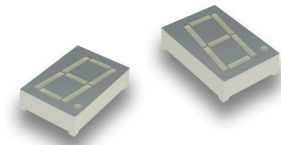




**THE DATASHEET OF
SA10-11EWA**





SA10-11EWA 26 mm (1.02 inch) Single Digit Numeric Display

DESCRIPTION

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

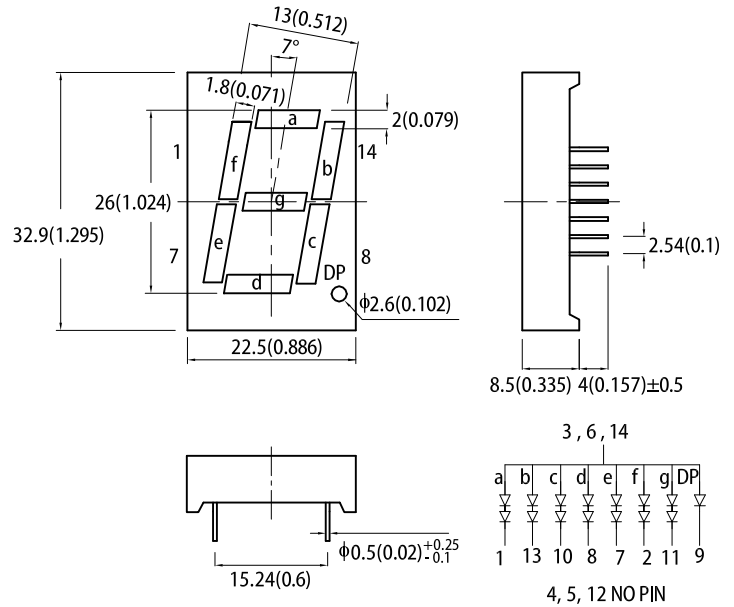
FEATURES

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

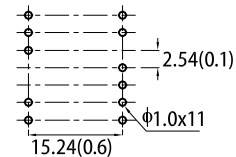
APPLICATIONS

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

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. | |
| SA10-11EWA | ■ High Efficiency Red (GaAsP/GaP) | White Diffused | 14000 | 23000 | Common Anode, Rt. Hand Decimal |
| | | | *3600 | *6500 | |

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} | High Efficiency Red | 627 | - | nm |
| Dominant Wavelength I _F = 10mA | λ_{dom} ^[1] | High Efficiency Red | 617 | - | nm |
| Spectral Bandwidth at 50% Φ REL MAX I _F = 10mA | $\Delta\lambda$ | High Efficiency Red | 45 | - | nm |
| Capacitance | C | High Efficiency Red | 15 | - | pF |
| Forward Voltage I _F = 10mA (Segment) Forward Voltage I _F = 10mA (DP) | V _F ^[2] | High Efficiency Red | 3.8 1.9 | 4.6 2.3 | V |
| Reverse Current (V _R = 5V) (Per chip) | I _R | High Efficiency Red | - | 10 | μ A |

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

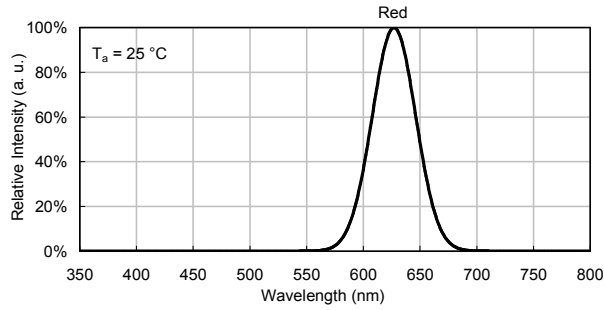
| Parameter | Symbol | Value | Unit |
|---|--------------------------------|-----------------------|------|
| Power Dissipation (Per chip) | P _D | 75 | mW |
| Reverse Voltage (Per chip) | V _R | 5 | V |
| Junction Temperature | T _j | 125 | °C |
| Operating Temperature | T _{op} | -40 to +85 | °C |
| Storage Temperature | T _{stg} | -40 to +85 | °C |
| DC Forward Current (Segment) DC Forward Current (DP) | I _F | 30 30 | mA |
| Peak Forward Current (Segment) Peak Forward Current (DP) | I _{FM} ^[1] | 160 160 | mA |
| Electrostatic Discharge Threshold (HBM) | - | 8000 | V |
| Lead Solder Temperature ^[2] | | 260°C For 3-5 Seconds | |

Notes:

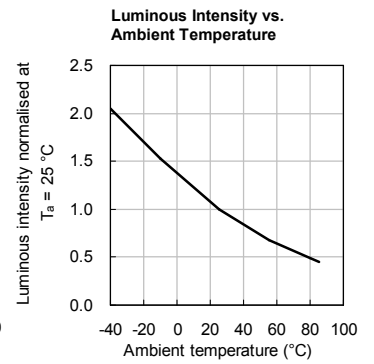
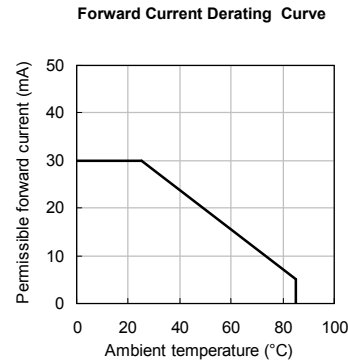
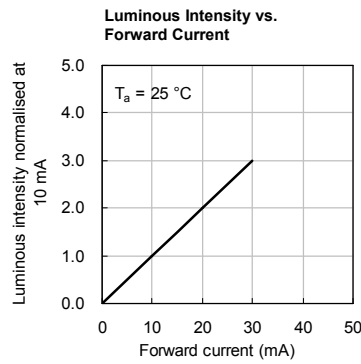
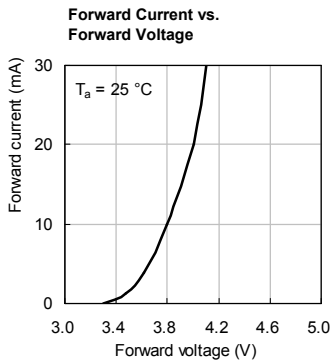
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

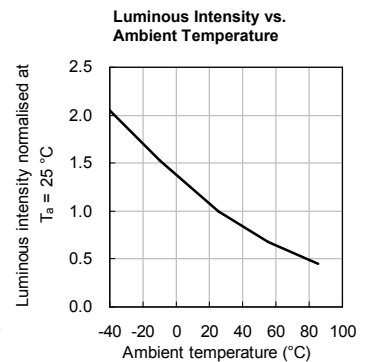
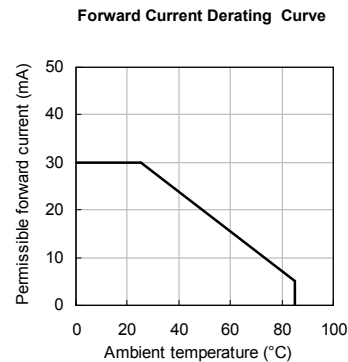
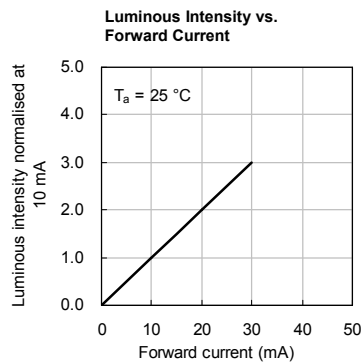
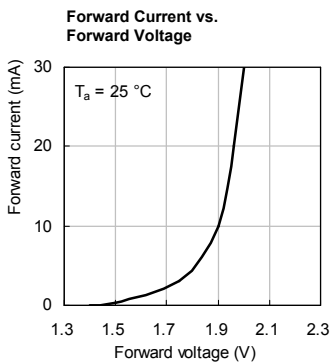
RELATIVE INTENSITY vs. WAVELENGTH



HIGH EFFICIENCY RED (SEGMENT)

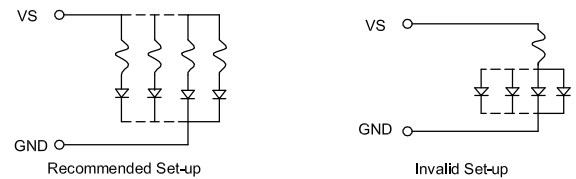


HIGH EFFICIENCY RED (DP)



CIRCUIT DESIGN NOTES

1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor. (Fig.3)
3. The driving circuit should be designed to protect the LED against reverse voltages and transient voltage spikes when the circuit is powered up or shut down.
4. The safe operating current should be chosen after considering the maximum ambient temperature of the operating environment.
5. Prolonged reverse bias should be avoided, as it could cause metal migration, leading to an increase in leakage current or causing a short circuit.





(Fig.3)

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.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
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6. When any special process such as potting is required for LED assembly, please consult with Kingbright representative before proceeding.
7. All design applications should refer to Kingbright application notes available at <https://www.KingbrightUSA.com/ApplicationNotes>

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