

PRELIMINARY SPEC

Part Number: AA3021PR4S/Z

WARM WHITE



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- 3.0MM X 2.0MM, 1.3MM 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: 3400K
- COLOR COORDINATES:X=0.41,Y=0.39 ACC. TO CIE1931.
- OPTICAL EFFICIENCY: 31.3 lm/W(TYP.)
- COLOR REPRODUCTION INDEX: 70
- RoHS COMPLIANT.

Description

The source color devices are made with InGaN Light Emitting Diode.

Static electricity and surge damage the LEDs.

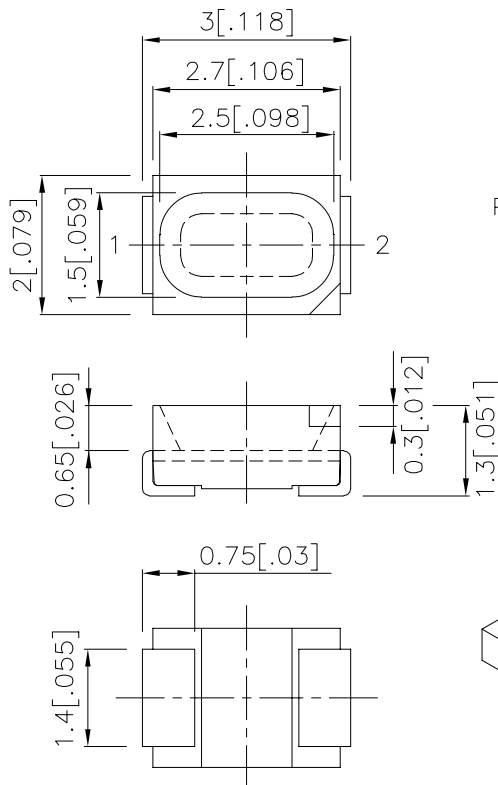
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

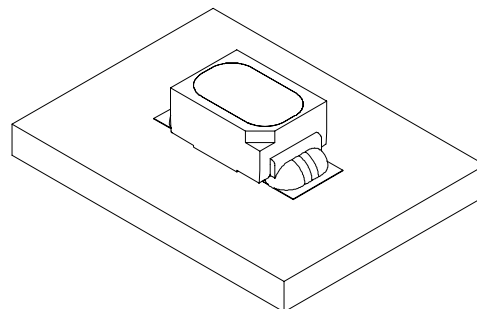
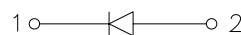
Applications

- 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.

Package Dimensions



PB/Z (WARM WHITE)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.2(0.008)$ unless otherwise noted.
3. Specifications are subject to change without notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

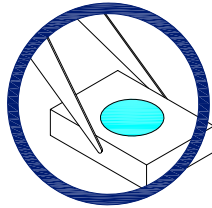


Handling Precautions

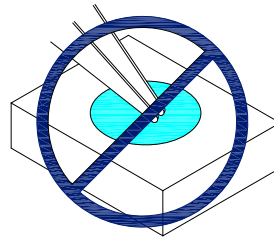
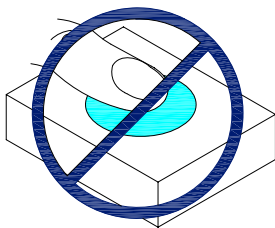
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might leads to damage and premature failure of the LED.

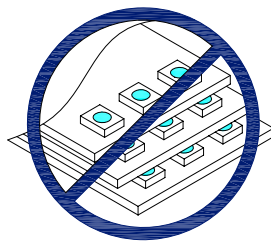
1. Handle the component along the side surfaces by using forceps or appropriate tools.



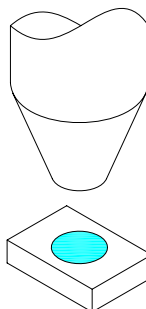
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.



4. During surface-mounting, the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



Selection Guide

Part No.	Dice	Lens Type	luminous Intensity ^{Note2} Iv(mcd) @ 20mA		Φ_v (mIm) ^{Note3} @ 20mA	Viewing Angle ^{Note1}
			Min.	Typ.	Typ.	2 θ 1/2
AA3021PR4S/Z	WARM WHITE (InGaN)	WATER CLEAR	480	600	2000	125°

Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value	Unit
Power dissipation	Pt	111	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	250	°C/W
Junction/solder point	Rth JS	100	°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 ≥ 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	0.41	-
Chromaticity coordinate y acc.to CIE1931 IF=20mA [Typ.]	Y	0.39	-
Forward Voltage IF=20mA [Min.]	VF ^{Note1}	2.7	V
Forward Voltage IF=20mA [Typ.]		3.2	
Forward Voltage IF=20mA [Max.]		3.7	
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

Note:

1. Forward voltage is measured with a current pulse of 10ms at a tolerance of $\pm 0.1V$.

Brightness codes

luminous Intensity ^{Note1} Iv(mcd) @ 20mA			Φ_v (mlm) ^{Note2} @ 20mA
Code.	Min.	Max.	Typ.
S	480	750	1900
T	650	1100	2100
U	900	1500	2300

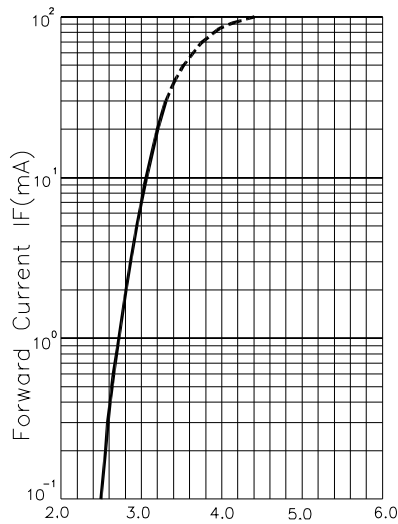
Notes:

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

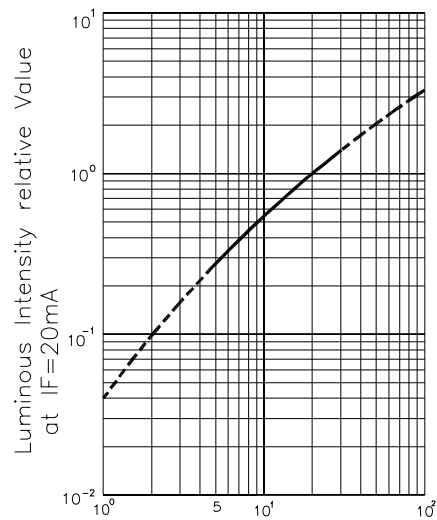
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Warm White

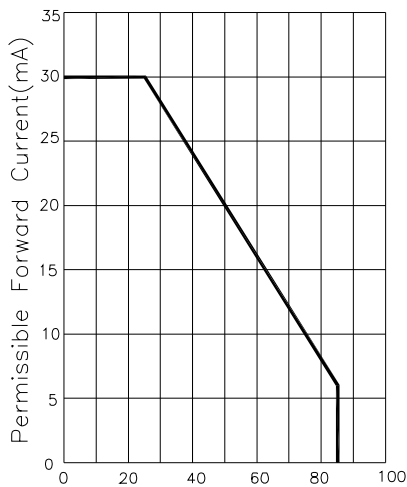
AA3021PR4S/Z



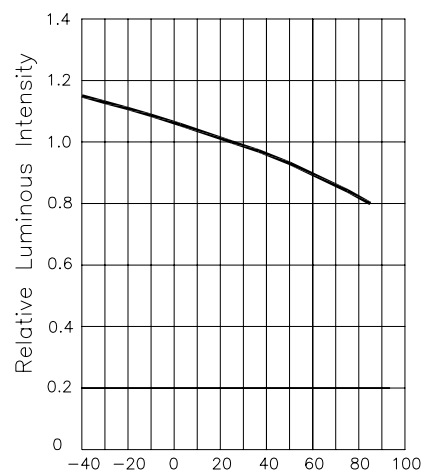
Forward voltage (V)
FORWARD CURRENT Vs.
FORWARD VOLTAGE



Forward current (mA)
LUMINOUS INTENSITY Vs.
FORWARD CURRENT

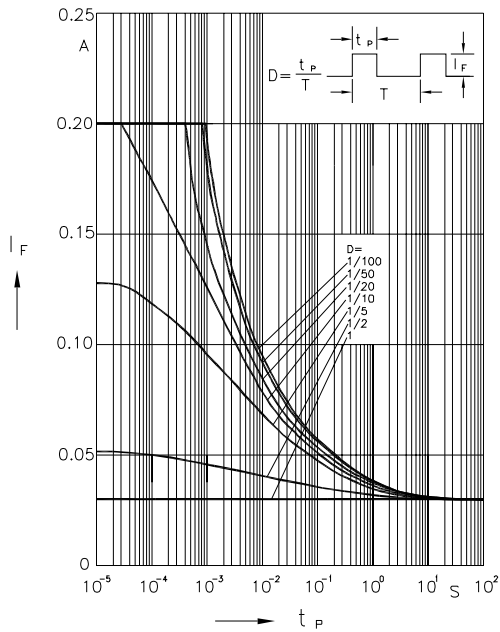


Ambient Temperature T_A ($^{\circ}C$)
FORWARD CURRENT
DERATING CURVE

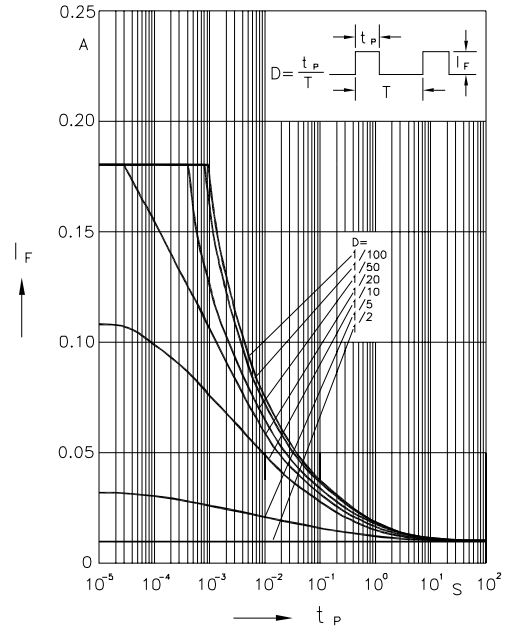


Ambient Temperature T_A ($^{\circ}C$)
LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

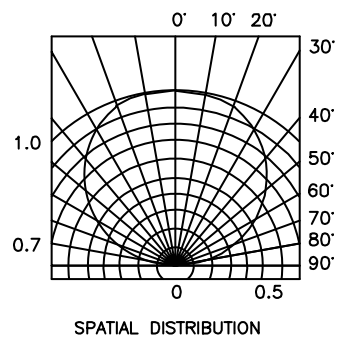
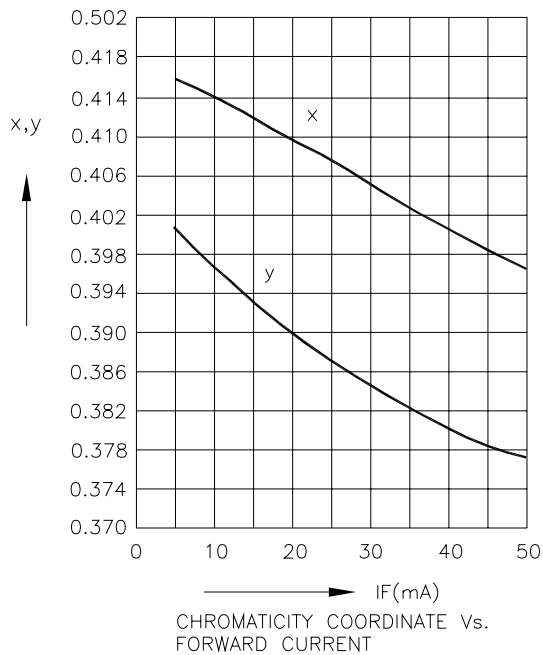
AA3021PR4S/Z



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

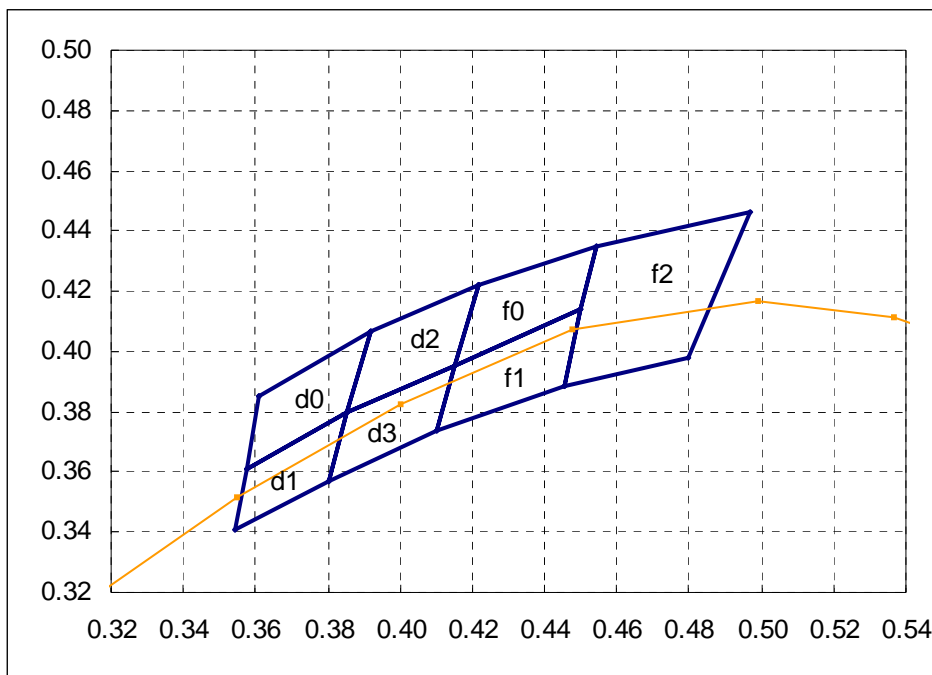


Permissible Pulse Handling Capability
Duty cycle $D = \text{parameter}$, $T_A = 85^\circ\text{C}$



AA3021PR4S/Z

Warm White CIE

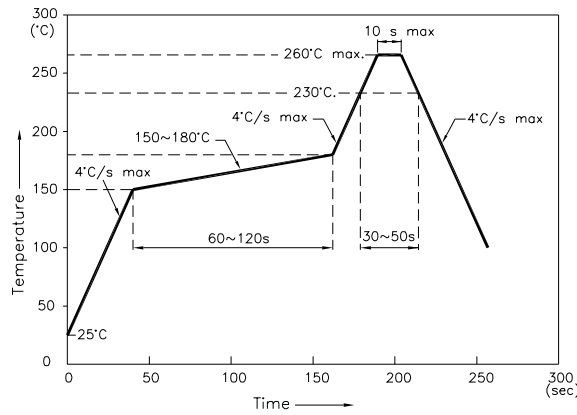


d0					
x	0.3610	0.3575	0.3870	0.3942	
y	0.3850	0.3612	0.3820	0.4068	
Reference CCT : 4700~3900K					
d2					
x	0.3870	0.4254	0.4350	0.3942	
y	0.3820	0.4044	0.4260	0.4068	
Reference CCT : 3900~3200K					
f0					
x	0.4350	0.4732	0.4600	0.4254	
y	0.4260	0.4398	0.4152	0.4044	
Reference CCT : 3200~2700K					
f2					
x	0.4732	0.4600	0.4440	0.4800	0.5165
y	0.4398	0.4152	0.3847	0.3960	0.4510
Reference CCT : 2700~2300K					

d1				
x	0.3575	0.3545	0.3800	0.3870
y	0.3612	0.3408	0.3580	0.3820
Reference CCT : 4700~3900K				
d3				
x	0.4254	0.3870	0.3800	0.4119
y	0.4044	0.3820	0.3580	0.3730
Reference CCT : 3900~3200K				
f1				
x	0.4600	0.4254	0.4119	0.4440
y	0.4152	0.4044	0.3730	0.3847
Reference CCT : 3200~2700K				

AA3021PR4S/Z

Reflow Soldering Profile For Lead-free SMT Process.

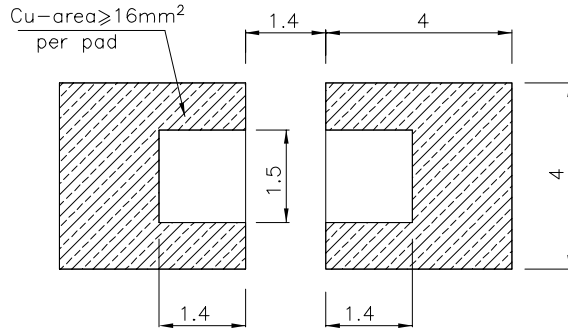
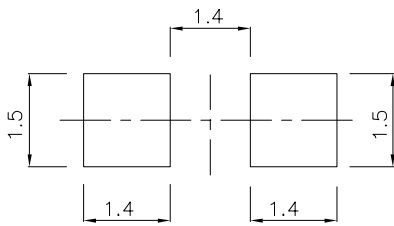


NOTES:

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.

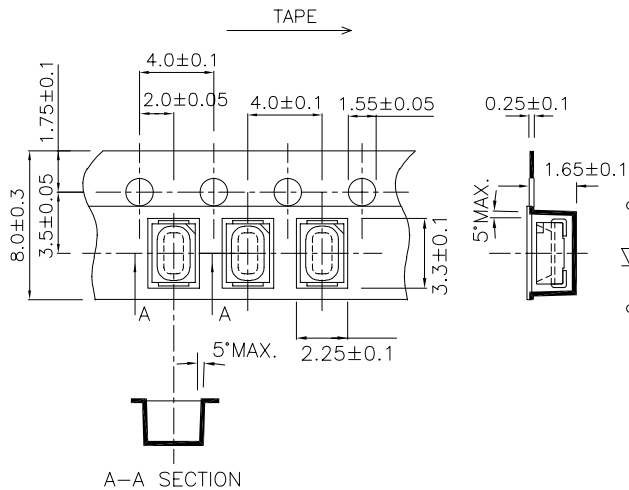
Recommended Soldering Pattern (Units : mm; Tolerance: ±0.1)

Pad design for improved heat dissipation

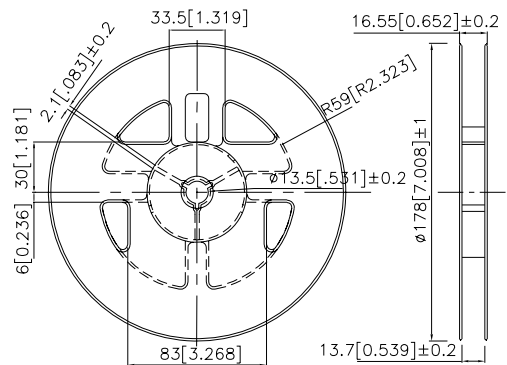


▨ Solder resist

Tape Specifications (Units : mm)

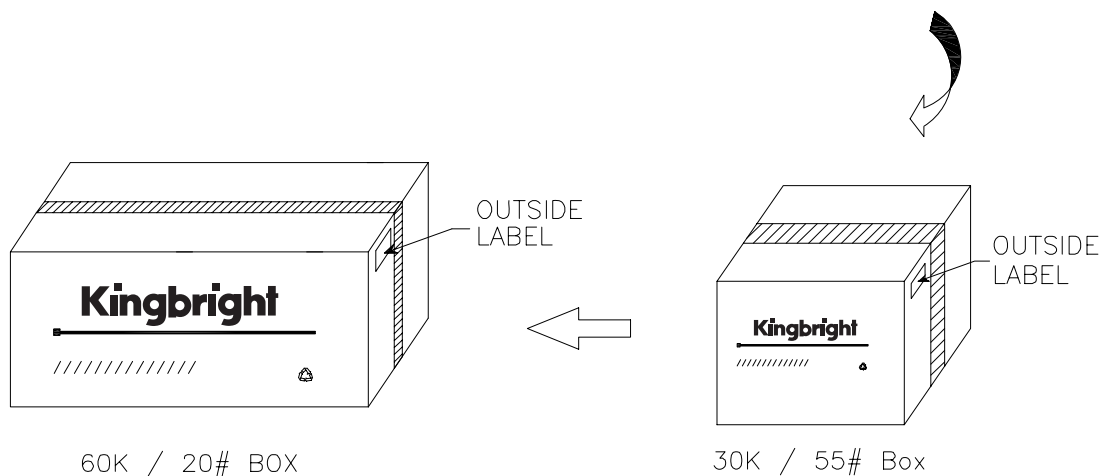
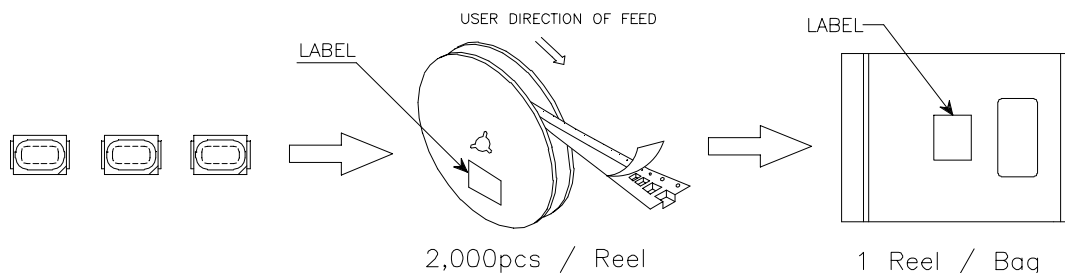



Reel Dimension



PACKING & LABEL SPECIFICATIONS

AA3021PR4S/Z



Kingbright	
Q.C.	QC XX XX. XXX PASSED
TYPE NO : AA3021XXX	
QUANTITY : 2,000 pcs	
S/N : XXX	CODE: XXX
LOT NO: 	
RoHS Compliant	