

0.32" Single Digit Numeric Displays  
Technical Data Sheet

Model No.: KW1-321XSA

## Features:

- ◇ 0.32" (inch) digit height.
- ◇ Excellent segment uniformity.
- ◇ Sold state reliability.
- ◇ Industrial standard size.
- ◇ Low power consumption.
- ◇ The product itself will remain within RoHS compliant Version.

## Descriptions:

- ◇ The KW1-321XXX series is a larger 8.1mm (0.32") high seven segment display designed for viewing distances up to 7 meters.
- ◇ These displays provide excellent reliability in bright ambient light.
- ◇ These devices are made with white segments and gray surface.

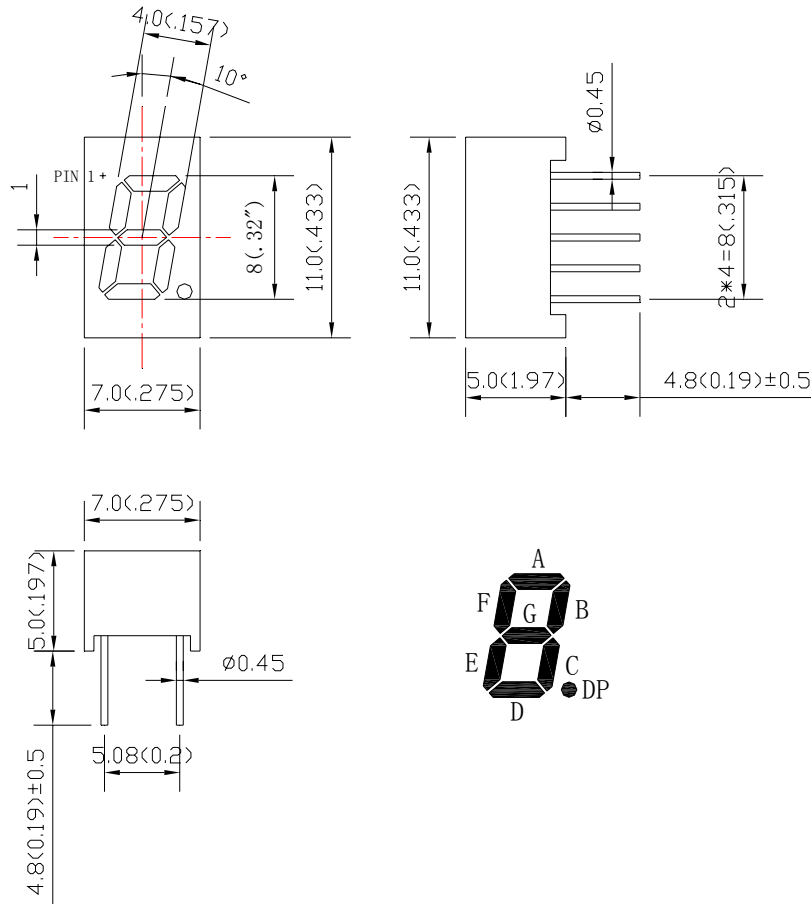
## Applications:

- ◇ Audio equipment.
- ◇ Instrument panels.
- ◇ Digital read out display.

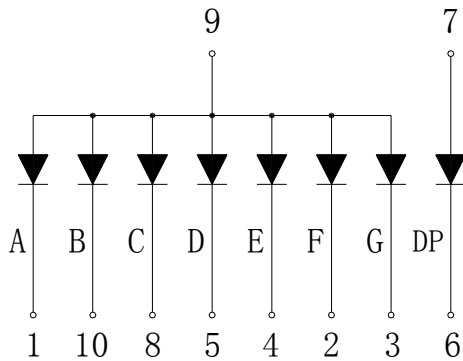
## Device Selection Guide:

| Model No.  | Chip Material | Source Color | Description    |
|------------|---------------|--------------|----------------|
| KW1-321ASA | GaAlAs        | Super Red    | Common Anode   |
| KW1-321CSA |               | Super Red    | Common Cathode |

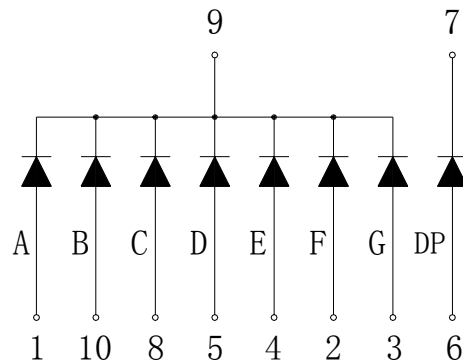
### Package Dimension:



**KW1-321ASA**



**KW1-321CSA**



### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.
3. Specifications are subject to change without notice.

### Absolute Maximum Ratings at Ta=25°C

| Parameters   | Symbol | Max.                | Unit  |
|--|--------|---------------------|-------|
| Power Dissipation per segment  | PD     | 60                  | mW    |
| Peak Forward Current per segment<br>(1/10 Duty Cycle, 0.1ms Pulse Width) | IFP    | 100                 | mA    |
| Forward Current per segment  | IF     | 25                  | mA    |
| Derating Linear From 50°C  |        | 0.4                 | mA/°C |
| Reverse Voltage  | VR     | 5                   | V     |
| Operating Temperature Range  | Topr   | -40°C to +80°C      |       |
| Storage Temperature Range  | Tstg   | -40°C to +100°C     |       |
| Soldering Temperature  | Tsld   | 260°C for 5 Seconds |       |

### Electrical Optical Characteristics at Ta=25°C

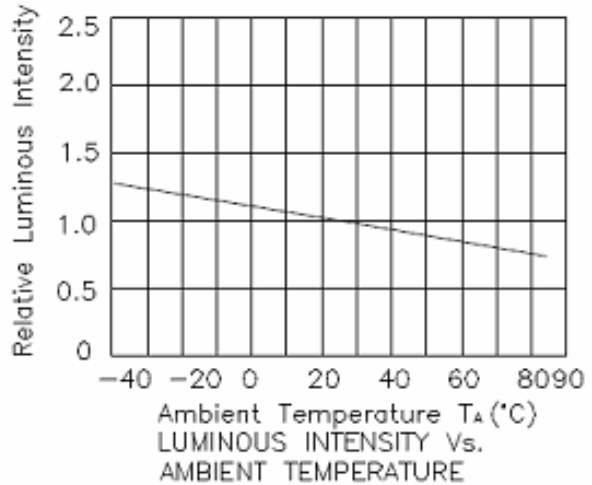
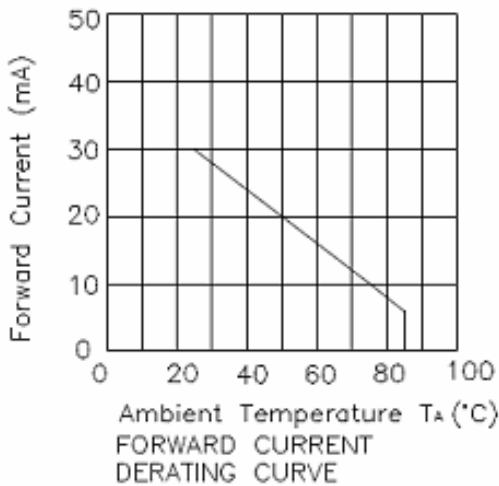
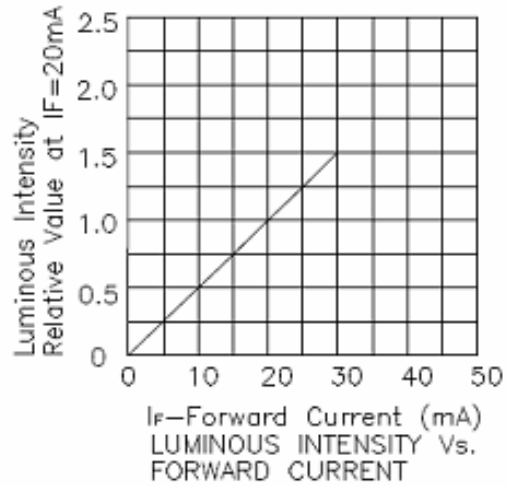
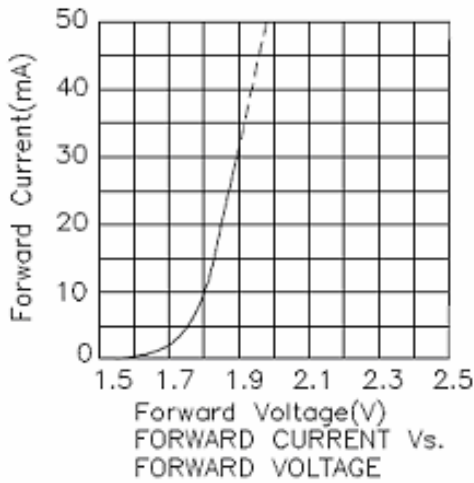
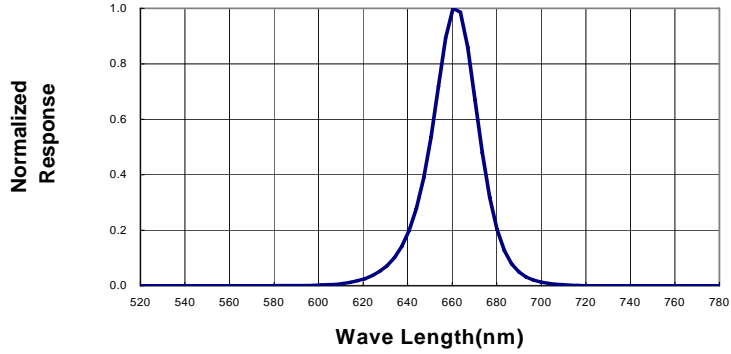
| Parameters               | Symbol          | Min. | Typ. | Max. | Unit    | Test Condition   |
|--------------------------|-----------------|------|------|------|---------|------------------|
| Luminous Intensity       | Iv              | 1.0  | 1.8  | ---  | mcd     | IF=20mA (Note 1) |
| Peak Emission Wavelength | $\lambda_p$     | 655  | 660  | 665  | nm      | IF=20mA          |
| Dominant Wavelength      | $\lambda_d$     | ---  | 640  | ---  | nm      | IF=20mA (Note 2) |
| Spectral Line Half-Width | $\Delta\lambda$ | ---  | 24   | ---  | nm      | IF=20mA          |
| Forward Voltage          | VF              | ---  | 1.8  | 2.4  | V       | IF=20mA          |
| Reverse Current          | IR              | ---  | ---  | 10   | $\mu$ A | VR=5V            |

#### Notes:

- 1.Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- 2.The dominant wavelength ( $\lambda_d$ ) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

**Typical Electrical / Optical Characteristics Curves  
(25°C Ambient Temperature Unless Otherwise Noted)**

**Spectral Radiance (Peak @ 660nm)**



**Please read the following notes before using the datasheets:**

**1. Over-current-proof**

Customer must apply resistors for protection , otherwise slight voltage shift will cause big current change ( Burn out will happen ).

**2. Storage**

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package, the LEDs should be kept at 30°C or less and 90%RH or less.

2.3 The LEDs should be used within a year.

2.4 After opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.

**3. Soldering Condition**

3.1 Pb-free solder temperature profile

3.2 Reflow soldering should not be done more than two times.

**4. Soldering Iron**

Each terminal is to go to the tip of soldering iron temperature less than 260°C for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

**5. Repairing**

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.