

## 76mm (3.0INCH) SINGLE DIGIT DISPLAY

Part Number: SA30-21EWA

High Efficiency Red

#### **Features**

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

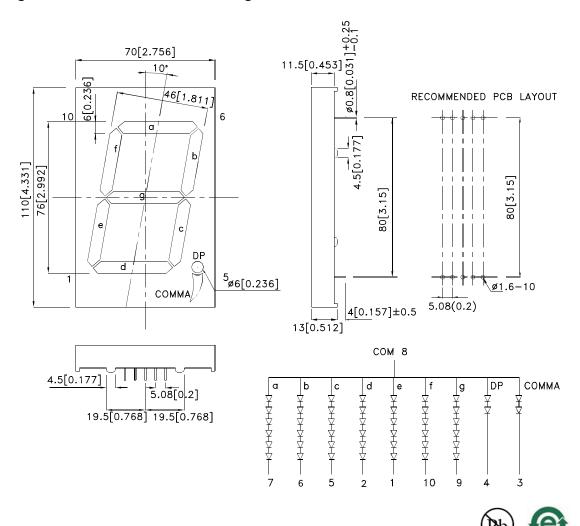
## **Description**

The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

PAGE: 1 OF 7

ERP: 1301003363

## **Package Dimensions& Internal Circuit Diagram**



#### 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.

SPEC NO: DSAM8234 REV NO: V.1A DATE: JAN/12/2013
APPROVED: WYNEC CHECKED: Joe Lee DRAWN: C.H.HAN

### **Selection Guide**

Part No.	Dice	Lens Type	lv (mcd) [1] @ 10mA		Description	
			Min.	Тур.	2000.1011011	
SA30-21EWA	High Efficiency Red (GaAsP/GaP)	White Diffused	21	46	Common Anode , Rt.Hand Decimal.	
			*5.6	*15		

- 1. Luminous intensity/ luminous Flux: +/-15%.

  \* Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

### Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Тур.		Max.	Units	Test Conditions
λpeak	Peak Wavelength	High Efficiency Red	627	*627		nm	IF=20mA
λD [1]	Dominant Wavelength	High Efficiency Red	625	*617		nm	IF=20mA
Δλ1/2	Spectral Line Half-width	High Efficiency Red	45			nm	IF=20mA
С	Capacitance	High Efficiency Red	15			pF	VF=0V;f=1MHz
VF [2]	Forward Voltage Per Segment Or (Dp and Comma)	High Efficiency Red	12.0 (4.0)		15.0 (5.0)	V	IF=20mA
lr	Reverse Current Per Segment Or (Dp and Comma)	High Efficiency Red			10 (10)	uA	VR=5V (VR=5V)

# Absolute Maximum Ratings at TA=25°C

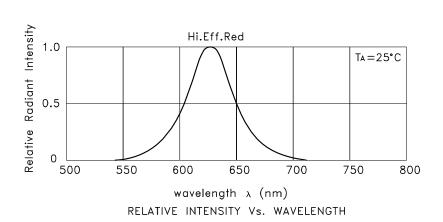
Parameter	High Efficiency Red				
Power dissipation Per Segment Or (DP and Comma)	450 (150)	mW			
DC Forward Current Per Segment Or (DP and Comma)	30 (30)	mA			
Peak Forward Current [1] Per Segment Or (DP and Comma)	160 (160)	mA			
Reverse Voltage Per Segment Or (DP and Comma)	5 (5)	V			
Operating / Storage Temperature	Storage Temperature -40°C To +85°C				
Lead Solder Temperature[2]	2] 260°C For 3-5 Seconds				

#### Notes:

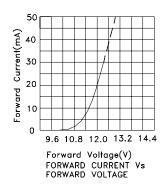
- 1. 1/10 Duty Cycle, 0.1ms Pulse Width.
- 2. 2mm below package base.

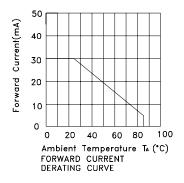
SPEC NO: DSAM8234 **REV NO: V.1A** DATE: JAN/12/2013 PAGE: 2 OF 7 APPROVED: WYNEC **CHECKED:** Joe Lee DRAWN: C.H.HAN ERP: 1301003363

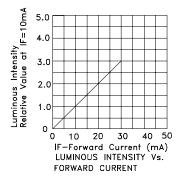
<sup>1.</sup>Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
\*Wavelength value is traceable to the CIE127-2007 compliant national standards.

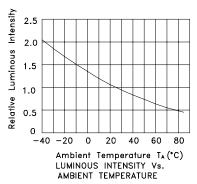


High Efficiency Red SA30-21EWA



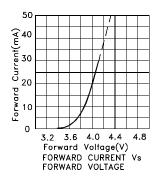


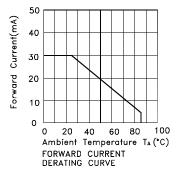


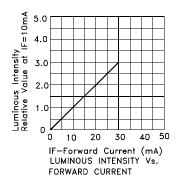


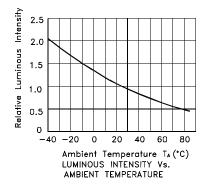
SPEC NO: DSAM8234 REV NO: V.1A DATE: JAN/12/2013 PAGE: 3 OF 7

APPROVED: WYNEC CHECKED: Joe Lee DRAWN: C.H.HAN ERP: 1301003363

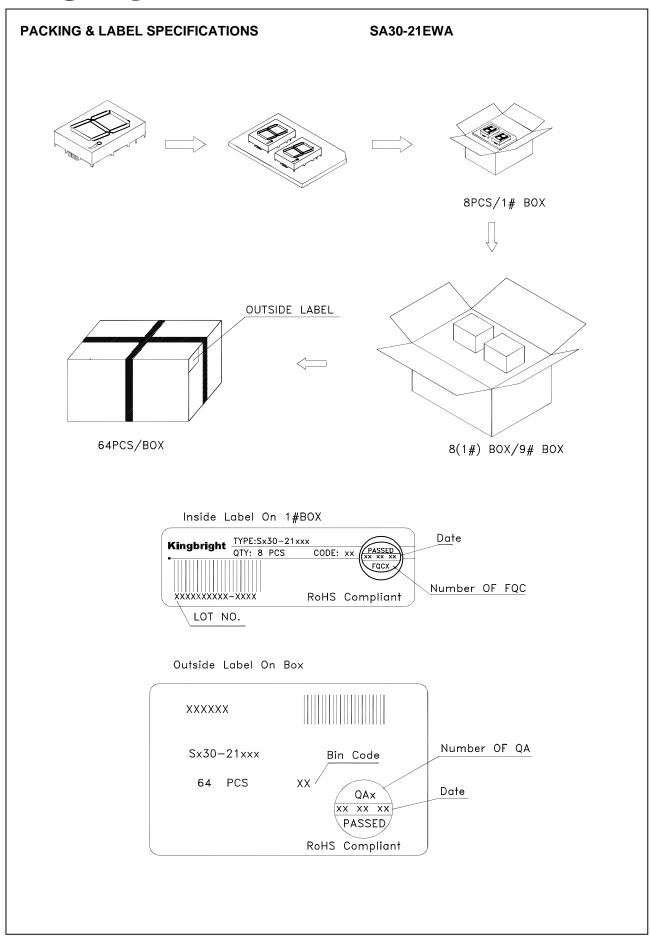








SPEC NO: DSAM8234 REV NO: V.1A DATE: JAN/12/2013 PAGE: 4 OF 7
APPROVED: WYNEC CHECKED: Joe Lee DRAWN: C.H.HAN ERP: 1301003363

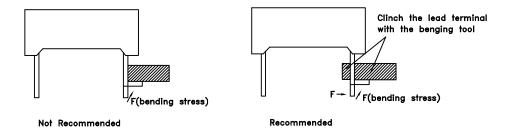


SPEC NO: DSAM8234 APPROVED: WYNEC REV NO: V.1A CHECKED: Joe Lee DATE: JAN/12/2013 DRAWN: C.H.HAN PAGE: 5 OF 7 ERP: 1301003363

### THROUGH HOLE DISPLAY MOUNTING METHOD

# Lead Forming

Do not bend the component leads by hand without proper tools. The leads should be bent by clinching the upper part of the lead firmly such that the bending force is not exerted on the plastic body.

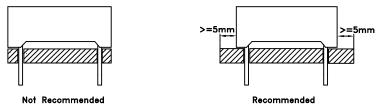


# Installation

- 1. The installation process should not apply stress to the lead terminals.
- 2. When inserting for assembly, ensure the terminal pitch matches the substrate board's hole pitch to prevent spreading or pinching the lead terminals.



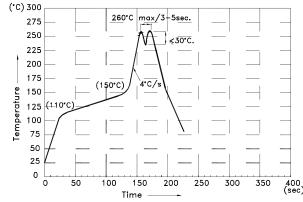
3. The component shall be placed at least 5mm from edge of PCB to avoid damage caused excessive heat during wave soldering.



SPEC NO: DSAM8234 APPROVED: WYNEC REV NO: V.1A CHECKED: Joe Lee DATE: JAN/12/2013 DRAWN: C.H.HAN PAGE: 6 OF 7 ERP: 1301003363

# DISPLAY SOLDERING CONDITIONS

Wave Soldering Profile For Lead-free Through-hole LED.



#### NOTES:

- 1.Recommend the wave temperature 245°C $\sim$ 260°C.The maximum soldering temperature should be less than 260°C.
- 2.Do not apply stress on epoxy resins when temperature is over 85°C.
- 3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
- 4.During wave soldering , the PCB top-surface temperature should be kept below 105°C
- 5.No more than once.

## Soldering General Notes:

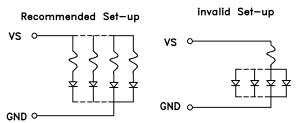
- 1. Through—hole displays are incompatible with reflow soldering.
- 2. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with Kingbright for compatibility.

### **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 .And the devices should not be washed for more than one minute.

### CIRCUIT DESIGN NOTES

- 1.Protective current—limiting resistors may be necessary to operate the Displays.
- 2.LEDs mounted in parallel should each be placed in series with its own current—limiting resistor.



Detailed application notes are listed on our website. <a href="http://www.kingbright.com/application\_notes">http://www.kingbright.com/application\_notes</a>

 SPEC NO: DSAM8234
 REV NO: V.1A
 DATE: JAN/12/2013
 PAGE: 7 OF 7

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