



APT1608SECK/J3-PRV

1.6 x 0.8 mm SMD Chip LED Lamp

DESCRIPTIONS

- The Hyper Red device is based on light emitting diode chip made from AlGaInP
- 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

- 1.6 mm x 0.8 mm SMD LED, 0.75 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

APPLICATIONS

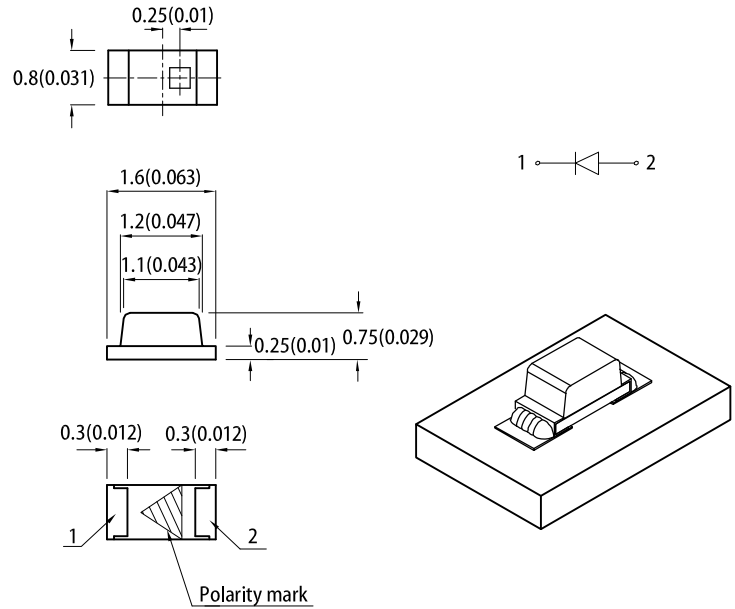
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

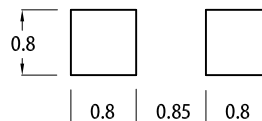


PACKAGE DIMENSIONS



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
APT1608SECK/J3-PRV	■ Hyper Red (AlGaInP)	Water Clear	700	1100	120°
			*200	*350	

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	640	-	nm
Dominant Wavelength I _F = 20mA	$\lambda_{\text{dom}}^{[1]}$	Hyper Red	625	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 20mA	$\Delta\lambda$	Hyper Red	20	-	nm
Capacitance	C	Hyper Red	27	-	pF
Forward Voltage I _F = 20mA	V _F ^[2]	Hyper Red	2.2	2.8	V
Reverse Current (V _R = 5V)	I _R	Hyper Red	-	10	uA
Temperature Coefficient of λ_{peak} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{peak}}	Hyper Red	0.13	-	nm/°C
Temperature Coefficient of λ_{dom} I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _{λ_{dom}}	Hyper Red	0.06	-	nm/°C
Temperature Coefficient of V _F I _F = 20mA, -10°C ≤ T ≤ 85°C	TC _V	Hyper Red	-2.0	-	mV/°C

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_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.

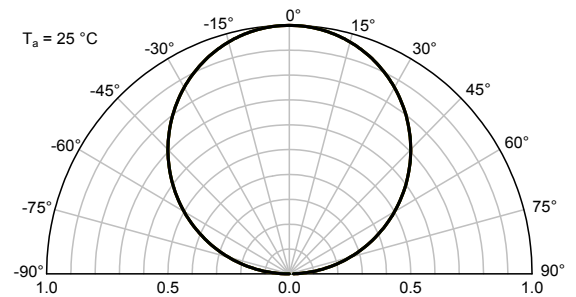
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	84	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]	150	mA
Electrostatic Discharge Threshold (HBM)	-	3000	V
Thermal Resistance (Junction / Ambient)	R _{th JA} ^[2]	400	°C/W
Thermal Resistance (Junction / Solder point)	R _{th JS} ^[2]	285	°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 $\geq 16\text{ mm}^2$ 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.

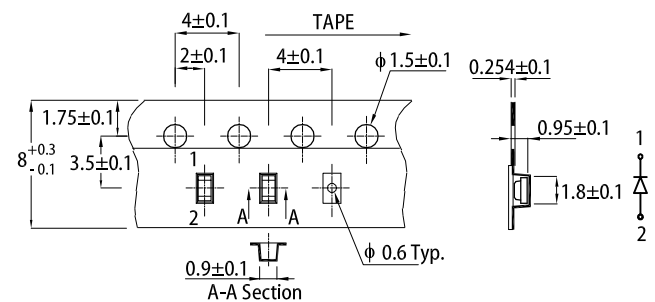
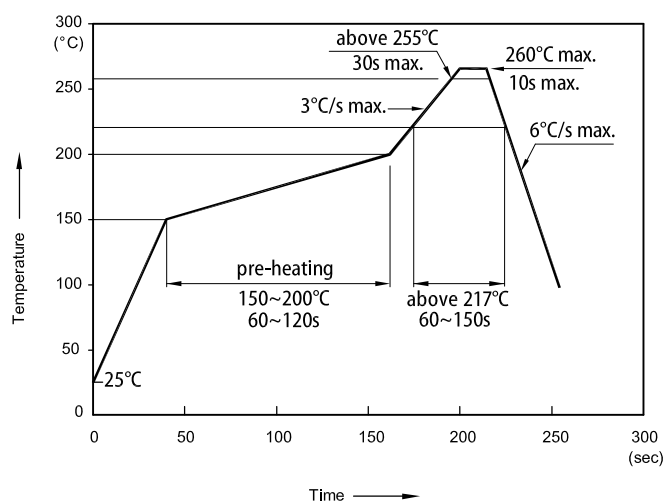
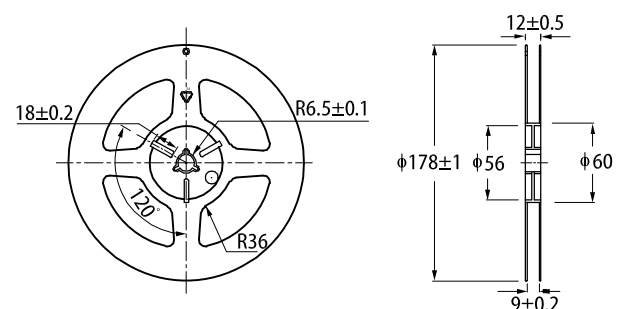
RELATIVE INTENSITY vs. WAVELENGTH



The four graphs illustrate the LED's characteristics:

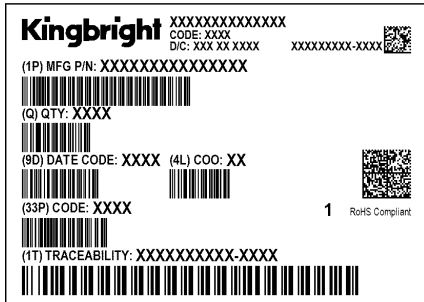
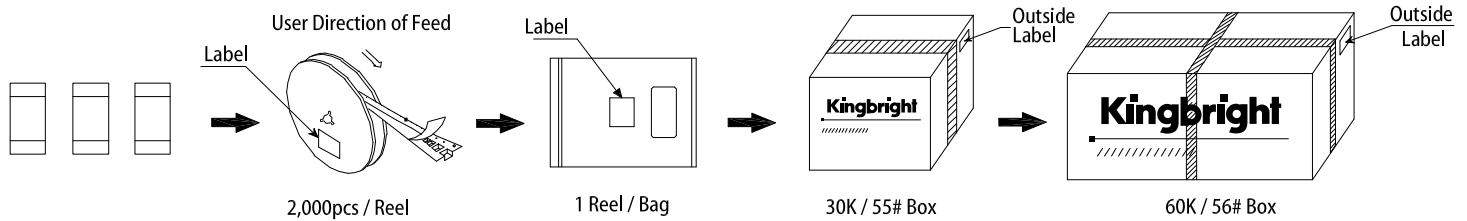
- Forward Current vs. Forward Voltage:** Shows the forward current (mA) versus forward voltage (V) at $T_a = 25^\circ\text{C}$. The current starts to rise significantly around 1.9V and reaches 30mA at approximately 2.3V.
- Luminous Intensity vs. Forward Current:** Shows the normalized luminous intensity (at 20mA) versus forward current (mA) at $T_a = 25^\circ\text{C}$. The intensity increases linearly from 0.0 at 0mA to 1.5 at 30mA.
- Forward Current Derating Curve:** Shows the permissible forward current (mA) versus ambient temperature ($^\circ\text{C}$). The current is constant at 30mA from -40°C to 25°C and then derates linearly to 0mA at 85°C .
- Luminous Intensity vs. Ambient Temperature:** Shows the normalized luminous intensity versus ambient temperature ($^\circ\text{C}$) at $T_a = 25^\circ\text{C}$. The intensity decreases from 1.5 at -40°C to approximately 0.8 at 85°C .

TAPE SPECIFICATIONS (units : mm)

**REEL DIMENSION** (units : mm)

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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.
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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