

APBD3224LSURKQBDC

3.2 x 2.4 mm SMD Chip LED Lamp



DESCRIPTIONS

- The Hyper Red source color devices are made with AlGaNp on GaAs substrate Light Emitting Diode
- The Blue 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

FEATURES

- 3.2 x 2.4 mm SMD LED, 2.4 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 1500 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

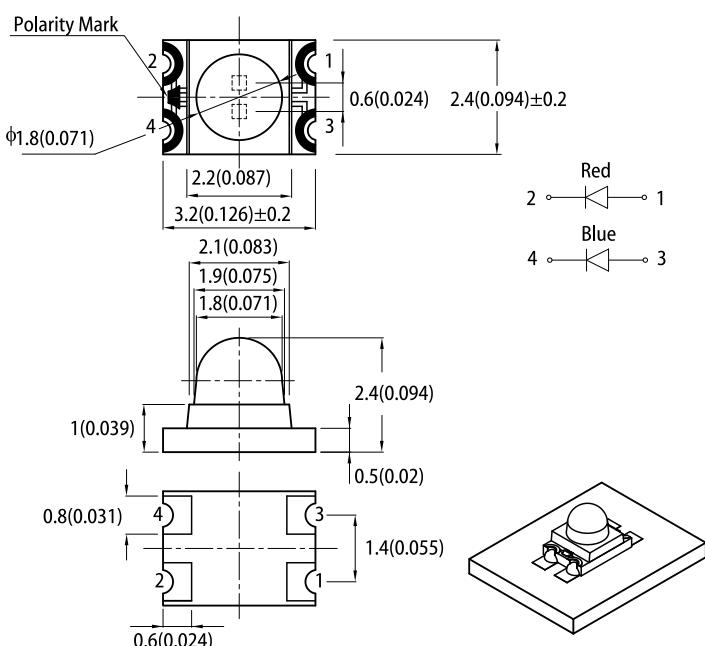
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

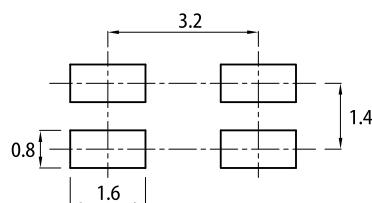


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

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

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	I _v (mcd) @ 2mA ^[2]		Viewing Angle ^[1] 201/2
			Min.	Typ.	
APBD3224LSURKQBDC	Hyper Red (AlGaNp)	Water Clear	20	50	20°
			*10	*30	
	Blue (InGaN)		20	40	
			*20	*40	

Notes:

- $\theta_{1/2}$ is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
- Luminous intensity / luminous flux: +/-15%.
- Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter	Symbol	Emitting Color	Value			Unit
			Min.	Typ.	Max.	
Wavelength at Peak Emission $I_F = 2\text{mA}$	λ_{peak}	Hyper Red Blue	-	645 460	-	nm
Dominant Wavelength $I_F = 2\text{mA}$	λ_{dom} [1]	Hyper Red Blue	-	630 465	-	nm
Spectral Bandwidth at 50% Φ REL MAX $I_F = 2\text{mA}$	$\Delta\lambda$	Hyper Red Blue	-	28 25	-	nm
Forward Voltage $I_F = 2\text{mA}$	V_F [2]	Hyper Red Blue	1.5 2.2	1.75 2.65	2.1 3.0	V
Reverse Current ($V_R = 5\text{V}$)	I_R	Hyper Red Blue	-	-	10 50	μA
Temperature Coefficient of λ_{peak} $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{peak}}}$	Hyper Red Blue	-	0.14 0.04	-	$\text{nm}/^\circ\text{C}$
Temperature Coefficient of λ_{dom} $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{dom}}}$	Hyper Red Blue	-	0.05 0.03	-	$\text{nm}/^\circ\text{C}$
Temperature Coefficient of V_F $I_F = 2\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	TC_V	Hyper Red Blue	-	-1.9 -3.0	-	$\text{mV}/^\circ\text{C}$

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance $\lambda_d : \pm 1\text{nm}$.)
2. Forward voltage: $\pm 0.1\text{V}$
3. Wavelength value is traceable to CIE127-2007 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 $T_A=25^\circ\text{C}$

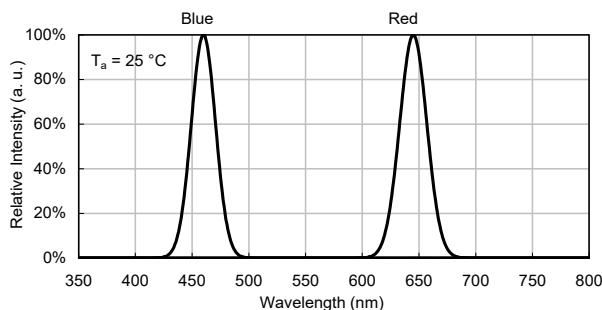
Parameter	Symbol	Value		Unit
		Hyper Red	Blue	
Power Dissipation	P_D	75	120	mW
Reverse Voltage	V_R	5	5	V
Junction Temperature	T_j	115	115	$^\circ\text{C}$
Operating Temperature	T_{op}	-40 To +85		$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 To +85		$^\circ\text{C}$
DC Forward Current	I_F	30	30	mA
Peak Forward Current	I_{FP} [1]	185	150	mA
Electrostatic Discharge Threshold (HBM)	-	3000	250	V
Thermal Resistance (Junction / Ambient)	$R_{\text{th JA}}$ [2]	660	680	$^\circ\text{C/W}$
Thermal Resistance (Junction / Solder point)	$R_{\text{th JS}}$ [2]	560	590	$^\circ\text{C/W}$

Notes:

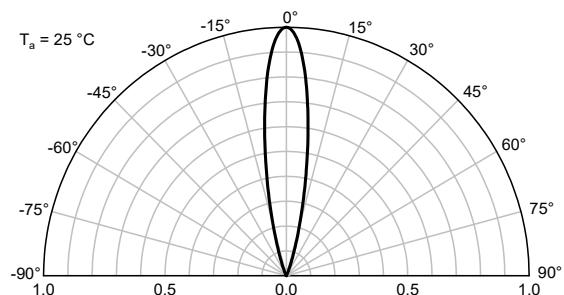
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{\text{th JA}}, R_{\text{th JS}}$ Results from mounting on PC board FR4 (pad size $\geq 16\text{ mm}^2$ per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

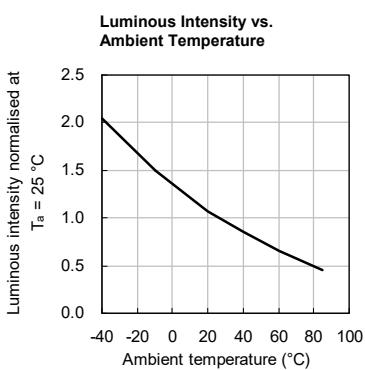
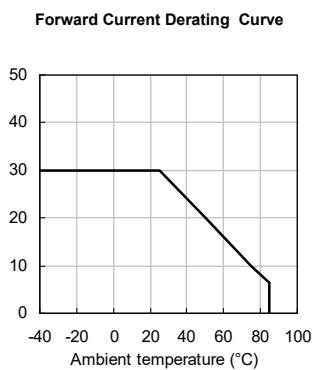
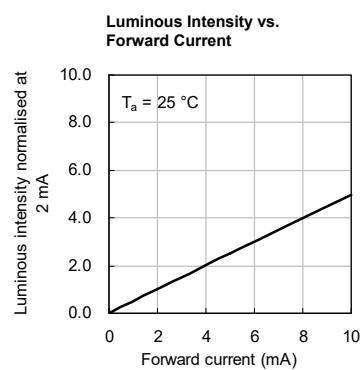
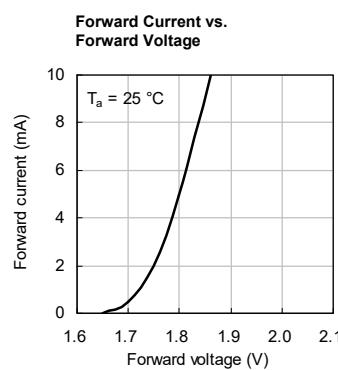
RELATIVE INTENSITY vs. WAVELENGTH



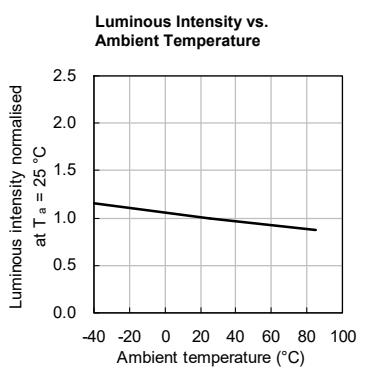
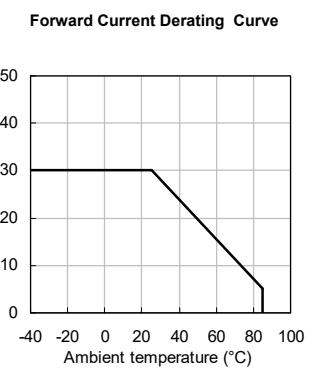
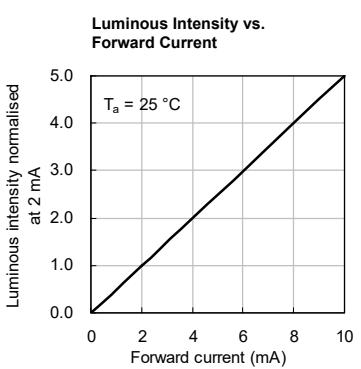
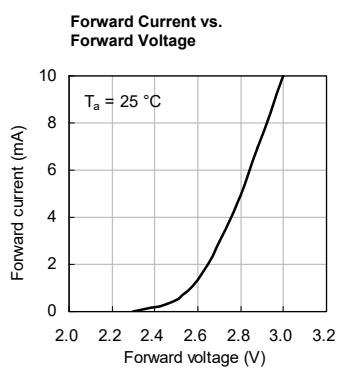
SPATIAL DISTRIBUTION



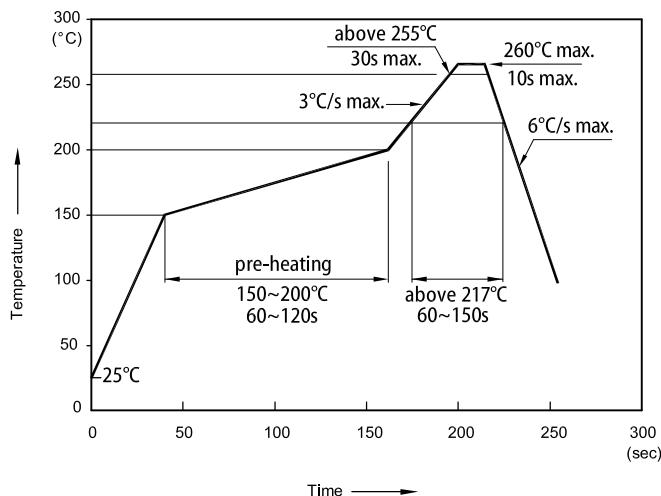
HYPER RED



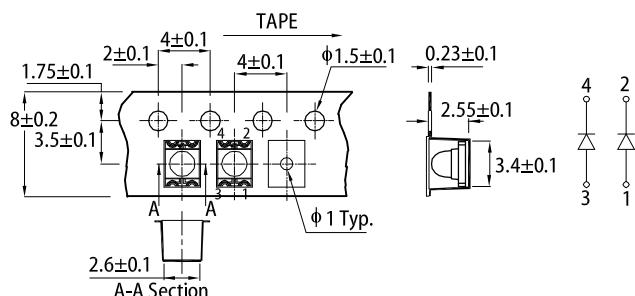
BLUE



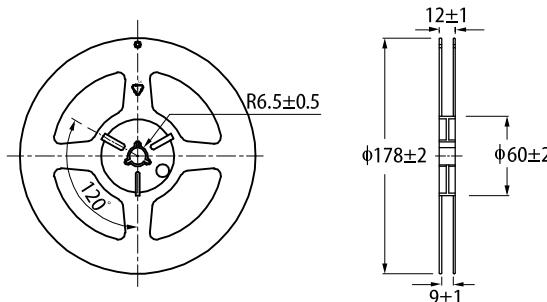
REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS



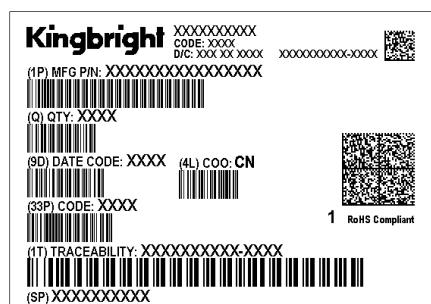
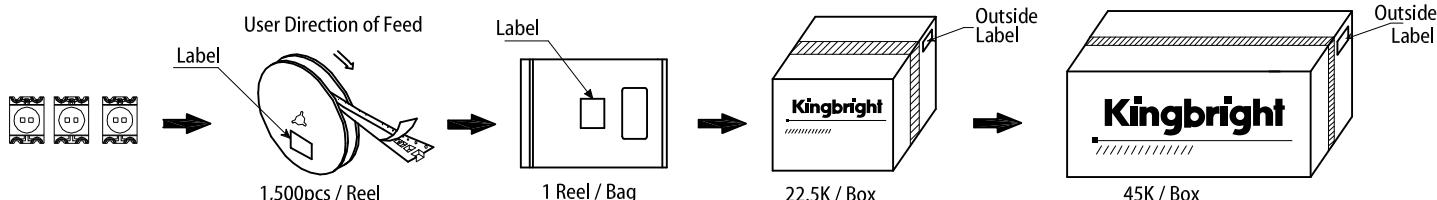
TAPE SPECIFICATIONS (units : mm)



REEL DIMENSION (units : mm)



PACKING & LABEL SPECIFICATIONS



PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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