Kingbright

DF3SYKD
6.8mm x 19.9mm Light Bar

DESCRIPTIONS

- The Super Bright Yellow device is made with AlGaInP (on GaAs substrate) light emitting diode chip
- 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

- Uniform light emitting area
- Easily mounted on P.C. boards or industry standard sockets
- Flush mountable
- Excellent on / off contrast
- Can be used with panels and legend mounts
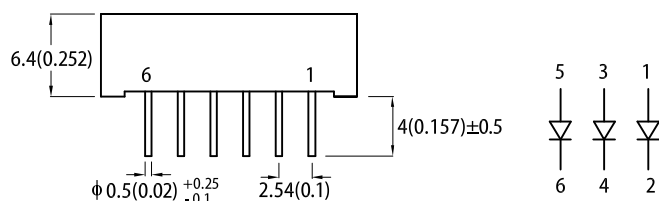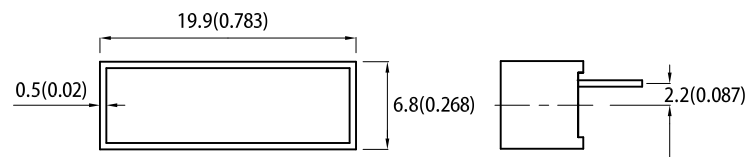- Mechanically rugged
- RoHS compliant

APPLICATIONS

- Home and smart appliances
- Display time and digital combination
- Industrial and instrumental applications
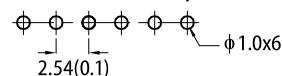- Numeric status

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

PACKAGE DIMENSIONS

Recommended PCB Layout

Notes:
1. All dimensions are in millimeters (inches), Tolerance is ±0.25(0.01")unless otherwise noted.
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	Iv (mcd) @ 20mA [1]	
			Min.	Typ.
DF3SYKD	■ Super Bright Yellow (AlGaInP)	Yellow Diffused	400	740
			*120	*240

Notes:
1. Luminous intensity / luminous Flux: +/-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}	Super Bright Yellow	590	-	nm
Dominant Wavelength I_F = 20mA	λ_{dom} [1]	Super Bright Yellow	590	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 20mA	Δλ	Super Bright Yellow	20	-	nm
Capacitance	C	Super Bright Yellow	20	-	pF
Forward Voltage I_F = 20mA	V_F [2]	Super Bright Yellow	2	2.5	V
Reverse Current (V_R = 5V)	I_R	Super Bright Yellow	-	10	μA

Notes:
1. The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±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

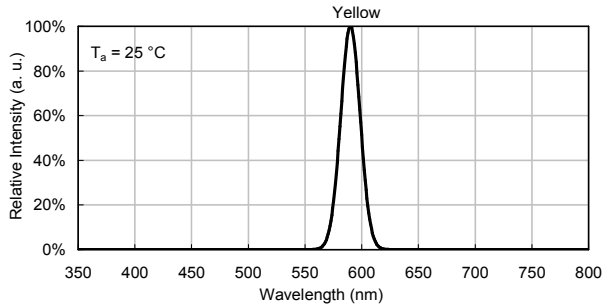| Parameter	Symbol	Value	Unit
Power Dissipation	P_D	75	mW
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	115	°C
Operating Temperature	T_{op}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
DC Forward Current	I_F	30	mA
Peak Forward Current	I_{FM} [1]	175	mA
Electrostatic Discharge Threshold (HBM)	–	3000	V
Lead Solder Temperature [2]		260°C For 3-5 Seconds	

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
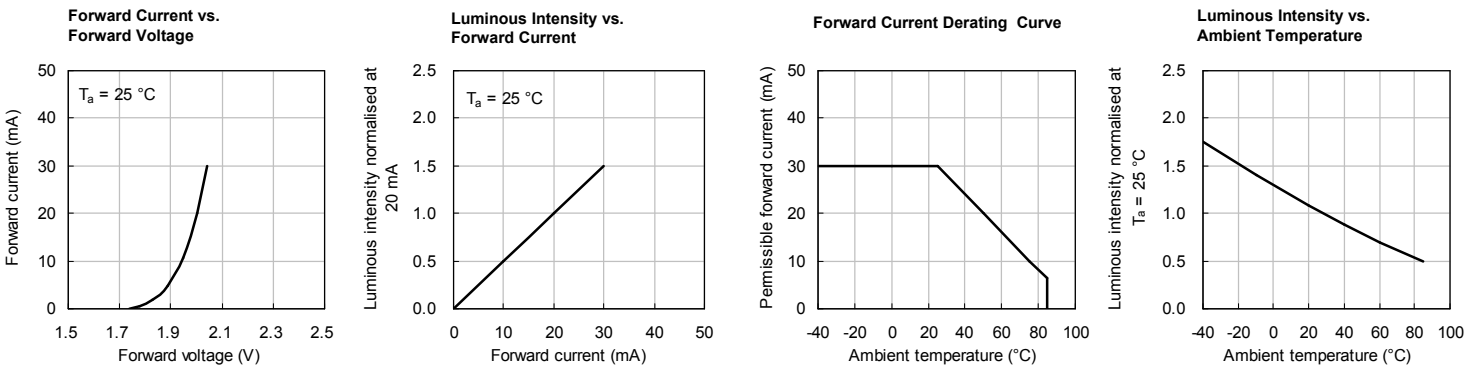*2. 2mm below package base.*
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.
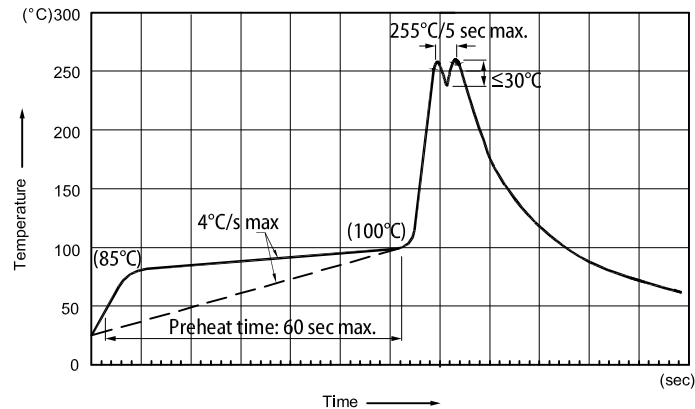
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH

Yellow
T_a = 25 °C

Relative Intensity (a. u.) vs Wavelength (nm)

SUPER BRIGHT YELLOW

Forward Current vs. Forward Voltage

T_a = 25 °C

Forward current (mA) vs Forward voltage (V)

Luminous Intensity vs. Forward Current

T_a = 25 °C

Luminous intensity normalised at 20 mA vs Forward current (mA)

Forward Current Derating Curve

Permissible forward current (mA) vs Ambient temperature (°C)

Luminous Intensity vs. Ambient Temperature

Luminous intensity normalised at T_a = 25 °C vs Ambient temperature (°C)

RECOMMENDED WAVE SOLDERING PROFILE

(°C)
255°C/5 sec max.
≤30°C
4°C/s max
(100°C)
(85°C)
Preheat time: 60 sec max.
Temperature
Time
(sec)

Notes:
1. Recommend pre-heat temperature of 105°C or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260°C
2. Peak wave soldering temperature between 245°C ~ 255°Cfor 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.
7. During wave soldering, the PCB top-surface temperature should be kept below 105°C.

Soldering General Notes

1. Through-hole displays are incompatible with reflow soldering.
2. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with Kingbright for compatibility.

CLEANING

1. Mild "no-clean" fluxes are recommended for use in soldering.
2. If cleaning is required, Kingbright recommends to wash components with water only. Do not use harsh organic solvents for cleaning because they may damage the plastic parts .
3. The cleaning process should take place at room temperature and the devices should not be washed for more than one minute.
4. When water is used in the cleaning process, Immediately remove excess moisture from the component with forced-air drying afterwards.

Spec No: DSAH1900 / 1334000558   Rev No: V.4A   Date: 03/02/2020