

PRELIMINARY SPEC

Part Number: APTK2012RWC/J

WHITE



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- 2.0mmx1.25mm SMT LED, 0.75mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACK LIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.
- 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:26 lm/W(TYP.)
- COLOR REPRODUCTION INDEX:80
- RoHS COMPLIANT.

Description

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

Static electricity and surge damage the LEDs.

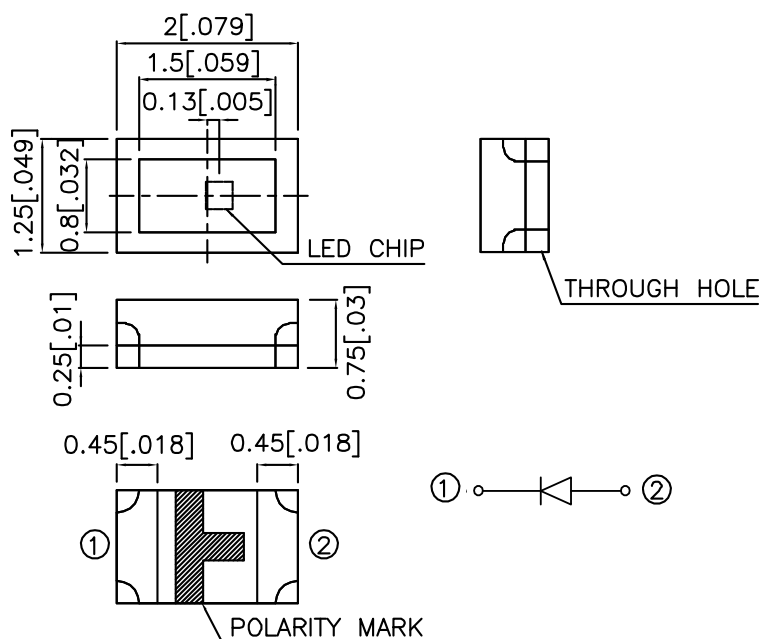
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

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.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1 (0.004") 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 (mlm) ^{Note3} @ 20 mA	Viewing Angle ^{Note1}
			Min.	Typ.	Typ.	2 θ 1/2
APTK2012RWC/J	WHITE (InGaN)	WATER CLEAR	380	700	1700	100°

Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P _t	120	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}	350 130	°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 TA=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}	2.6	V
Forward Voltage I _F =20mA [Typ.]		3.2	
Forward Voltage I _F =20mA [Max.]		4.0	
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) @ 20 mA			Φ_v (mlm) ^{Note2} @ 20 mA
Code.	Min.	Max.	Typ.
R	380	550	1270
S	480	750	1720
T	650	1100	2380

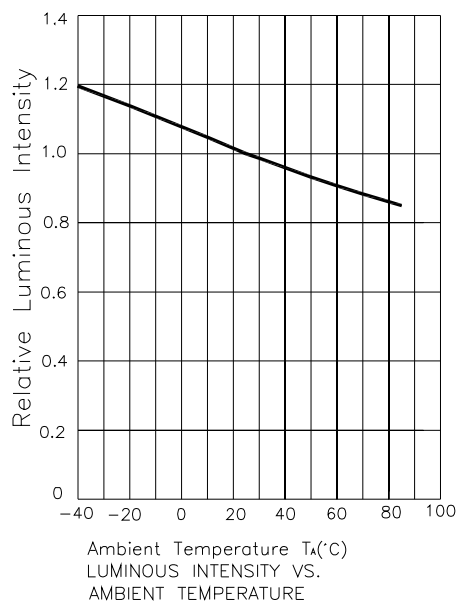
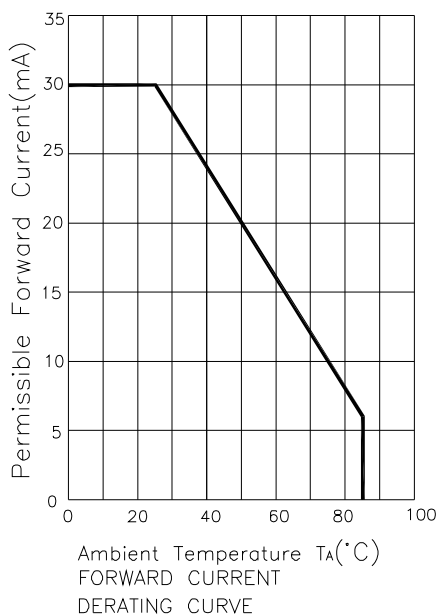
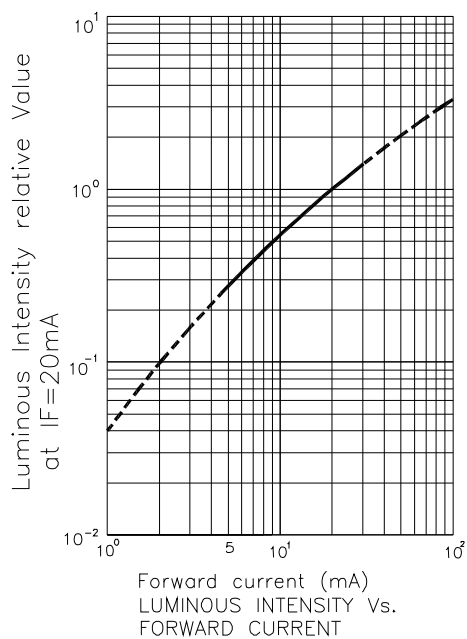
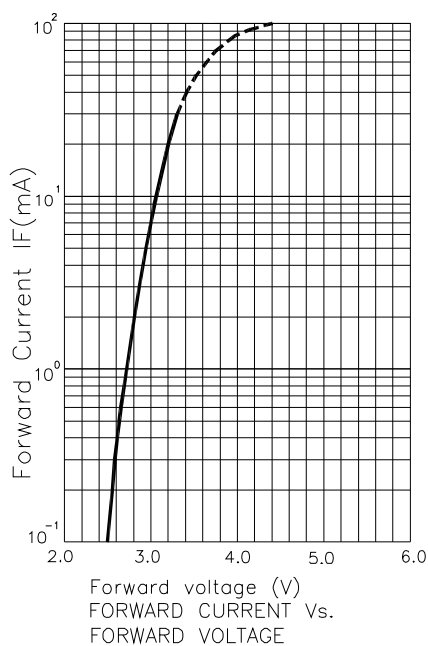
Notes:

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

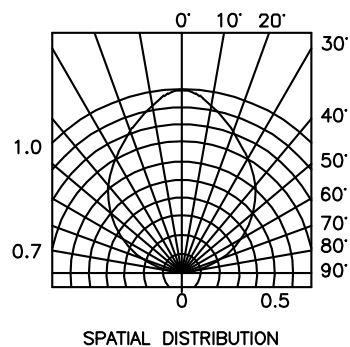
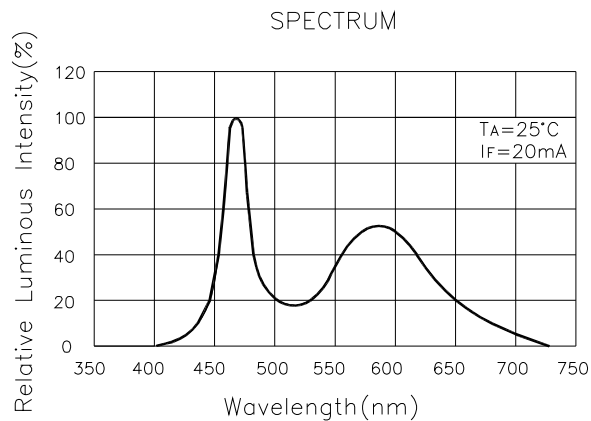
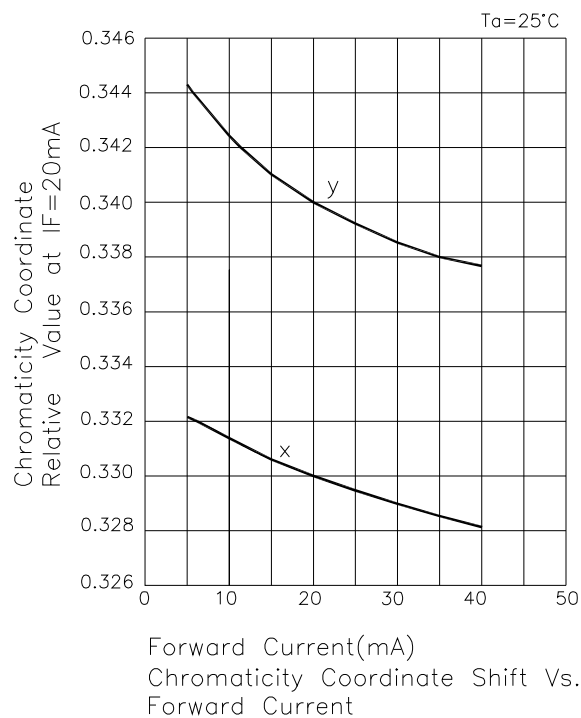
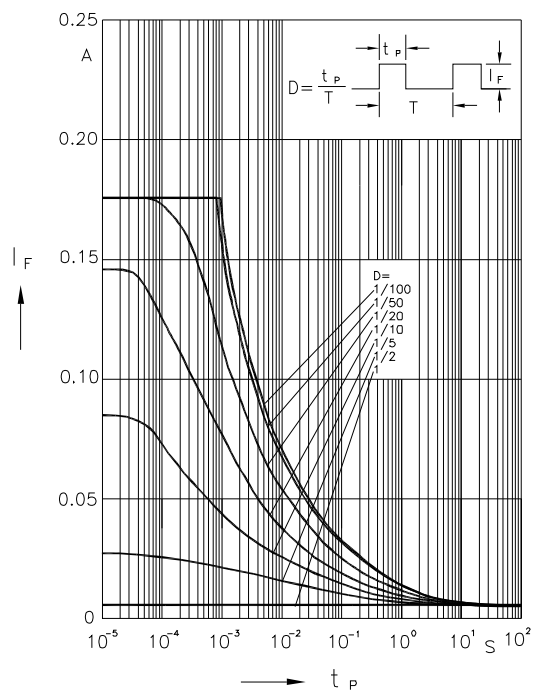
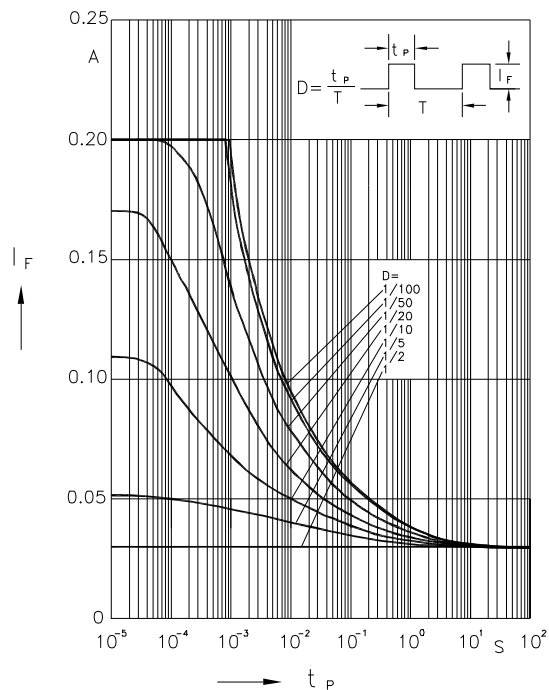
2.The typical data of Luminous Flux can only reflect statistical figures, actual parameters of individual product could differ from the typical data. For the purpose of product enhancement, the typical data is subject to change without prior notice.

White

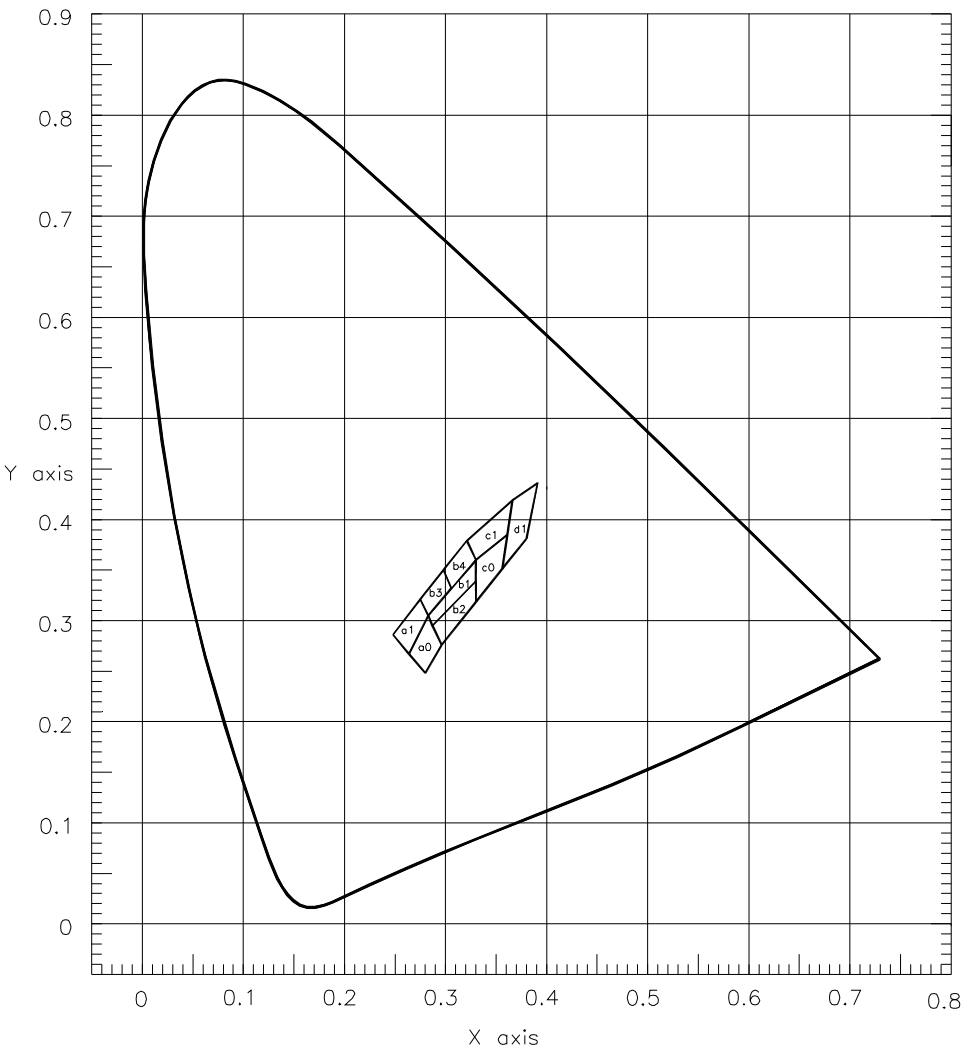
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Color Codes



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

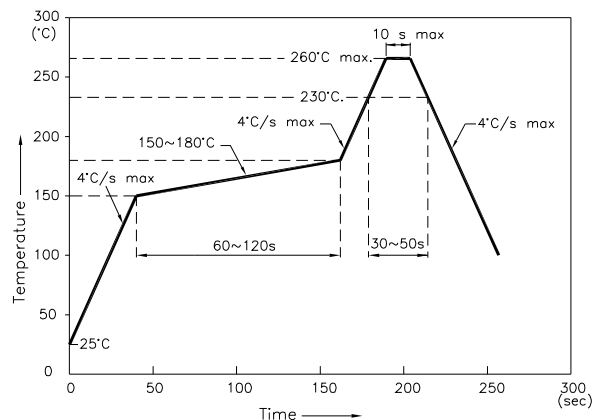
a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248
b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276
c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318

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

Ta=25°, IF=20mA Measurement Uncertainty of the Color Coordinates: +/−0.01

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Reflow Soldering Profile For Lead-free SMT Process.

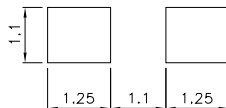


NOTES:

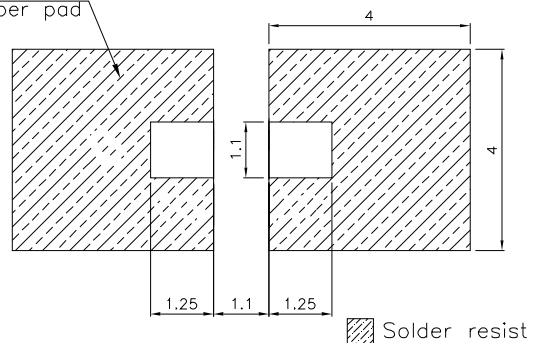
1. We recommend the reflow temperature $245^{\circ}\text{C}(+/-5^{\circ}\text{C})$. The maximum soldering temperature should be limited to 260°C .
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

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

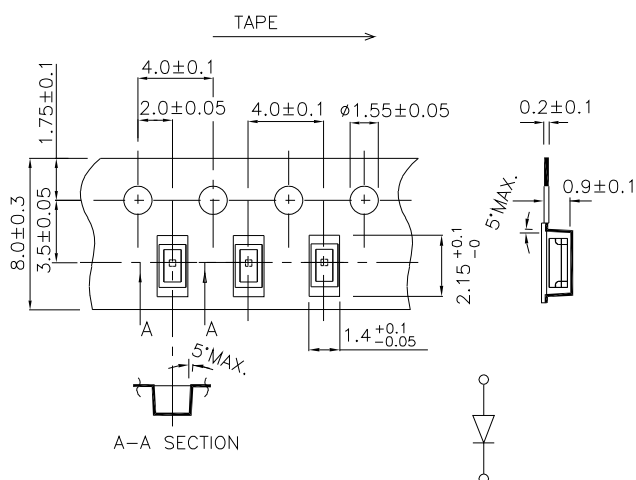
Pad design for improved heat dissipation



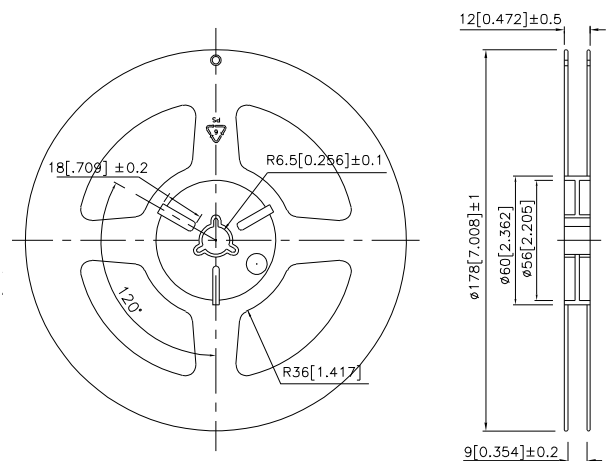
Cu-area $\geq 16\text{mm}^2$
per pad



Tape Specifications (Units : mm)

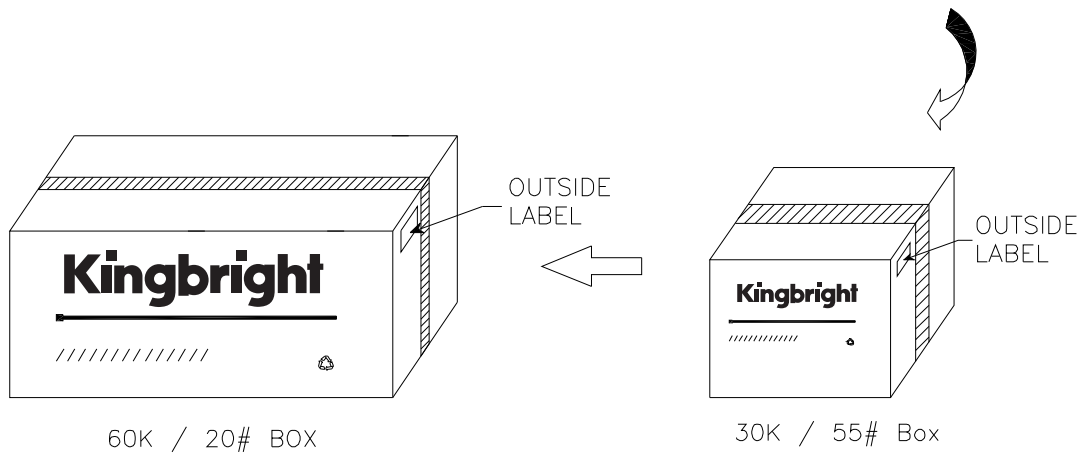
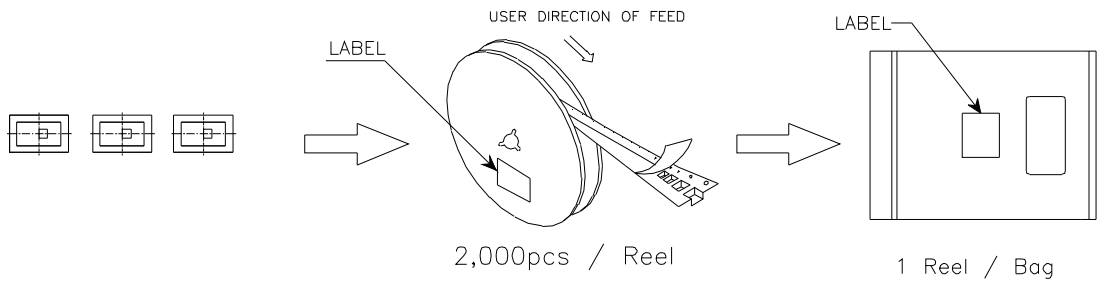



Reel Dimension



PACKING & LABEL SPECIFICATIONS

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P/NO: APTK2012xxx	
QTY: 2,000 pcs	Q.C. Q C xx xx xxxx PASSED
S/N: XXXX	Date
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RoHS Compliant	

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