

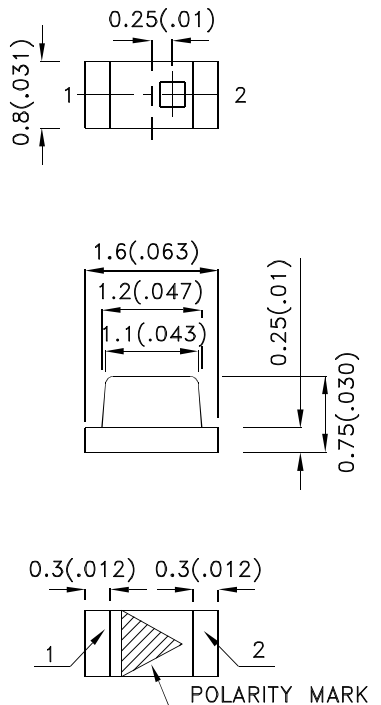


ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- High reliability LED package.
- 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.
- Package: 2000pcs / reel .
- Moisture sensitivity level : level 3.
- RoHS compliant.

Package Dimensions



Description

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

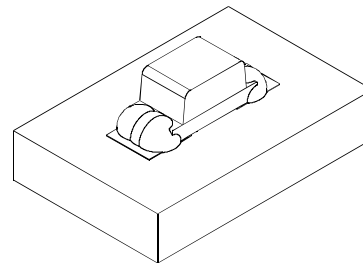
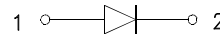
Static electricity and surge damage the LEDs.

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.



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.1(0.004)$ unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA			Viewing Angle [1]
			Code.	Min.	Max.	2θ1/2
KPT-1608QR51F-D-AT	Cyan (InGaN)	Yellow Fluorescent	N	120	200	120°
			P	200	300	
			Q	300	400	

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%.
3. Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Value	Unit
Power dissipation	PD	80	mW
Reverse Voltage	VR	5	V
Junction temperature	TJ	110	°C
Operating Temperature	Top	-40 To +100	°C
Storage Temperature	Tstg	-40 To +110	°C
DC Forward Current[1]	IF	20	mA
Peak Forward Current [2]	IFM	150	mA
Electrostatic Discharge Threshold (HBM)		250	V
Thermal Resistance (Junction/ambient) [1]	Rth j-a	400	°C/W

Notes:

1. Rth(j-a) Results from mounting on PC board FR4 (pad size≥16 mm² per pad),
2. 1/10 Duty Cycle, 0.1ms Pulse Width.

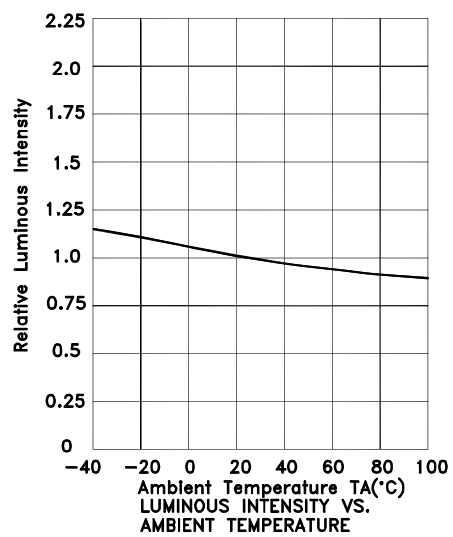
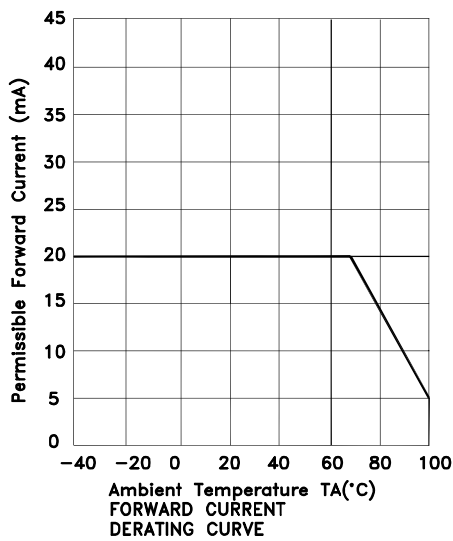
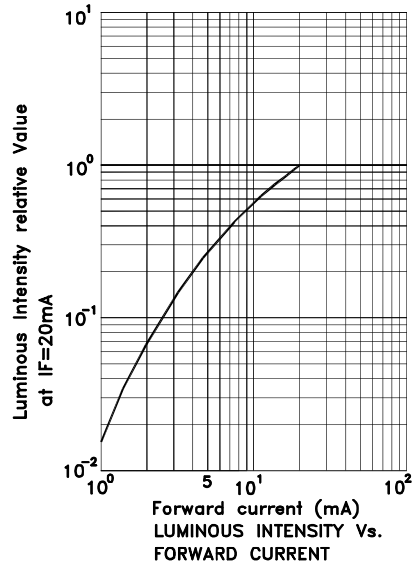
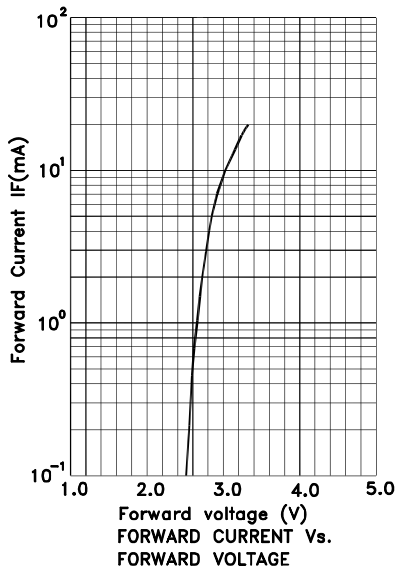
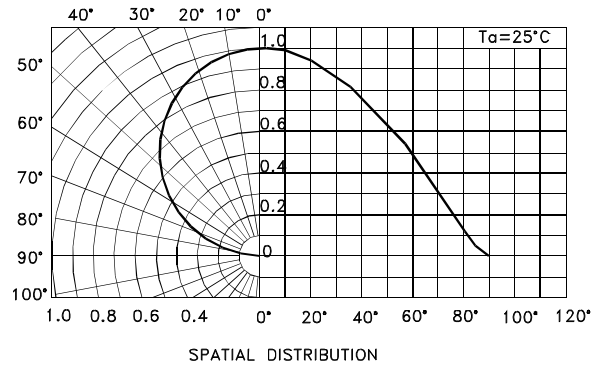
Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Value	Unit
Chromaticity coordinate X acc.to CIE1931 IF=20mA [Typ.]	X [1]	0.19	
Chromaticity coordinate Y acc.to CIE1931 IF=20mA [Typ.]	Y [1]	0.41	
Forward Voltage IF=20mA [Min.]	VF [2]	-	V
Forward Voltage IF=20mA [Typ.]		3.3	
Forward Voltage IF=20mA [Max.]		4.0	
Reverse Current (VR = 5V) [Max.]	IR	50	uA
Temperature coefficient of VF IF=20mA, -10 ° C ≤ T ≤ 100 ° C [Typ.]	TCV	-2.5	mV/° C
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

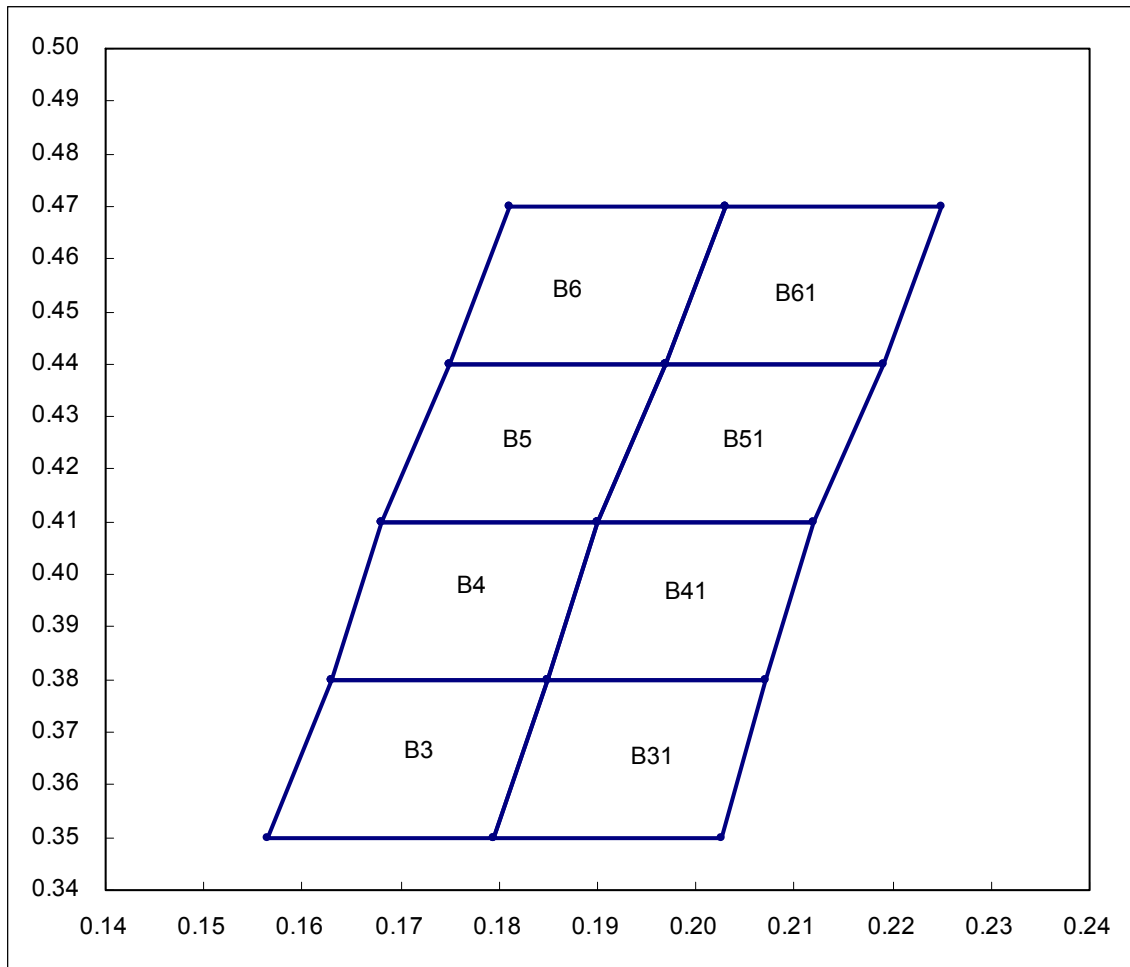
Notes:

- 1.Measurement tolerance of the chromaticity coordinates is ± 0.01.
2. Forward Voltage: +/-0.1V.

Cyan KPT-1608QR51F-D-AT



KPT-1608QR51F-D-AT



B3				
X	0.1565	0.1795	0.1850	0.1630
Y	0.3500	0.3500	0.3800	0.3800

B31				
X	0.1795	0.1850	0.2070	0.2025
Y	0.3500	0.3800	0.3800	0.3500

B4				
X	0.1850	0.1630	0.1680	0.1900
Y	0.3800	0.3800	0.4100	0.4100

B41				
X	0.1850	0.2070	0.2120	0.1900
Y	0.3800	0.3800	0.4100	0.4100

B5				
X	0.1680	0.1900	0.1970	0.1750
Y	0.4100	0.4100	0.4400	0.4400

B51				
X	0.2120	0.1900	0.2190	0.1970
Y	0.4100	0.4100	0.4400	0.4400

B6				
X	0.1970	0.1750	0.1810	0.2030
Y	0.4400	0.4400	0.4700	0.4700

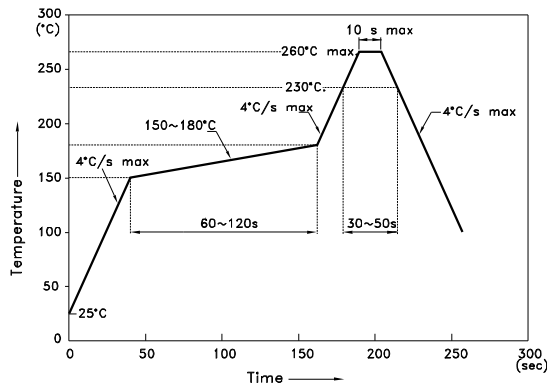
B61				
X	0.2190	0.1970	0.2030	0.2250
Y	0.4400	0.4400	0.4700	0.4700

Notes:
 Shipment may contain more than one chromaticity regions.
 Orders for single chromaticity region are generally not accepted.
 Measurement tolerance of the chromaticity coordinates is ± 0.01 .

KPT-1608QR51F-D-AT

Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

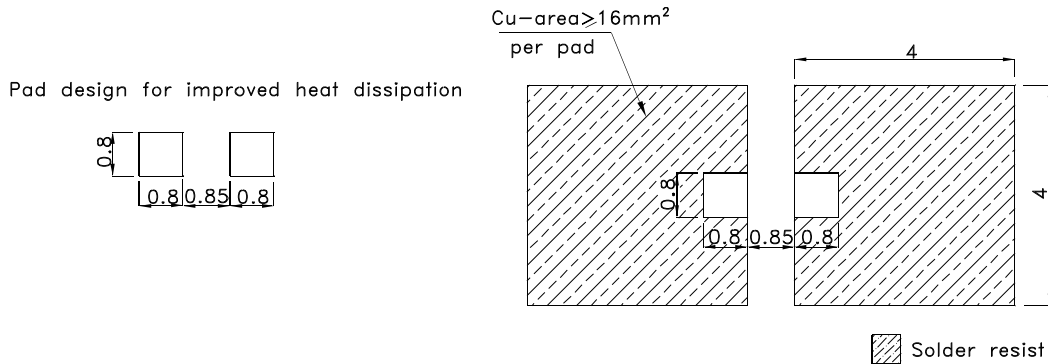
Reflow Soldering Profile For Lead-free SMT Process.



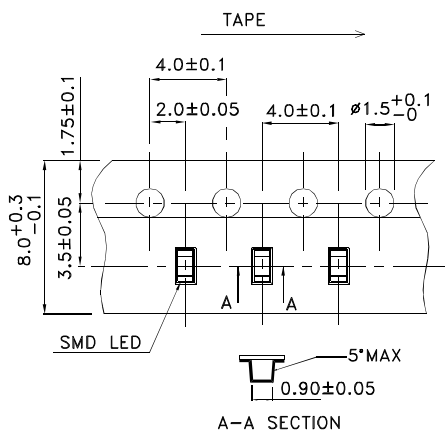
NOTES:

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.

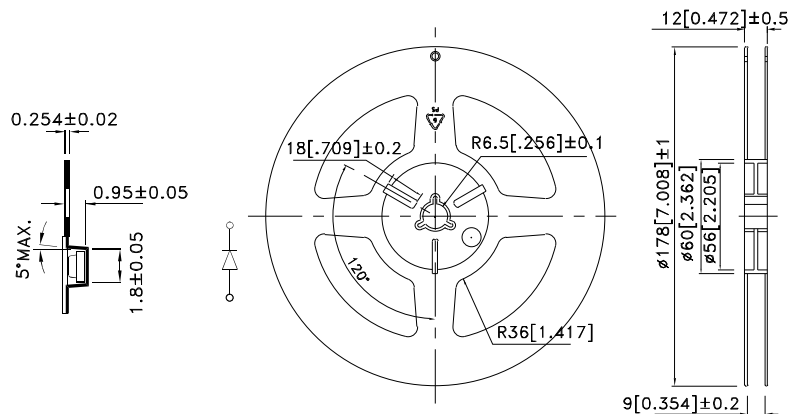
Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



Tape Specifications (Units : mm)

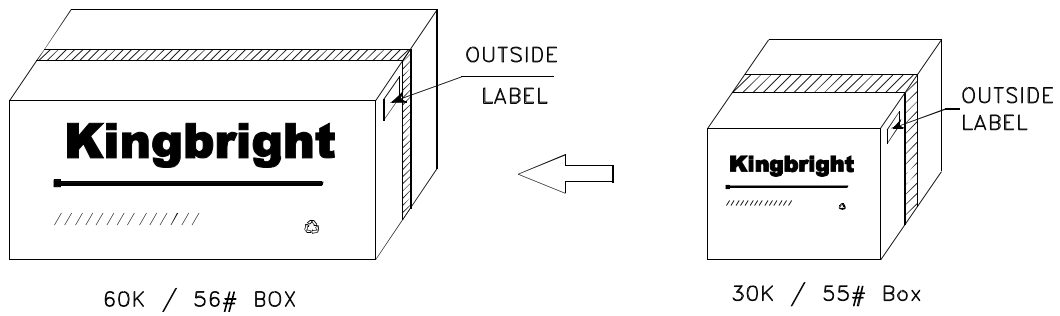
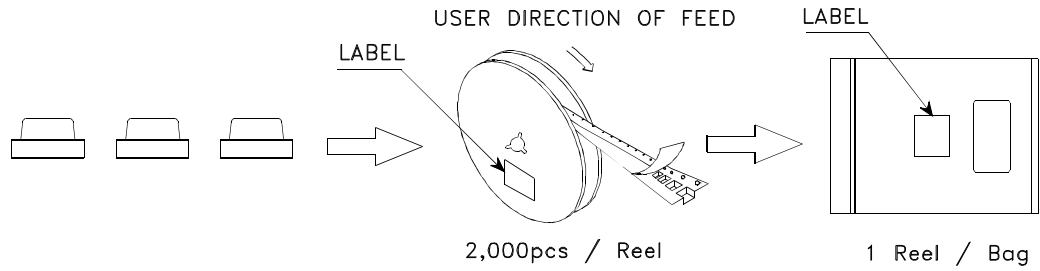


Reel Dimension



PACKING & LABEL SPECIFICATIONS

KPT-1608QR51F-D-AT



<h1>Kingbright</h1>				
P/NO: KPT-1608xxx				
QTY: 2,000 pcs	Q.C.			
S/N: XXXX	<table border="1" style="margin: auto;"> <tr><td style="text-align: center;">Q C</td></tr> <tr><td style="text-align: center;">xx xx xxxx</td></tr> <tr><td style="text-align: center;">PASSED</td></tr> </table>	Q C	xx xx xxxx	PASSED
Q C				
xx xx xxxx				
PASSED				
CODE: XXX				
LOT NO:				
<small>XXXXXXXXXXXXXXXXXXXXXXXXXXXX</small> RoHS Compliant				

Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below

Lot Tolerance Percent Defective (LTPD) : 10%

No.	Test Item	Standards	Test Condition	Test Times / Cycles	Number of Damaged
1	Continuous operating test	-	Ta = 25°C ,IF = maximum rated current*	1,000 h	0 / 22
2	High Temp. operating test	EIAJ ED-4701/100(101)	Ta = 100°C IF = maximum rated current*	1,000 h	0 / 22
3	Low Temp. operating test	-	Ta = -40°C, IF = maximum rated current*	1,000 h	0 / 22
4	High temp. storage test	EIAJ ED-4701/100(201)	Ta = maximum rated storage temperature	1,000 h	0 / 22
5	Low temp. storage test	EIAJ ED-4701/100(202)	Ta = -40°C	1,000 h	0 / 22
6	High temp. & humidity storage test	EIAJ ED-4701/100(103)	Ta = 60°C, RH = 90%	1,000 h	0 / 22
7	High temp. & humidity operating test	EIAJ ED-4701/100(102)	Ta = 60°C, RH = 90% IF = maximum rated current*	1,000 h	0 / 22
8	Soldering reliability test	EIAJ ED-4701/100(301)	Moisture soak : 30°C,70% RH, 72h Preheat : 150~180°C(120s max.) Soldering temp : 260°C(10s)	1 times	0 / 18
9	Thermal shock operating test	-	Ta = -40°C(15min) ~ 100°C(15min) IF = derated current at 100°C	1,000 cycles	0 / 22
10	Thermal shock test	-	Ta = -40°C(15min) ~ maximum rated storage temperature(15min)	1,000 cycles	0 / 22
11	Electric Static Discharge (ESD)	EIAJ ED-4701/100(304)	C = 100pF , R2 = 1.5KΩ V = 250V	Once each Polarity	0 / 22
12	Vibration test	-	a = 196m/s ² , f = 100~2KHz , t = 48min for all xyz axes	4 times	0 / 22

* : Refer to forward current vs. derating curve diagram

Failure Criteria

Items	Symbols	Conditions	Failure Criteria
luminous Intensity	Iv	IF = 20mA	Testing Min. Value < Spec.Min.Value x 0.5
Forward Voltage	Vf	IF = 20mA	Testing Max. Value ≥ Spec.Max.Value x 1.2
Reverse Current	IR	VR = Maximum Rated Reverse Voltage	Testing Max. Value ≥ Spec.Max.Value x 2.5
High temp. storage test	-	-	Occurrence of notable decoloration, deformation and cracking