



AA2810ASURSK

2.8 x 0.8 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

- 2.8 x 1.2 x 0.8 mm right angle SMD LED, 0.8 mm thickness
- Low power consumption
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- RoHS compliant

APPLICATIONS

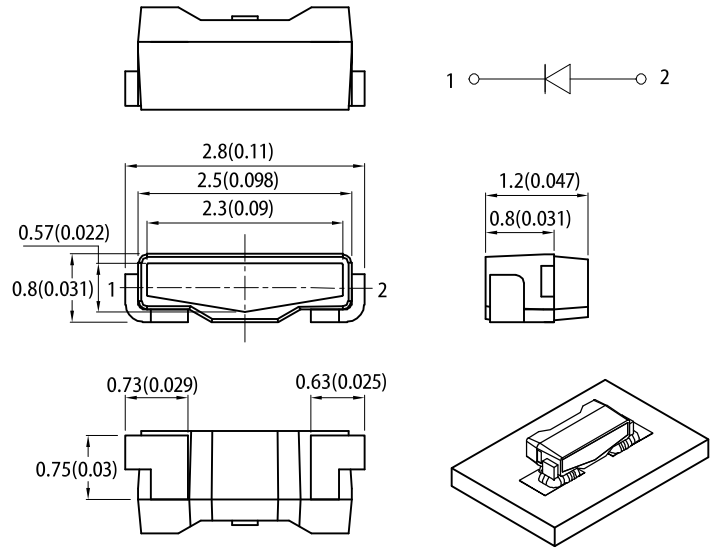
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

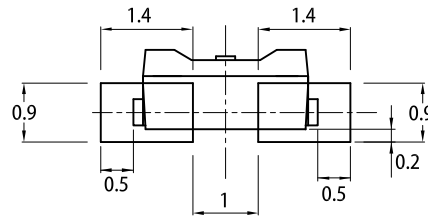


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

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 Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA ^[2]		Viewing Angle ^[1]
			Min.	Typ.	2θ1/2
AA2810ASURSK	■ Hyper Red (AlGaInP)	Water Clear	150	300	110°
			*40	*100	

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: $\pm 15\%$.
 * 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	λ_{dom} ^[1]	Hyper Red	630	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	$\Delta\lambda$	Hyper Red	28	-	nm
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.

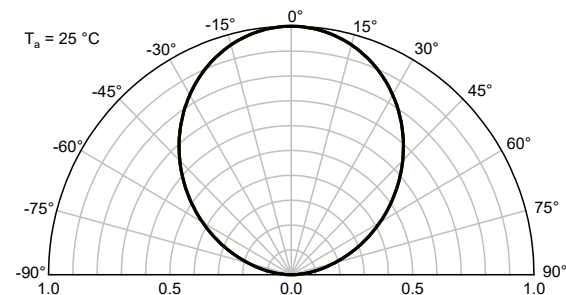
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

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 _{FP} ^[1]	185	mA
Electrostatic Discharge Threshold (HBM)	-	3000	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	350	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	190	°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



Forward Current vs. Forward Voltage

$T_a = 25^\circ\text{C}$

Forward current (mA)

Forward voltage (V)

Luminous Intensity vs. Forward Current

$T_a = 25^\circ\text{C}$

Luminous intensity normalised at 20 mA

Forward current (mA)

Forward Current Derating Curve

Permissible forward current (mA)

Ambient temperature ($^\circ\text{C}$)

Luminous Intensity vs. Ambient Temperature

Luminous intensity normalised at $T_a = 25^\circ\text{C}$

Ambient temperature ($^\circ\text{C}$)

Figure 1 is a graph showing the temperature profile of a polymer solution during the synthesis of polyacrylonitrile. The y-axis represents Temperature (°C) from 0 to 300, and the x-axis represents Time (sec) from 0 to 300. The profile starts at 25°C, rises to 150°C at 40s, then to 200°C at 160s (labeled "pre-heating 150~200°C 60~120s"). Above 200°C, the rate is 3°C/s max. It reaches a plateau above 255°C (30s max) and then a peak at 260°C max (10s max). The cooling rate is 6°C/s max. A region above 217°C is labeled 60~150s.

Technical drawing of a tape reel. The main view shows a side profile with dimensions: total width 4 ± 0.1 , distance between mounting holes 2 ± 0.1 , distance between tape guides 4 ± 0.1 , and overall height $8^{+0.3}_{-0.1}$. The tape guide height is 1.75 ± 0.1 , and the mounting hole diameter is $\phi 1.5 \pm 0.1$. Two mounting holes are labeled 1 and 2. A cross-section A-A is shown below the main view, with dimensions 1.4 ± 0.1 and $\phi 0.5$ Typ. A detail view of the tape guide is shown to the right, with dimensions 0.2 ± 0.1 , 0.96 ± 0.1 , and 3 ± 0.1 . An arrow labeled "TAPE" indicates the direction of tape travel.

Technical drawing of a circular mechanical part, showing a top view (left) and a side view (right).

Top View (Left):

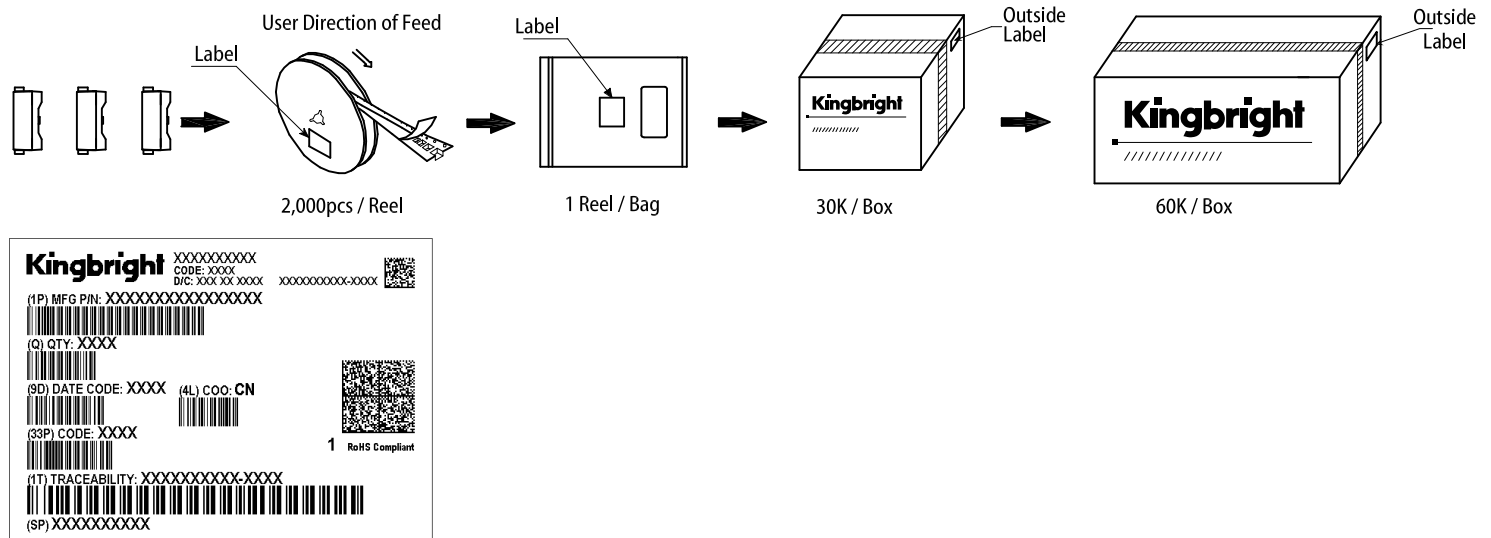
- Overall diameter: $\phi 178 \pm 2$
- Internal hole diameter: $\phi 60 \pm 2$
- Three lobes with a fillet radius: $R6.5 \pm 0.5$
- Angle between lobes: 120°

Side View (Right):

- Overall thickness: 12 ± 1
- Internal hole depth: $9 + 1$
- Internal hole diameter: $\phi 60 \pm 2$

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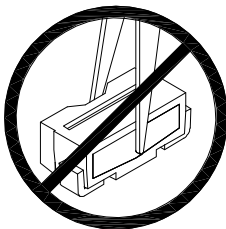
PACKING & LABEL SPECIFICATIONS



HANDLING PRECAUTIONS

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Do not directly touch or handle the silicone lens surface.
It may damage the internal circuitry.
2. As silicone encapsulation is permeable to gases, some corrosive substances such as H_2S might corrode silver plating of lead frame.
Special care should be taken if an LED with silicone encapsulation is to be used near such substances.



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.
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