

SA56-21SURKWA 14.22 mm (0.56 inch) Single Digit Numeric Display

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

- 0.56 inch digit height
- Low current operation
- Excellent character appearance
- Easy mounting on P.C. boards or sockets
- Mechanically rugged
- Standard: gray face, white segment
- RoHS compliant

APPLICATIONS

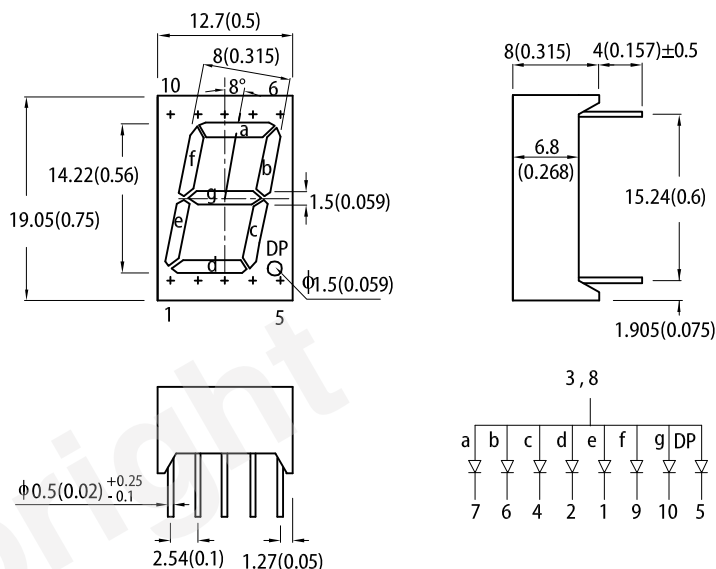
- Home and smart appliances
- Display time and digital combination
- Industrial and instrumental applications
- Numeric status

ATTENTION

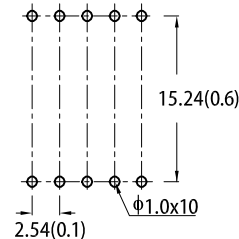
Observe precautions for handling electrostatic discharge sensitive devices



PACKAGE DIMENSIONS



Recommended PCB Layout



Notes:

1. All dimensions are in millimeters (inches). Tolerance is $\pm 0.25(0.01)$ 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 (ucd) @ 10mA ^[1]		Description
			Min.	Typ.	
SA56-21SURKWA	■ Hyper Red (AlGaInP)	White Diffused	31000	97000	Common Anode, Rt. Hand Decimal
			*14000	*27000	

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 = 10mA	λ _{peak}	Hyper Red	645	-	nm
Dominant Wavelength I _F = 10mA	λ _{dom} ^[1]	Hyper Red	630	-	nm
Spectral Bandwidth at 50% Φ REL MAX I _F = 10mA	Δλ	Hyper Red	28	-	nm
Capacitance	C	Hyper Red	35	-	pF
Forward Voltage I _F = 10mA	V _F ^[2]	Hyper Red	1.85	2.35	V
Reverse Current (V _R = 5V)	I _R	Hyper Red	-	10	μA

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

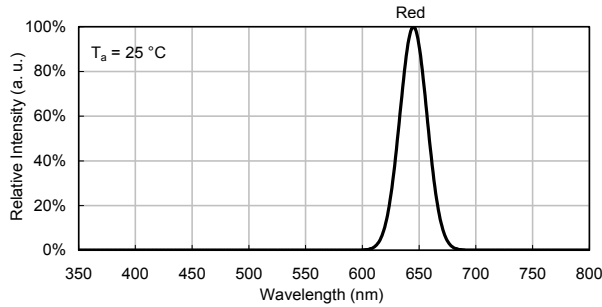
Parameter	Symbol	Value	Unit
Power Dissipation	P _D	75	mW
Reverse Voltage	V _R	5	V
Junction Temperature	T _j	115	°C
Operating Temperature	T _{op}	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
DC Forward Current	I _F	30	mA
Peak Forward Current	I _{FM} ^[1]	185	mA
Electrostatic Discharge Threshold (HBM)	-	3000	V
Lead Solder Temperature ^[2]		260°C For 3-5 Seconds	

Notes:

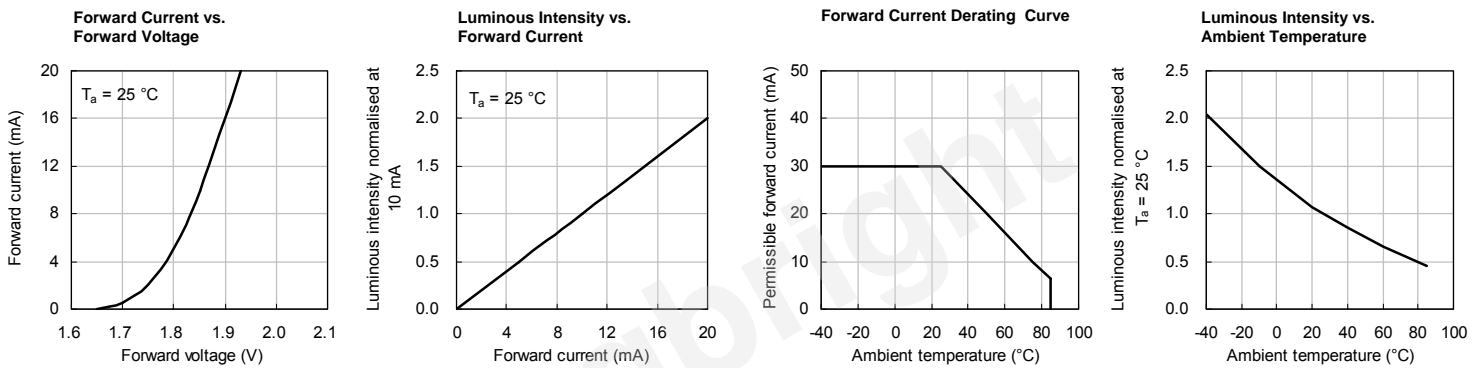
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

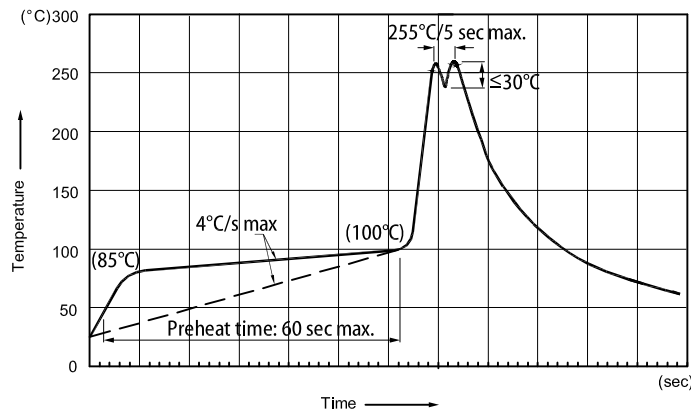
RELATIVE INTENSITY vs. WAVELENGTH



HYPER RED



RECOMMENDED WAVE SOLDERING PROFILE



- 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°C for 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.

