

PRELIMINARY SPEC

Part Number: APT1608RWF/A

WHITE



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- 1.6mmX0.8mm SMT LED, 0.75mm THICKNESS.
- LOW POWER CONSUMPTION.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE
- MOISTURE SENSITIVITY LEVEL : LEVEL 3.
- PACKAGE: 2000PCS / REEL .
- 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.

Description

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

Static electricity and surge damage the LEDs.

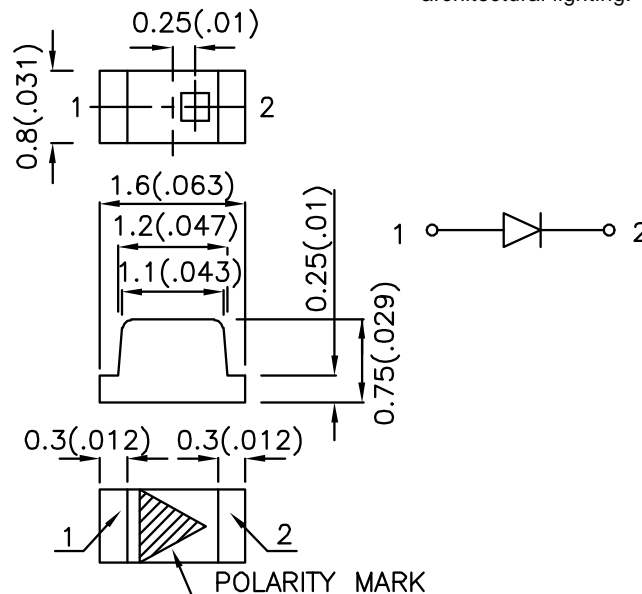
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

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 $\pm 0.1(0.004)$ 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 | | Φv (mlm) ^{Note3} @ 20 mA | Viewing Angle ^{Note1} |
|--------------|---------------|--------------------|--|------|--------------------------------------|-----------------------------------|
| | | | Min. | Typ. | Typ. | 2θ1/2 |
| APT1608RWF/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} Junction/solder point | Rth JA Rth JS | 400 150 | °C/W |

Notes:

- 1.θ1/2 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 ±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 ^{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 | μA |
| Reverse Current (VR=5V) [Max.] | | 10 | |
| Temperature coefficient of x IF=20mA, -10°C≤T≤100°C [Typ.] | TCx | -0.1 | 10 ⁻³ /°C |
| Temperature coefficient of y IF=20mA, -10°C≤T≤100°C [Typ.] | TCy | -0.2 | 10 ⁻³ /°C |
| Temperature coefficient of VF IF=20mA, -10°C≤T≤100°C [Typ.] | TCv | -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 ±0.1V.

Brightness codes

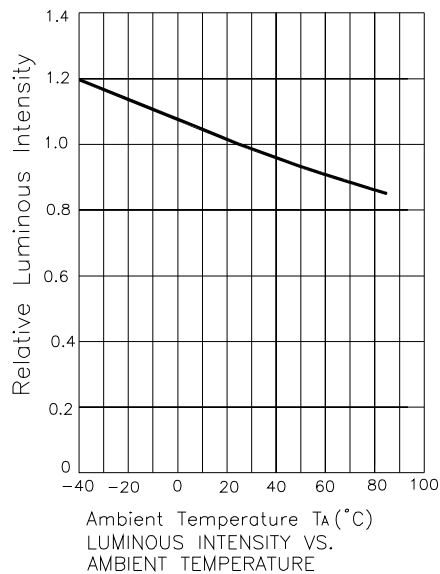
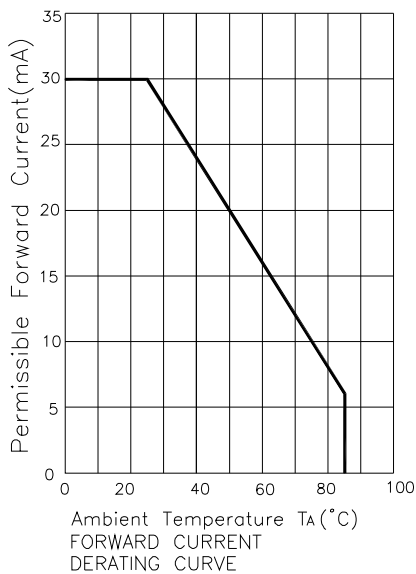
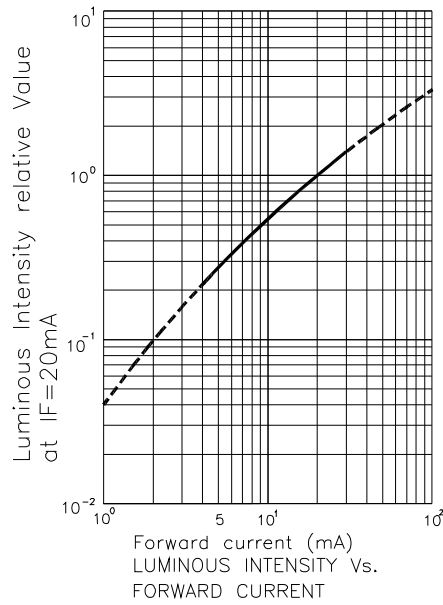
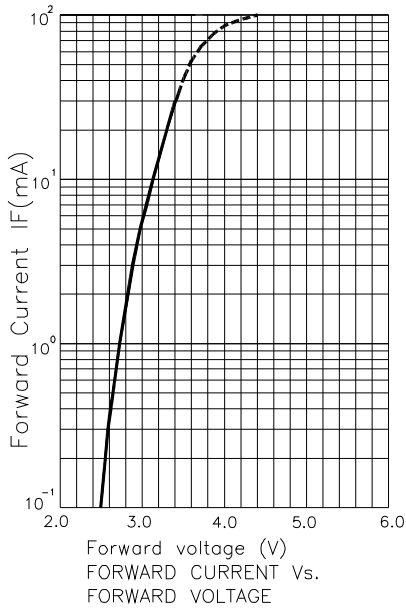
| Code. | luminous Intensity ^{Note1} Iv(mcd) @ 20 mA | | Φ_v (mlm) ^{Note2} @ 20 mA |
|-------|--|------|--|
| | Min. | Max. | Typ. |
| M | 70 | 130 | 300 |
| N | 110 | 220 | 480 |
| P | 180 | 320 | 710 |
| Q | 280 | 420 | 960 |

Notes:

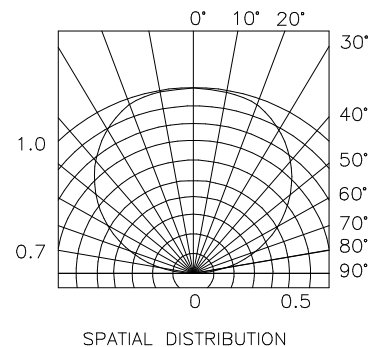
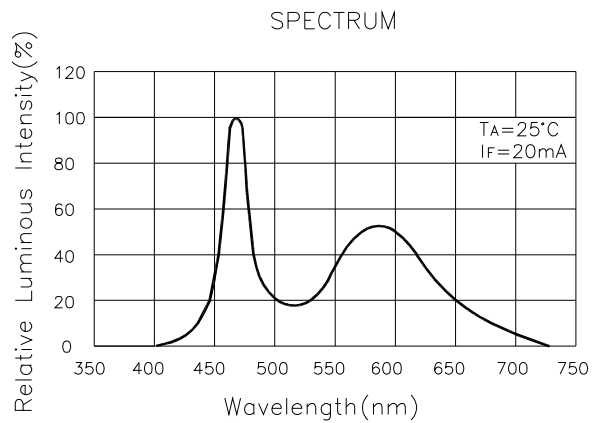
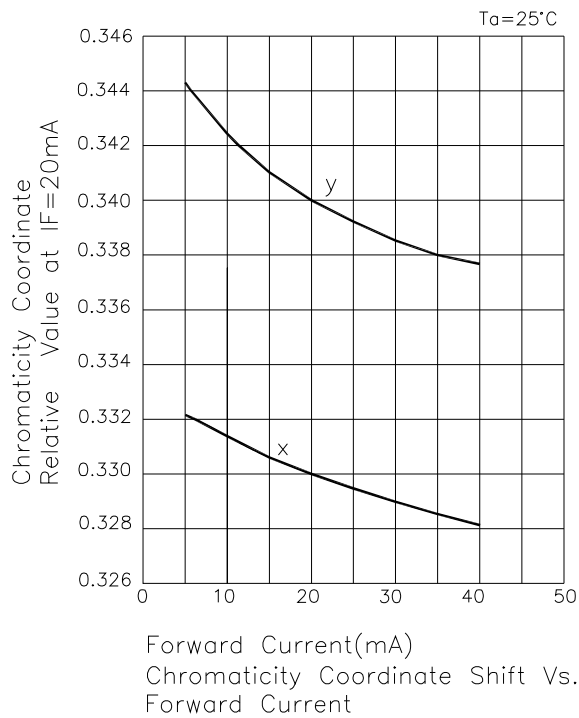
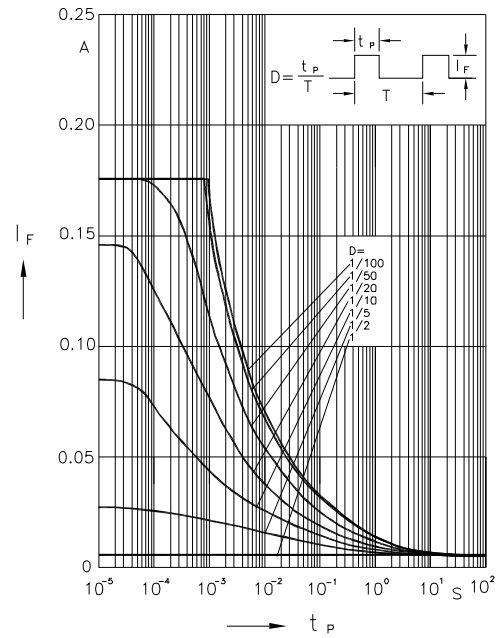
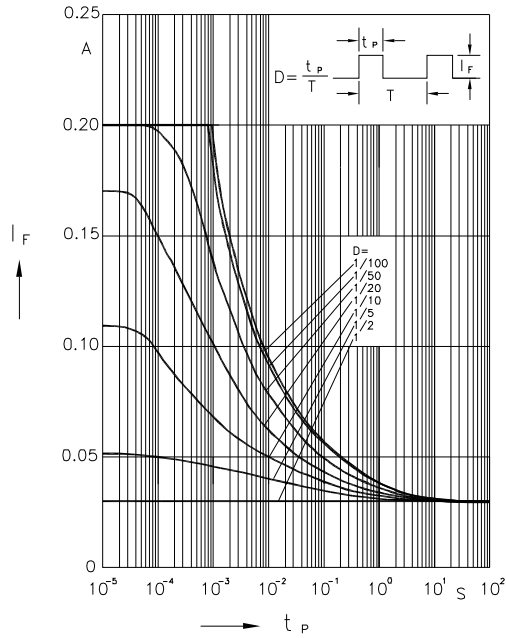
1. Luminous intensity is measured by a current pulse of 10ms at a tolerance of $\pm 15\%$.
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White

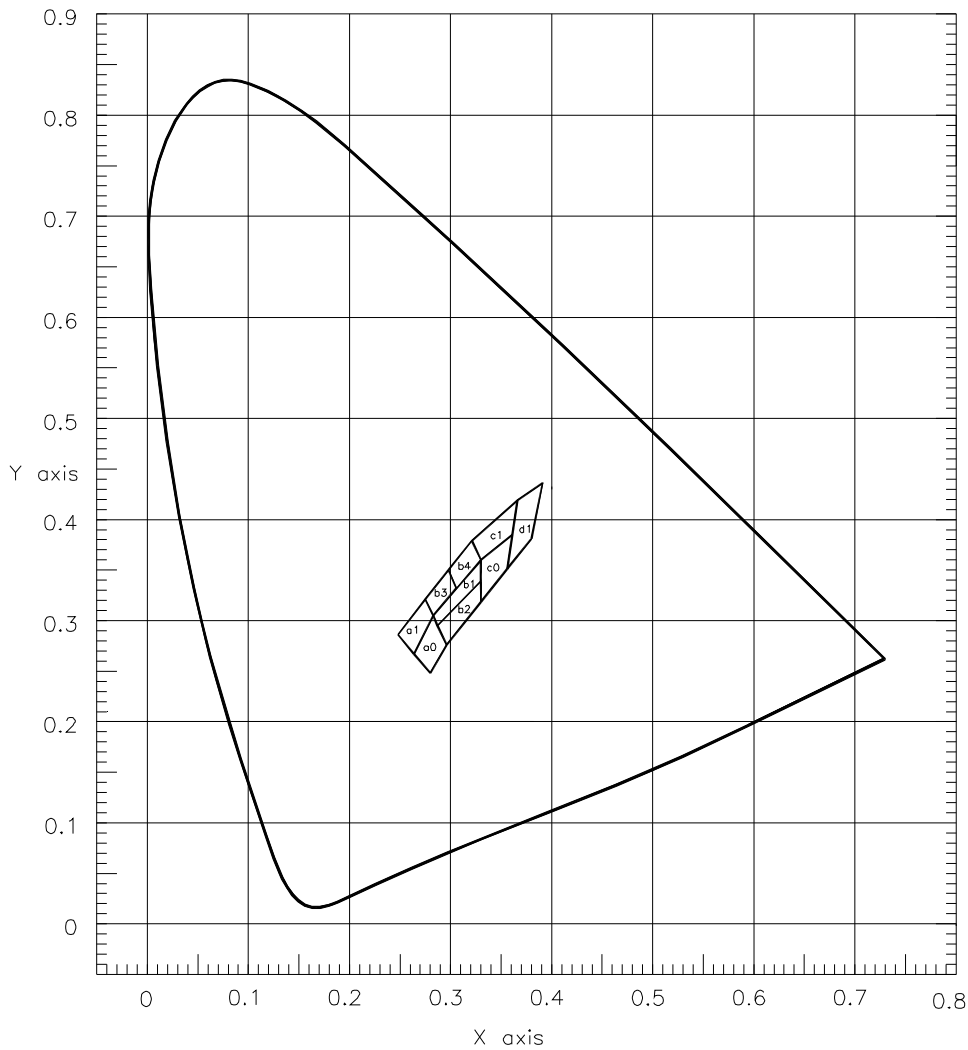
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Color Codes



| 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 |

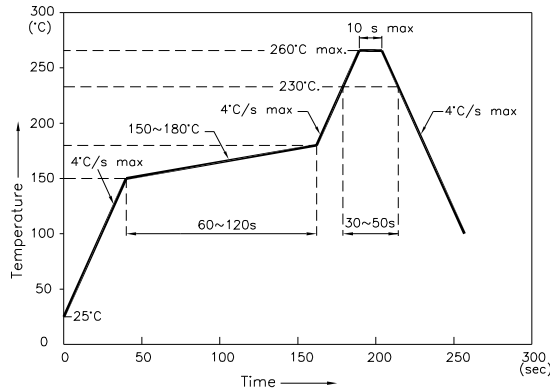
| a0 | | | | |
|----|-------|-------|-------|-------|
| X | 0.264 | 0.283 | 0.296 | 0.280 |
| Y | 0.267 | 0.305 | 0.276 | 0.248 |
| b2 | | | | |
| X | 0.287 | 0.330 | 0.330 | 0.296 |
| Y | 0.295 | 0.339 | 0.318 | 0.276 |
| c0 | | | | |
| X | 0.330 | 0.361 | 0.356 | 0.330 |
| Y | 0.360 | 0.385 | 0.351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

APT1608RWF/A

Reflow Soldering Profile For Lead-free SMT Process.

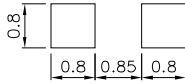


NOTES:

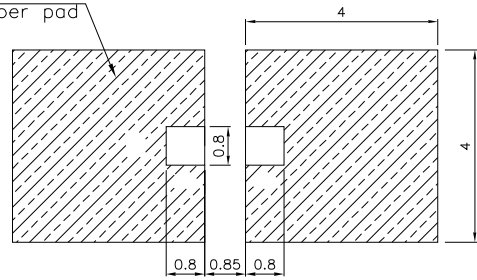
1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

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

Pad design for improved heat dissipation

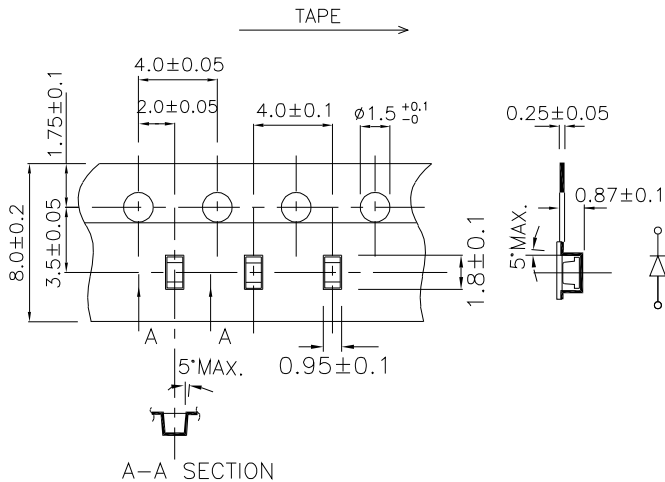


Cu-area > 16mm²
per pad

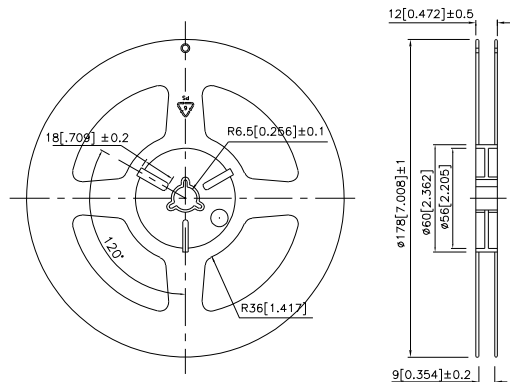


▨ Solder resist

Tape Specifications (Units : mm)

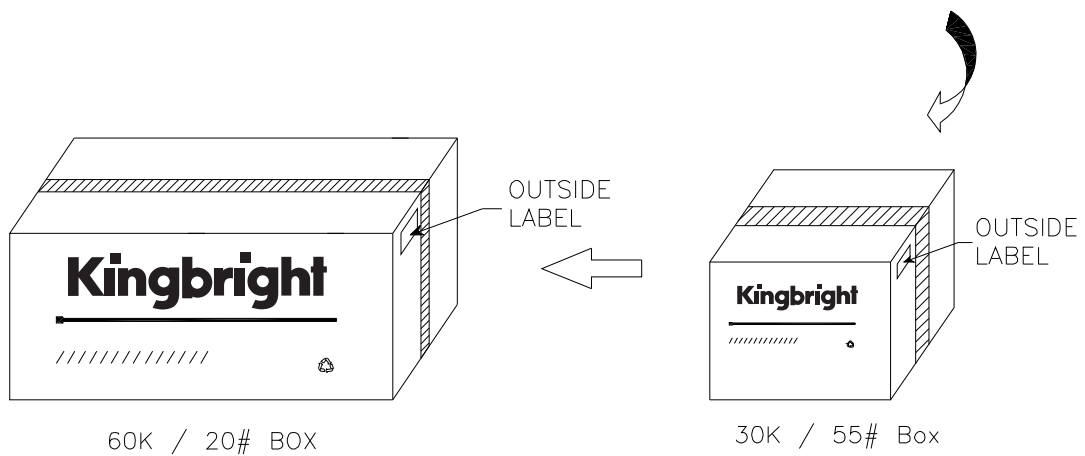
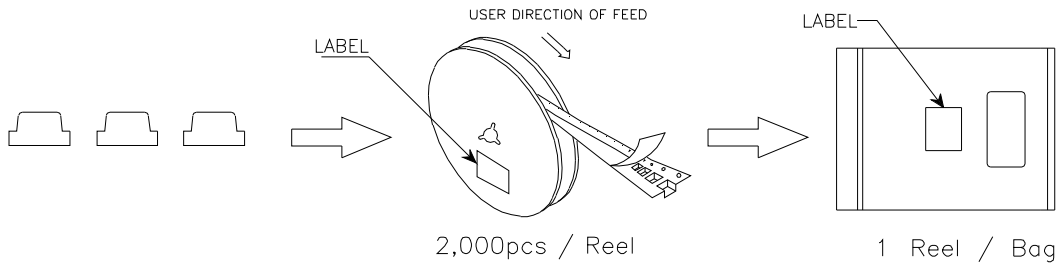



Reel Dimension



PACKING & LABEL SPECIFICATIONS

APT1608RWF/A



| | |
|--|--|
| Kingbright | |
| P/NO: APT1608xxxx | |
| QTY: 2,000 pcs | Q.C. Q C xx xx xx PASSED |
| S/N: XXX | |
| CODE: XXX | |
| LOT NO: | |
|  xxxxxxxxxxxxxxxxxxxxxxxxxxxx | |
| RoHS Compliant | |