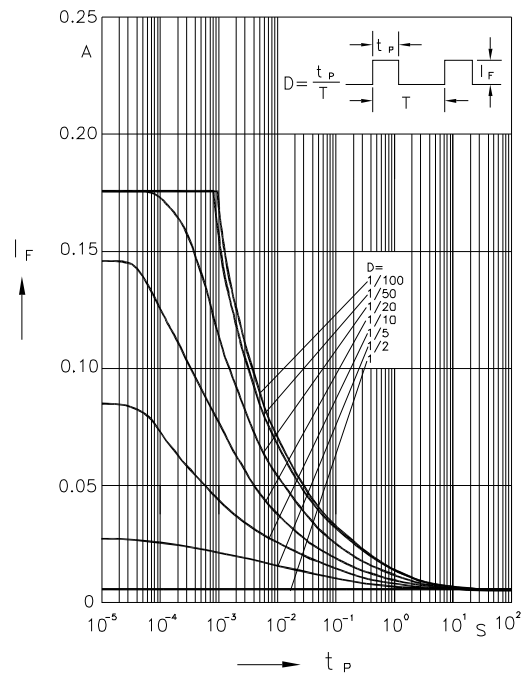
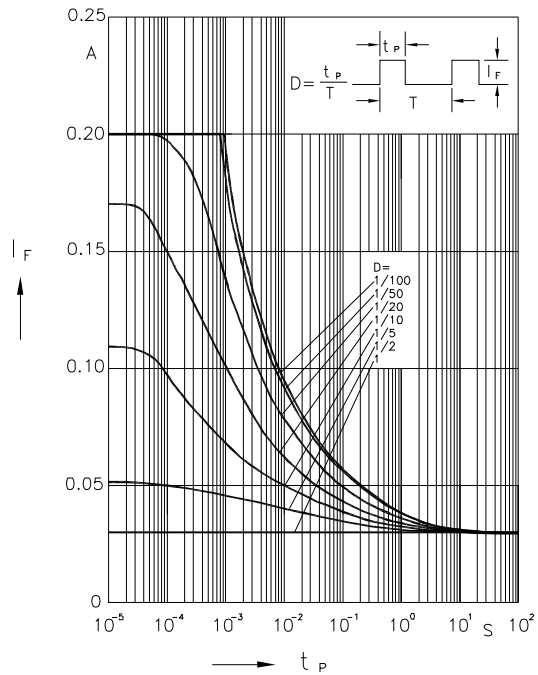
White

AA3020RWC/A

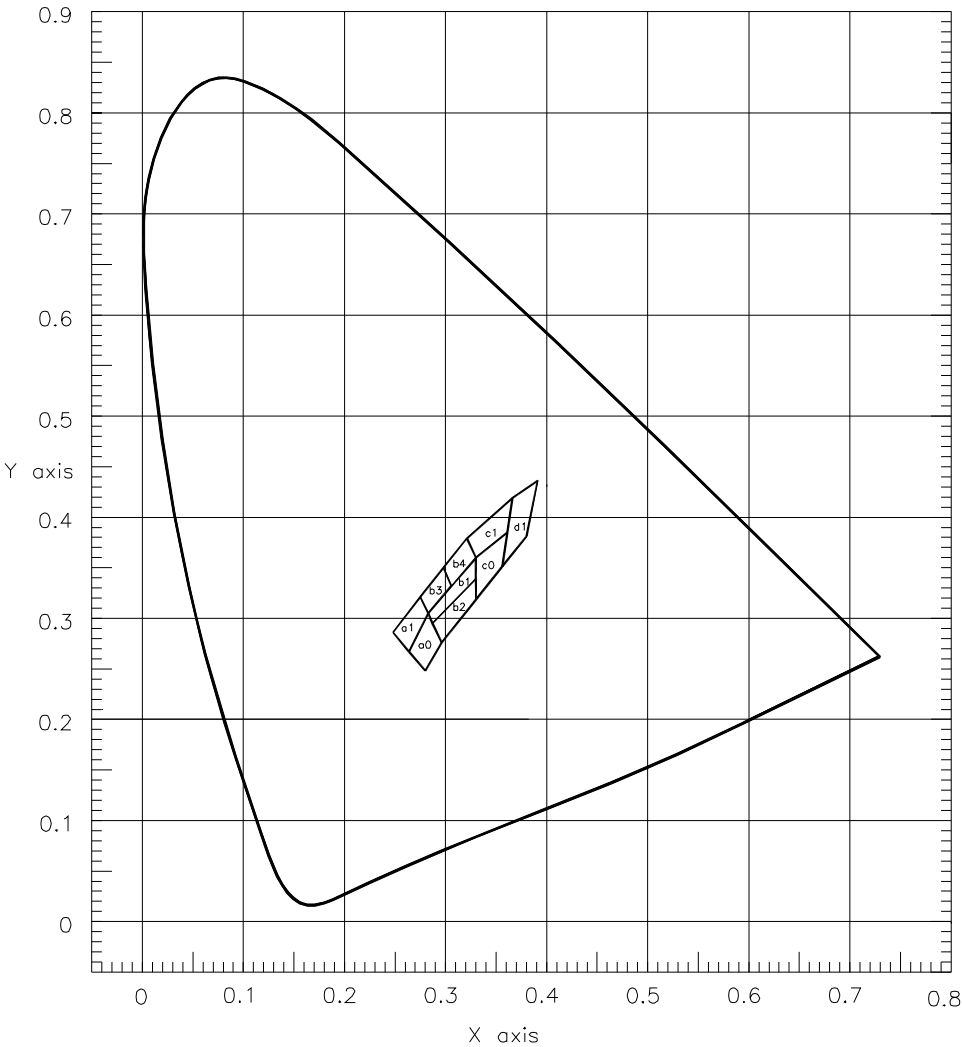


White

AA3020RWC/A



Color Codes AA3020RWC/A



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

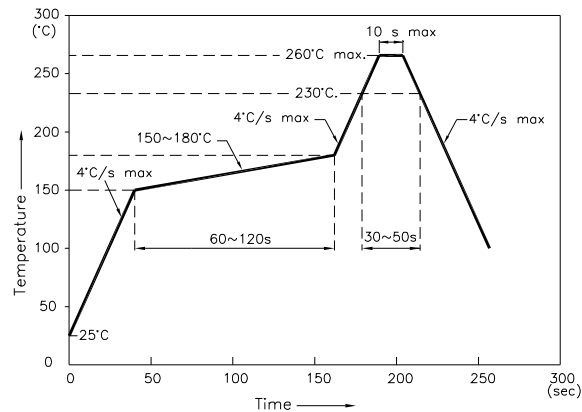
a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248
b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276
c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318

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

AA3020RWC/A

Reflow Soldering Profile For Lead-free SMT Process.

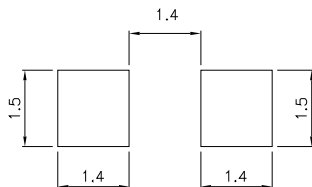


NOTES:

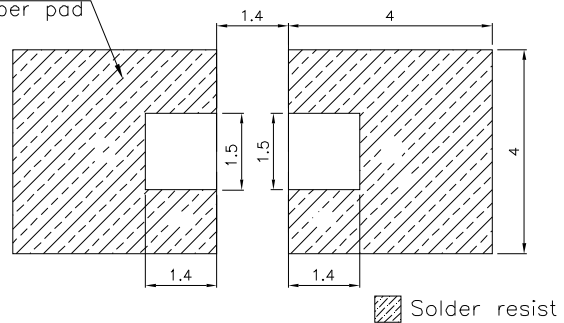
1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

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

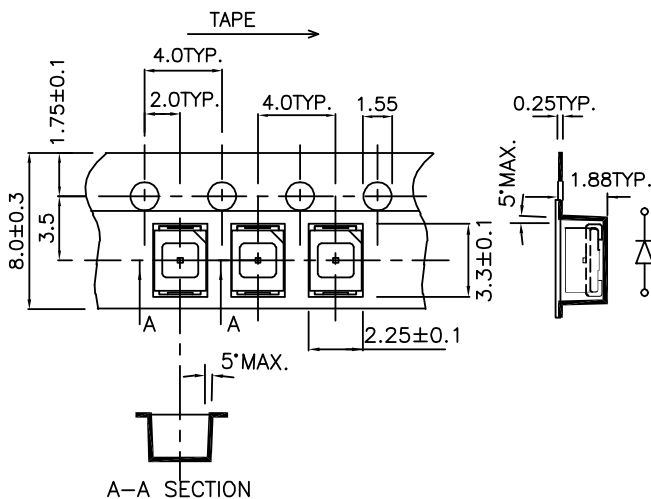
Pad design for improved heat dissipation



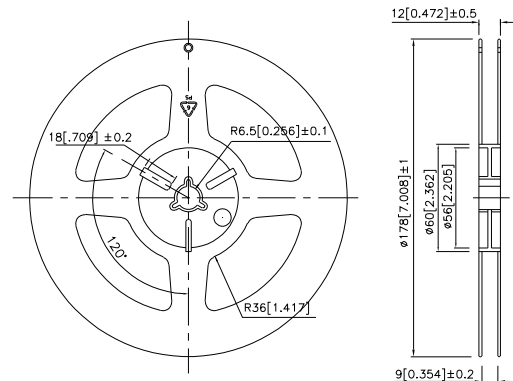
Cu-area ≥ 16mm²
per pad



Tape Specifications (Units : mm)

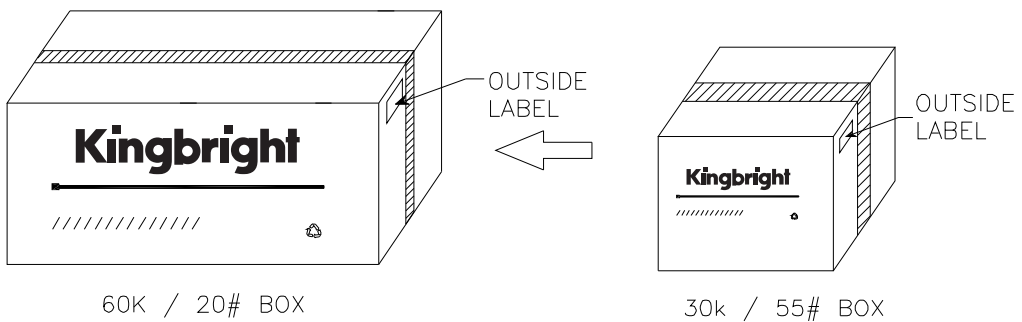
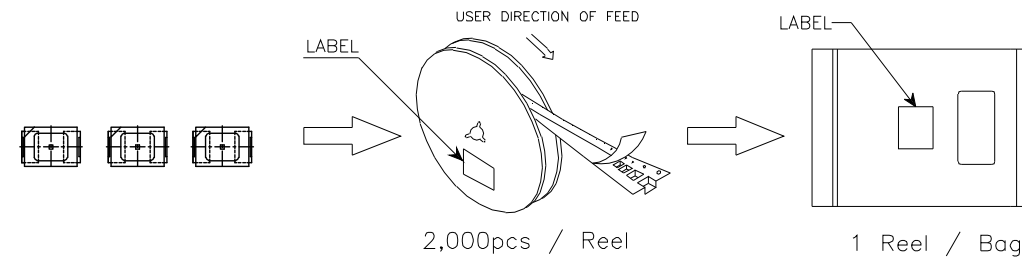


Reel Dimension



PACKING & LABEL SPECIFICATIONS

AA3020RWC/A



Kingbright	
P/N0: AA3020xxx	
QTY: 2,000 pcs	Q.C. Q C xx xx xxxx PASSED
S/N: XXXX	Date
CODE: XXX	
LOT NO:  xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	
RoHS Compliant	