Kingbright

3.0x1.0mm RIGHT ANGLE SMD CHIP LED LAMP

PRELIMINARY SPEC

Part Number: KPFA-3011BZ1RGZ1C-132/F

Blue
Hyper Red
Green

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

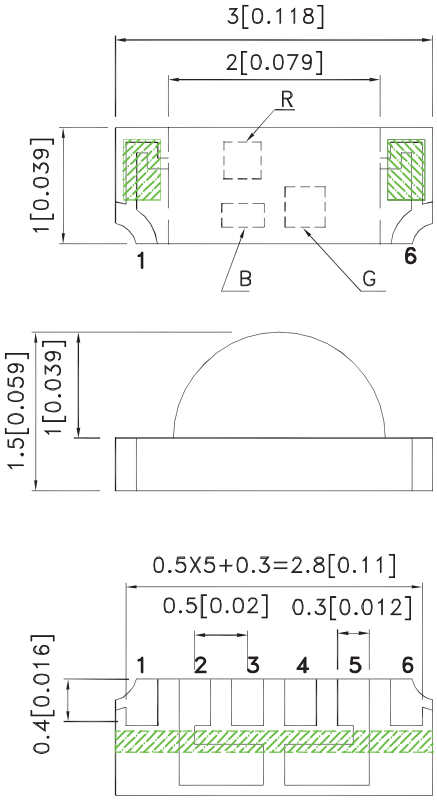
Features

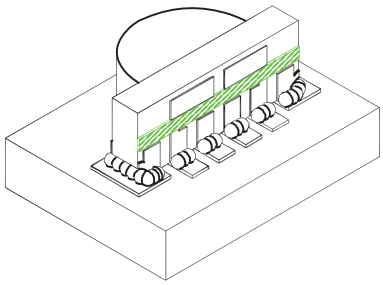
- 3.0x1.5x1.0mm right angle SMD LED, 1.0mm thickness.
- Low power consumption.
- Wide viewing angle.
- Ideal for backlight and indicator.
- Package : 2000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

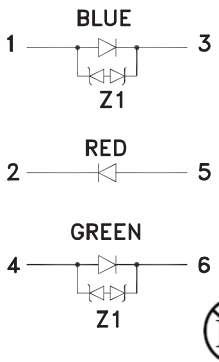
Descriptions

- The Blue source color devices are made with InGaN Light Emitting Diode.
- The Hyper Red device is based on light emitting diode chip made from AlGaInP.
- The Green source color devices are made with InGaN Light Emitting Diode.
- Electrostatic discharge and power surge could damage the LEDs.
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
- All devices, equipments and machineries must be electrically grounded.

Package Dimensions







Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.2(0.008") 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.	Emitting Color (Material)	Lens Type	Iv (mcd) [2] @ 20mA		Iv (mcd) [2] @B:R:G=18.9mA: 10.6mA:20mA	Dice Chroma-ticity Coordinates		Viewing Angle [1]
			Min.	Typ.	Typ.	X(Typ.)	Y(Typ.)	2θ1/2
KPFA-3011BZ1RGZ1C-132/F	Blue (InGaN)	Water Clear	55	110	1270	0.3	0.3	150°
	Hyper Red (AlGaInP)		400	660				140°
	Green (InGaN)		500	780				150°

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.

Electrical / Optical Characteristics at T_A=25°C

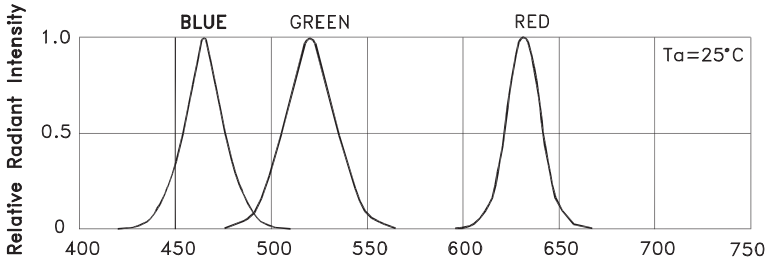
Parameter	Condition	Symbol	Value			Unit
			B	R	G	
Wavelength at Peak emission	I_F=20mA	λ peak	465	631	520	nm
Dominant Wavelength [1]	I_F=20mA	λ dom	470	624	525	nm
Spectral bandwidth at 50%Φ REL MAX	I_F=20mA	Δλ	22	20	35	nm
Forward Voltage [2]	I_F=20mA	$V_{F\ [typ.]}$ $V_{F\ [max.]}$	3.3 4.0	2.1 2.5	3.2 4.0	V
Reverse Current	V_R=5V	$I_{R\ [max.]}$	10	10	10	uA

Notes:
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.
4. Excess driving current and/or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

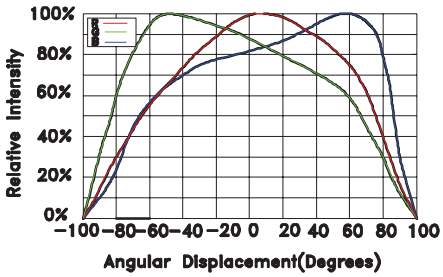
Absolute Maximum Ratings at T_A=25°C

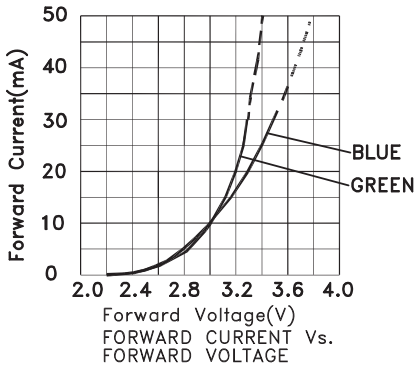
Parameter	Symbol	Value			Unit
		B	R	G	
Operating Temperature	Top	-40 To +85			°C
Storage Temperature	Tstg	-40 To +100			°C
Junction Temperature	T_J	100	100	100	°C
Power dissipation	P_D	120	175	120	mW
Total Power dissipation [3]	P total	240			mW
DC Forward Current [1]	I_F	30	70	30	mA
Peak Forward Current [2]	I_{FM}	100	200	100	mA
Reverse Voltage	V_R	5	5	5	V
Electrostatic Discharge Threshold (HBM)		8000	3000	8000	V
Junction/ambient 1 chip on	Rthj-a	290	400	400	°C/W
Junction/ambient 3 chip on	Rthj-a	630	590	610	°C/W

Notes:
1. Single-color light
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3. Value for total power dissipation when two and more chips are lit simultaneously.

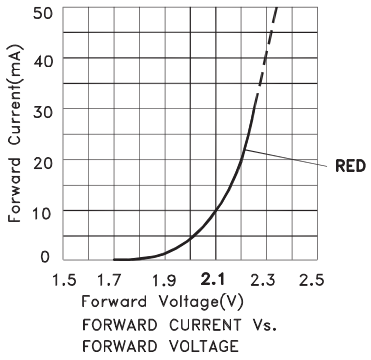


RELATIVE INTENSITY Vs. WAVELENGTH

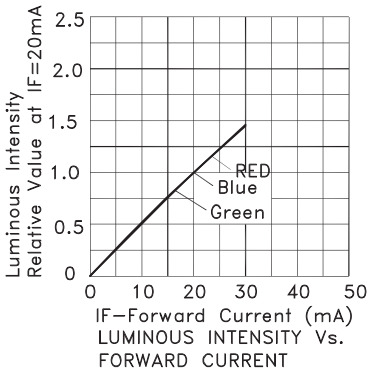




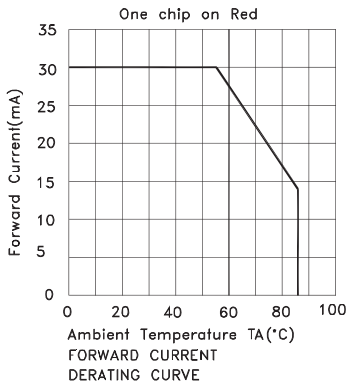
FORWARD CURRENT Vs.
FORWARD VOLTAGE



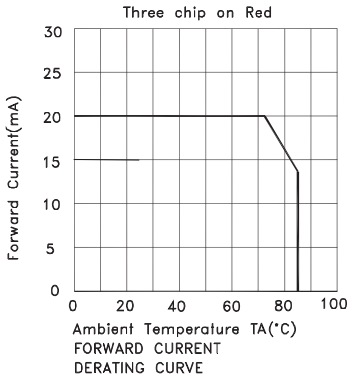
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT

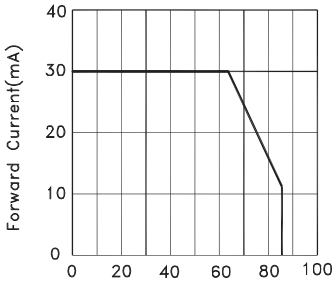


FORWARD CURRENT
DERATING CURVE



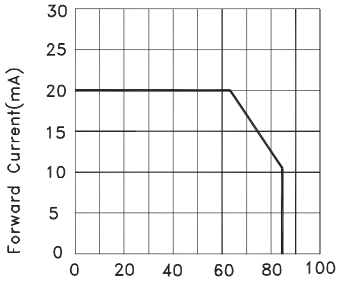
FORWARD CURRENT
DERATING CURVE

one chip on Green



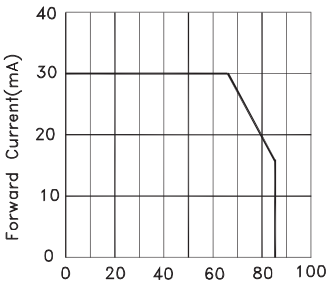
FORWARD CURRENT
DERATING CURVE

Three chip on Green



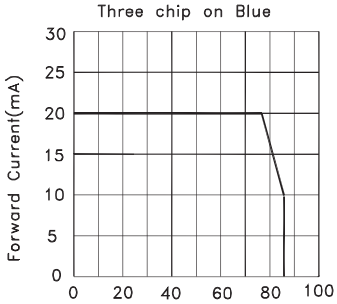
FORWARD CURRENT
DERATING CURVE

one chip on Blue



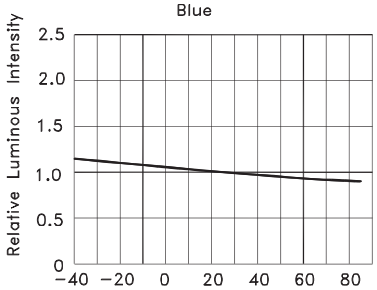
FORWARD CURRENT
DERATING CURVE

Three chip on Blue



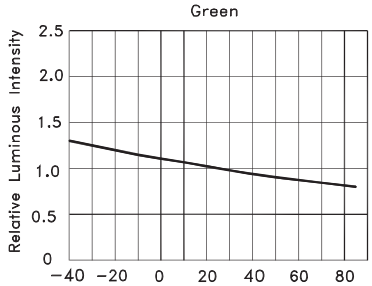
FORWARD CURRENT
DERATING CURVE

Blue



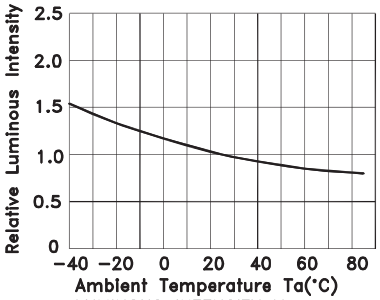
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

Green



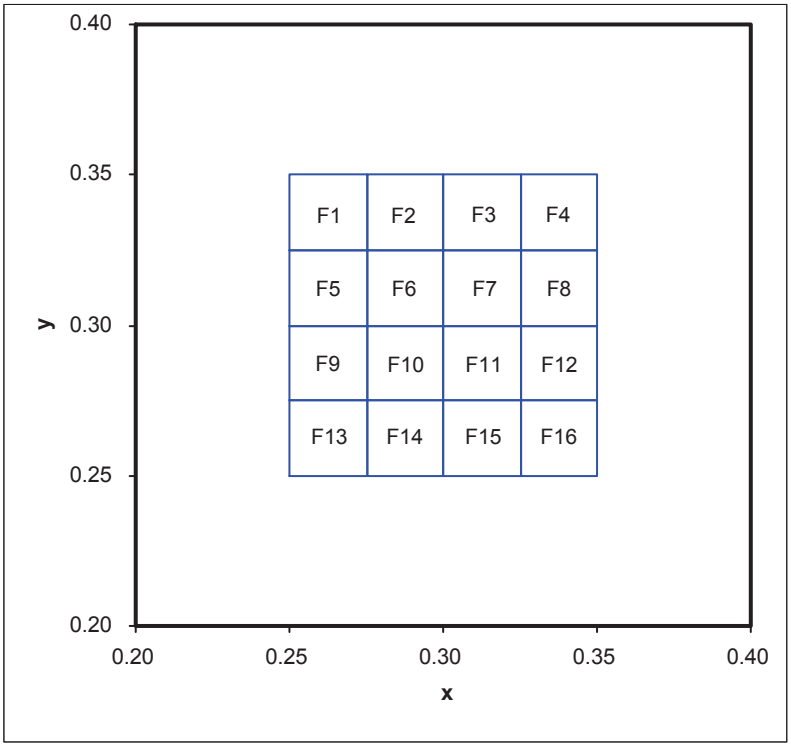
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

Red



LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

Full color (White Rank)



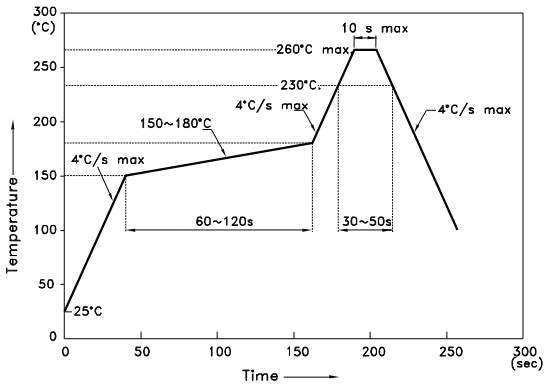
F1		F2		F3		F4	
x	y	x	y	x	y	x	y
0.250	0.325	0.275	0.325	0.300	0.325	0.325	0.325
0.275	0.325	0.300	0.325	0.325	0.325	0.350	0.325
0.275	0.350	0.300	0.350	0.325	0.350	0.350	0.350
0.250	0.350	0.275	0.350	0.300	0.350	0.325	0.350
F5		F6		F7		F8	
x	y	x	y	x	y	x	y
0.250	0.300	0.275	0.300	0.300	0.300	0.325	0.300
0.275	0.300	0.300	0.300	0.325	0.300	0.350	0.300
0.275	0.325	0.300	0.325	0.325	0.325	0.350	0.325
0.250	0.325	0.275	0.325	0.300	0.325	0.325	0.325
F9		F10		F11		F12	
x	y	x	y	x	y	x	y
0.250	0.275	0.275	0.275	0.300	0.275	0.325	0.275
0.275	0.275	0.300	0.275	0.325	0.275	0.350	0.275
0.275	0.300	0.300	0.300	0.325	0.300	0.350	0.300
0.250	0.300	0.275	0.300	0.300	0.300	0.325	0.300
F13		F14		F15		F16	
x	y	x	y	x	y	x	y
0.250	0.250	0.275	0.250	0.300	0.250	0.325	0.250
0.275	0.250	0.300	0.250	0.325	0.250	0.350	0.250
0.275	0.275	0.300	0.275	0.325	0.275	0.350	0.275
0.250	0.275	0.275	0.275	0.300	0.275	0.325	0.275

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.

KPFA-3011BZ1RGZ1C-132/F

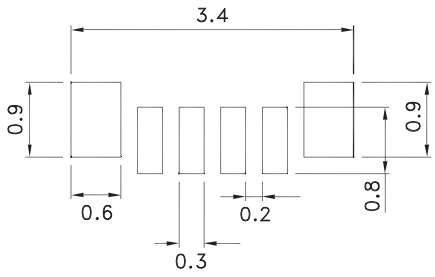
Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.

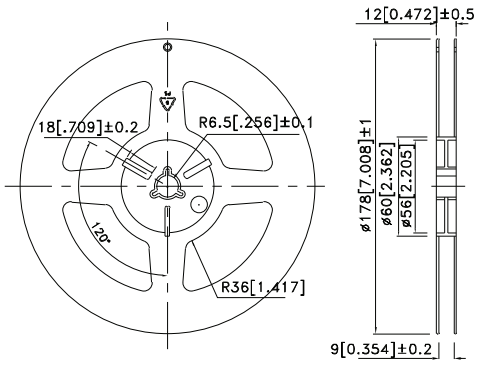


NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

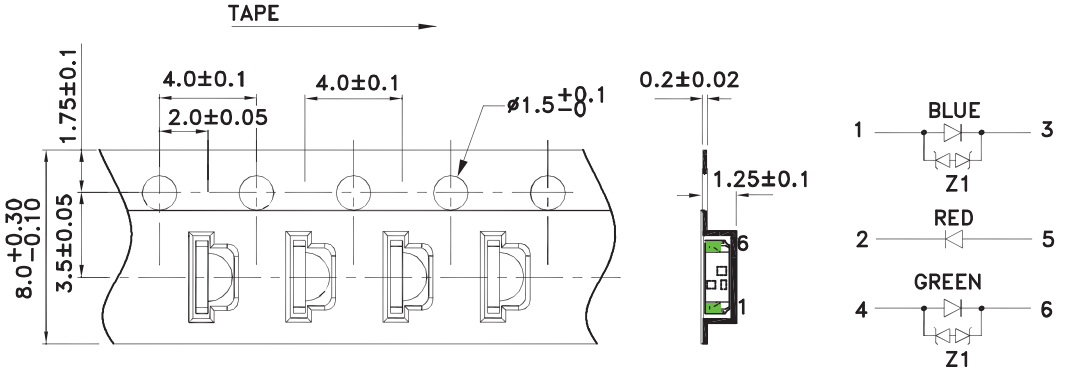
Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



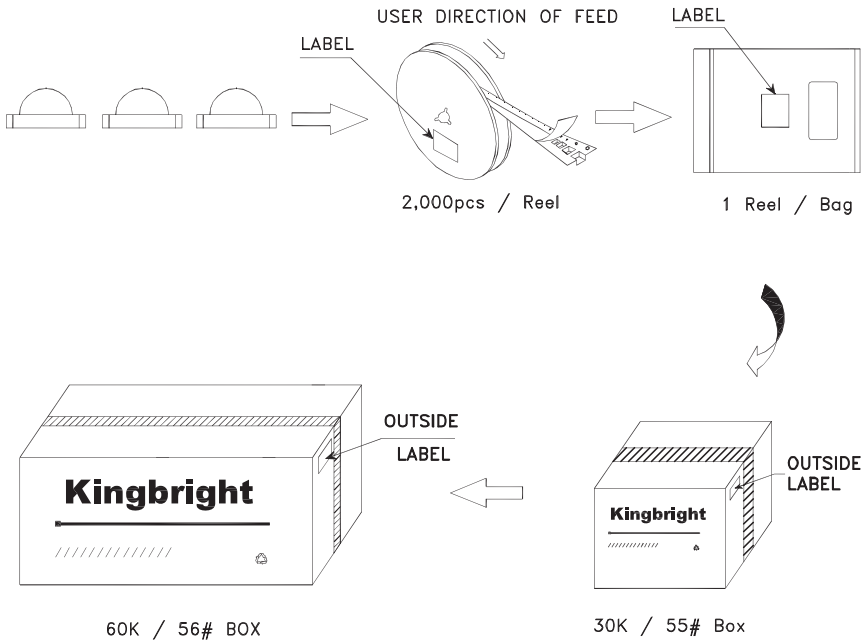
Reel Dimension

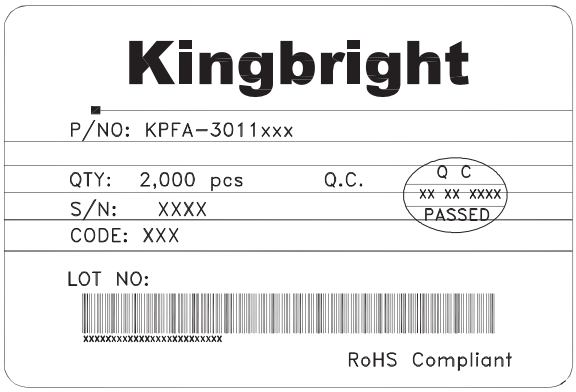


Tape Dimensions (Units : mm)



PACKING & LABEL SPECIFICATIONS **KPFA-3011BZ1RGZ1C-132/F**





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