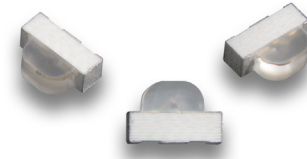


KPA-3010SURCK

3.0 x 1.0 mm Right Angle SMD Chip LED Lamp



DESCRIPTIONS

- The Hyper Red source color devices are made with AlGaInP on GaAs substrate 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

- 3.0 x 2.0 x 1.0 mm right angle SMD LED, 1.0 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for back light and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Tinned pads for improved solderability
- Halogen-free
- RoHS compliant

APPLICATIONS

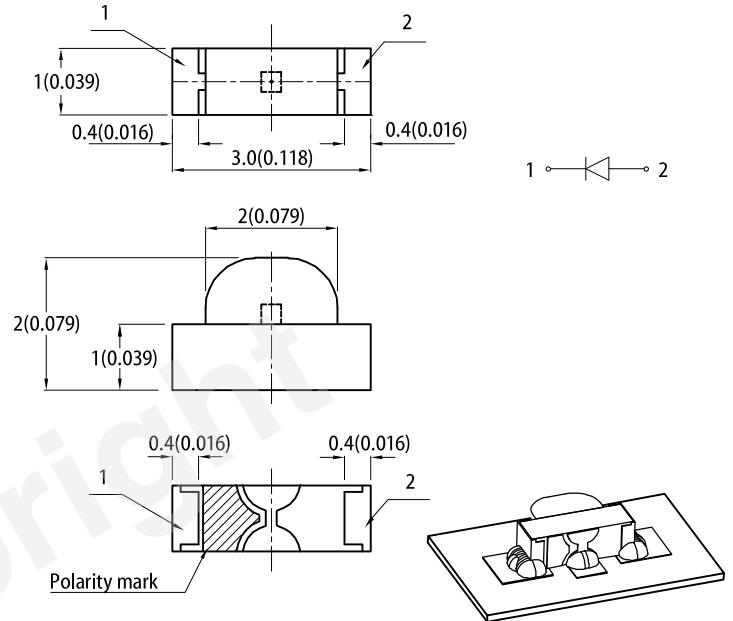
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

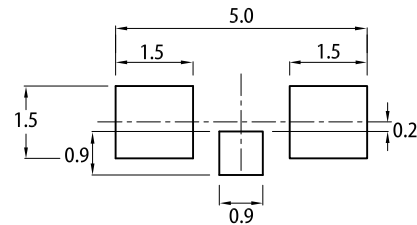


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.15(0.006)$ 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 Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
KPA-3010SURCK	■ Hyper Red (AlGaInP)	Water Clear	120	220	120°
			*40	*80	

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

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I _F = 20mA	λ_{peak}	Hyper Red	645	-	nm
Dominant Wavelength I _F = 20mA	$\lambda_{\text{dom}}^{[1]}$	Hyper Red	630	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	$\Delta\lambda$	Hyper Red	28	-	nm
Capacitance	C	Hyper Red	35	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Hyper Red	1.95	2.5	V
Reverse Current (V _R = 5V)	I _R	Hyper Red	-	10	μA
Temperature Coefficient of λ_{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{peak}}	Hyper Red	0.14	-	nm/°C
Temperature Coefficient of λ_{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{dom}}	Hyper Red	0.05	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Hyper Red	-1.9	-	mV/°C

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d : ±1nm.)
2. Forward voltage: ±0.1V.
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.

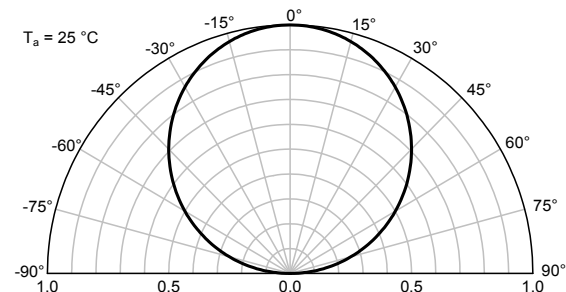
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	75	mW
Reverse Voltage	V _R	5	V
Junction Temperature	T _j	115	°C
Operating Temperature	T _{op}	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
DC Forward Current	I _F	30	mA
Peak Forward Current	I _{FM} ^[1]	185	mA
Electrostatic Discharge Threshold (HBM)	-	3000	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	560	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	400	°C/W

Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. R_{th JA}, R_{th JS} Results from mounting on PC board FR4 (pad size ≥ 16 mm² 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.

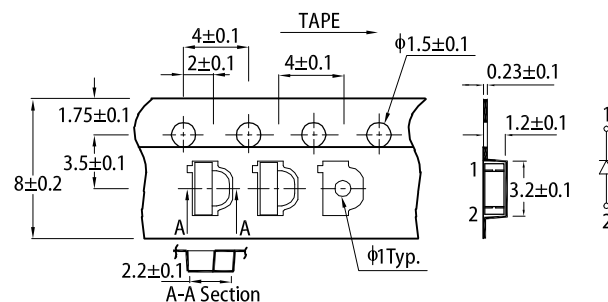
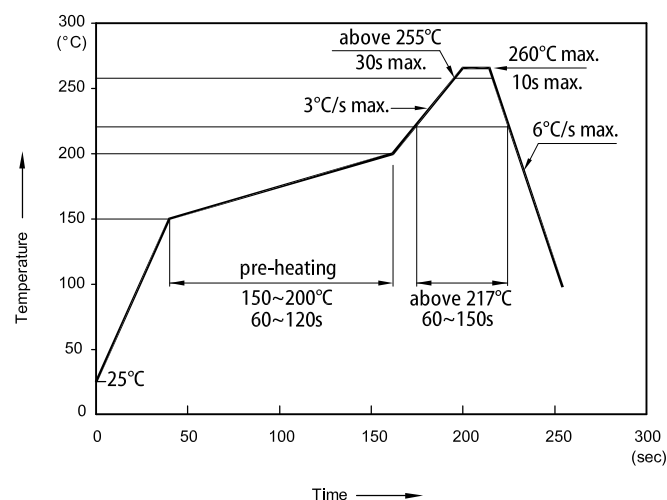
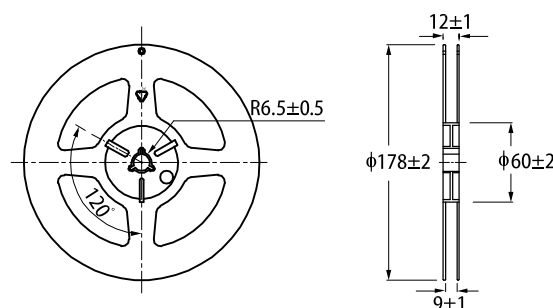
RELATIVE INTENSITY vs. WAVELENGTH



The figure consists of four graphs illustrating the characteristics of a 5mm red LED:

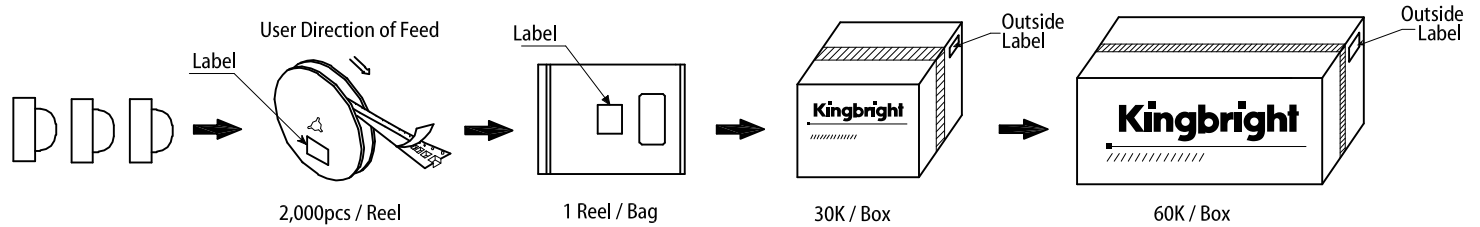
- Forward Current vs. Forward Voltage:** The graph shows Forward current (mA) on the y-axis (0 to 50) versus Forward voltage (V) on the x-axis (1.5 to 2.5). The curve shows that the forward current remains near zero until approximately 1.7V, after which it increases exponentially. A note indicates $T_a = 25^\circ\text{C}$.
- Luminous Intensity vs. Forward Current:** The graph shows Luminous intensity normalised at 20 mA on the y-axis (0.0 to 2.5) versus Forward current (mA) on the x-axis (0 to 50). The relationship is linear, starting from the origin. A note indicates $T_a = 25^\circ\text{C}$.
- Forward Current Derating Curve:** The graph shows Permissible forward current (mA) on the y-axis (0 to 50) versus Ambient temperature ($^\circ\text{C}$) on the x-axis (-40 to 100). The permissible current is constant at 30 mA from -40 $^\circ\text{C}$ to 25 $^\circ\text{C}$, and then decreases linearly to 0 mA at 85 $^\circ\text{C}$.
- Luminous Intensity vs. Ambient Temperature:** The graph shows Luminous intensity normalised at $T_a = 25^\circ\text{C}$ on the y-axis (0.0 to 2.5) versus Ambient temperature ($^\circ\text{C}$) on the x-axis (-40 to 100). The luminous intensity decreases as ambient temperature increases, starting at 2.0 at -40 $^\circ\text{C}$ and reaching approximately 0.5 at 85 $^\circ\text{C}$.

TAPE SPECIFICATIONS (units : mm)

**REEL DIMENSION** (units : mm)

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PACKING & LABEL SPECIFICATIONS



Kingbright
XXXXXXXXXX-XXXX

PINO: XXXXXXXX

QTY: XXXXXpcs

S/N: XXXX

CODE: XX

COUNTRY: CN

QC DATE: XXX XX XXXX PASSED

LOT NO:

XXXXXXXXXXXX-XXXX

(SP)XXXXXXXXXX

RoHS Compliant

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.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
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