

**0.28inch (7.00mm), Orange****Single Digit 7-segment Surface Mount LED Display****Technical Data Sheet**

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**Features**

- 0.28inch (7.00mm) digit height.
- The thickness is thinner than traditional display.
- Packaged in tape and reel for SMT manufacturing.
- Low current operation.
- Excellent character appearance.
- Categorized for luminous intensity.
- Available in CA and CC.
- The product itself will remain within RoHS compliant Version.

**Descriptions**

- The KW1-S284AAA / KW1-S284CAA is a 0.28inch (7.00mm) height single digit display.
- The display provides excellent reliability in bright ambient light.
- The device is made with white segments and gray surface.

**Applications**

- Home appliances
- Game machine
- Instrument panels
- Digital readout displays

**Device Selection Guide**

<b>Part No.</b>	<b>Emitting Color</b>	<b>Polarity</b>
KW1-S284AAA	Orange	Common Anode
KW1-S284CAA	Orange	Common Cathode

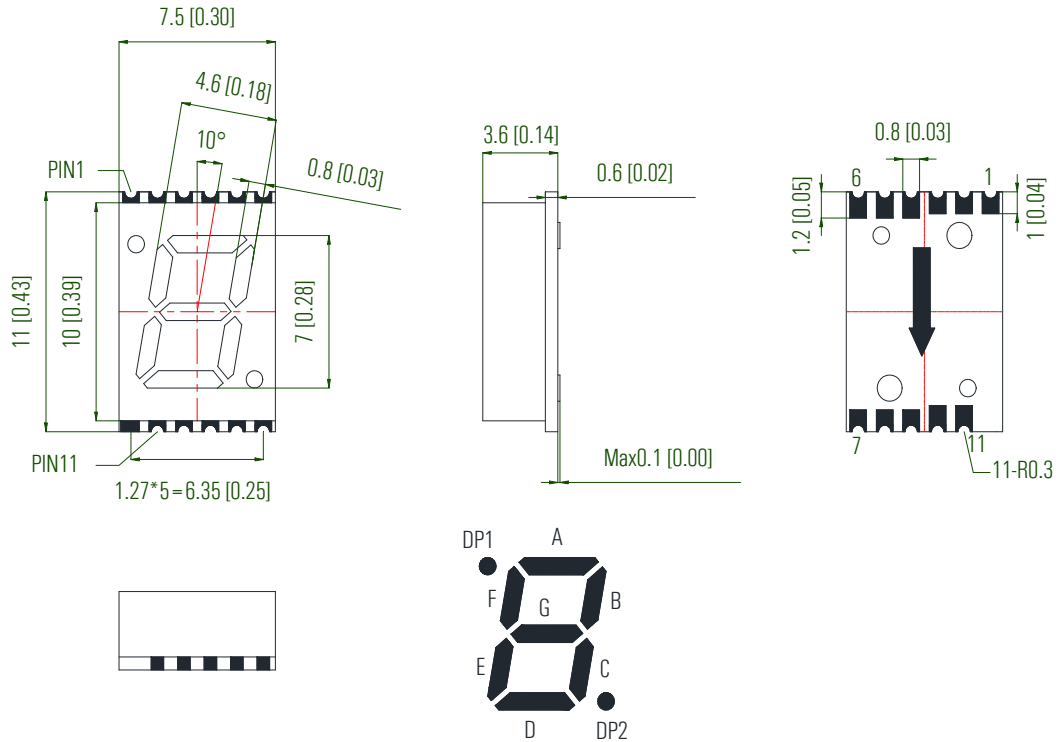
# KW1-S284AAA/KW1-S284CAA

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## Technical Data Sheet

### Package Dimension

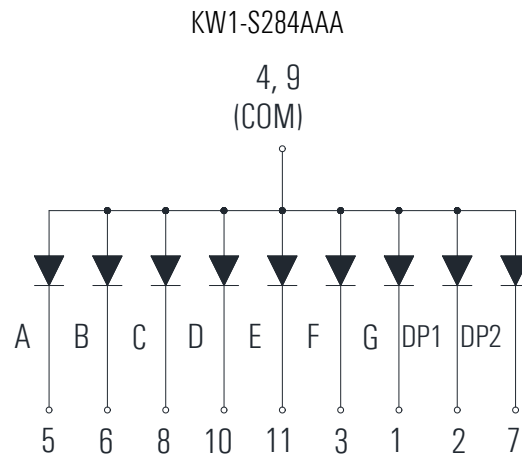


#### Notes:

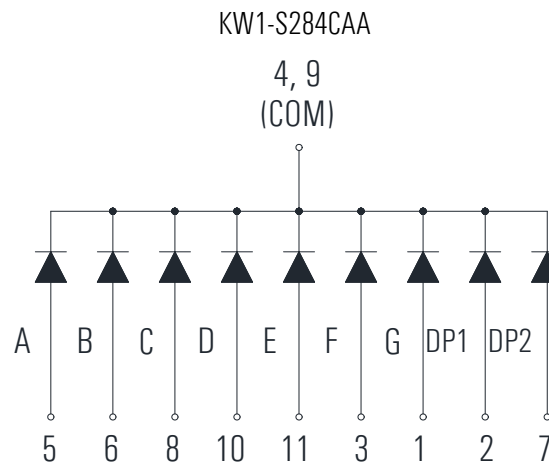
1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  mm (.010 ") unless otherwise noted.
3. The gap between the reflector and PCB shall not exceed 0.25mm.

**Internal Circuit Diagram:**

**Internal Circuit Diagram (Common Anode)**



**Internal Circuit Diagram (Common Cathode)**



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## Absolute Maximum Ratings at Ta=25°C

Parameters	Symbol	Max	Unit
Power Dissipation Per Segment	$P_d$	48	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms Pulse Width)	$I_{FP}$	100	mA
Forward Current Per Segment	$I_F$	20	mA
Reverse Voltage Per Segment	$V_R$	5	V
Operating Temperature Range	$T_{opr}$	-40°C to +100°C	
Storage Temperature Range	$T_{stg}$	-40°C to +105°C	
Soldering Temperature	$T_{sld}$	260°C for 5 Seconds	

## Electrical Optical Characteristics at Ta=25°C

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	$I_v$	8.0	16.0	---	mcd	IF = 10mA (Note a)
Luminous Intensity Matching Ratio	$I_{v-m}$	---	---	2:1		IF = 10mA
Peak Emission Wavelength	$\lambda_p$	---	610	---	nm	IF = 20mA
Dominant Wavelength	$\lambda_d$	---	605	---	nm	IF = 20mA (Note b)
Spectral Line Half-Width	$\Delta \lambda$	---	20	---	nm	IF = 20mA
Forward Voltage Per Segment	$V_F$	---	2.1	2.4	V	IF = 20mA
Reverse Current Per Segment	$I_R$	---	---	50	$\mu A$	VR = 5V

## Notes:

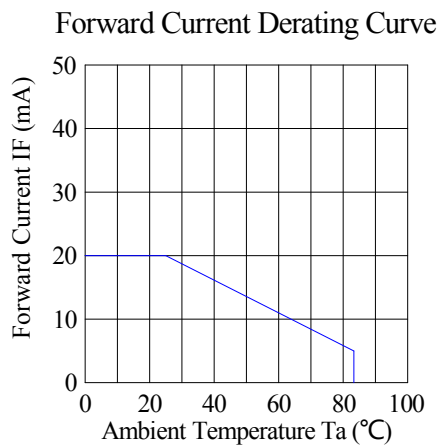
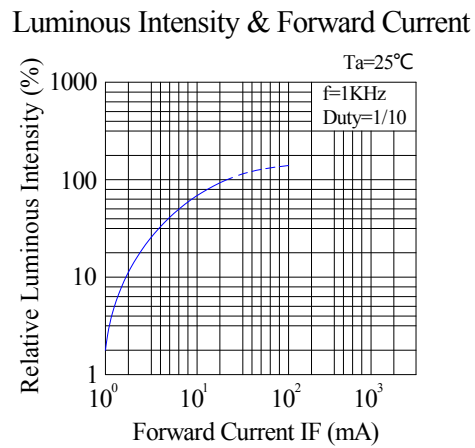
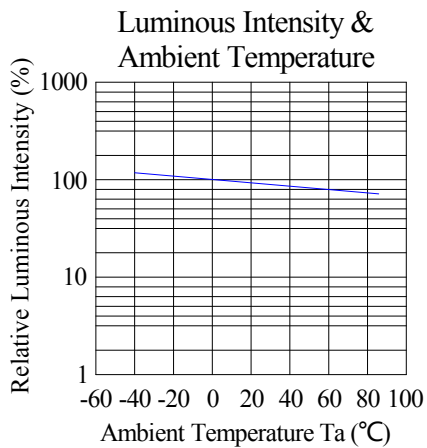
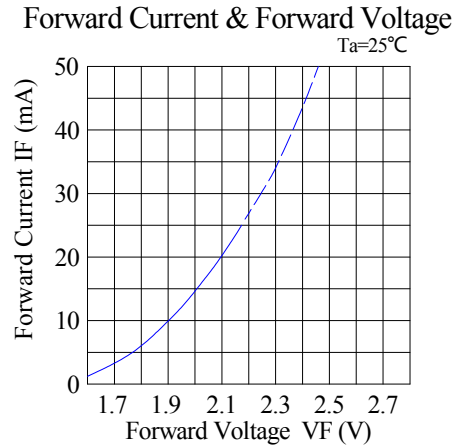
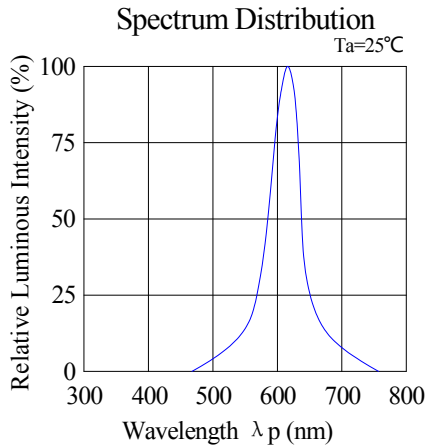
- Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
- The dominant wavelength ( $\lambda_d$ ) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

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



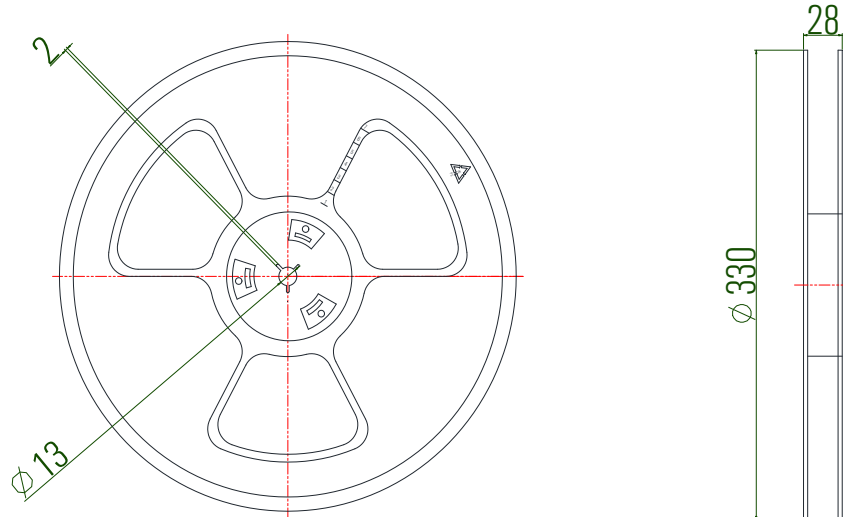
# KW1-S284AAA/KW1-S284CAA

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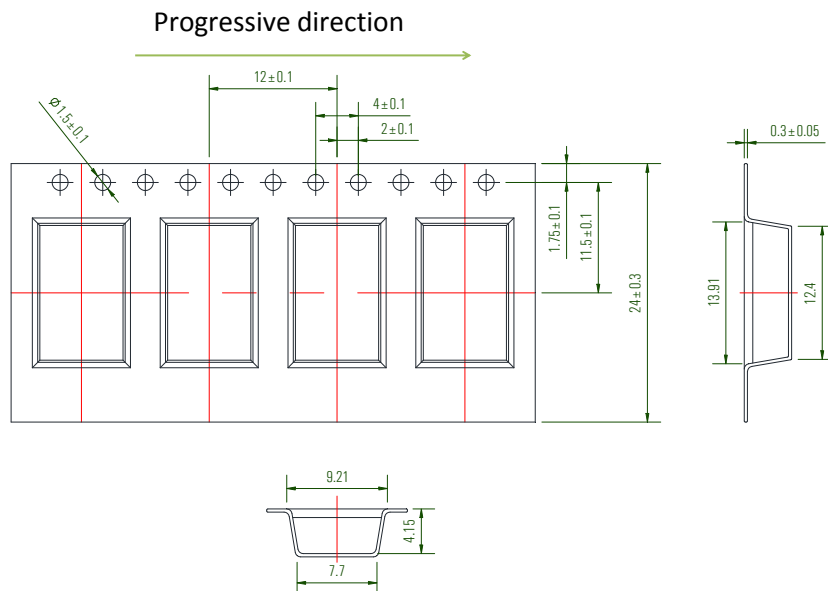
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### Reel Dimensions (units: mm)



### Carrier Tape Dimensions (units: mm)



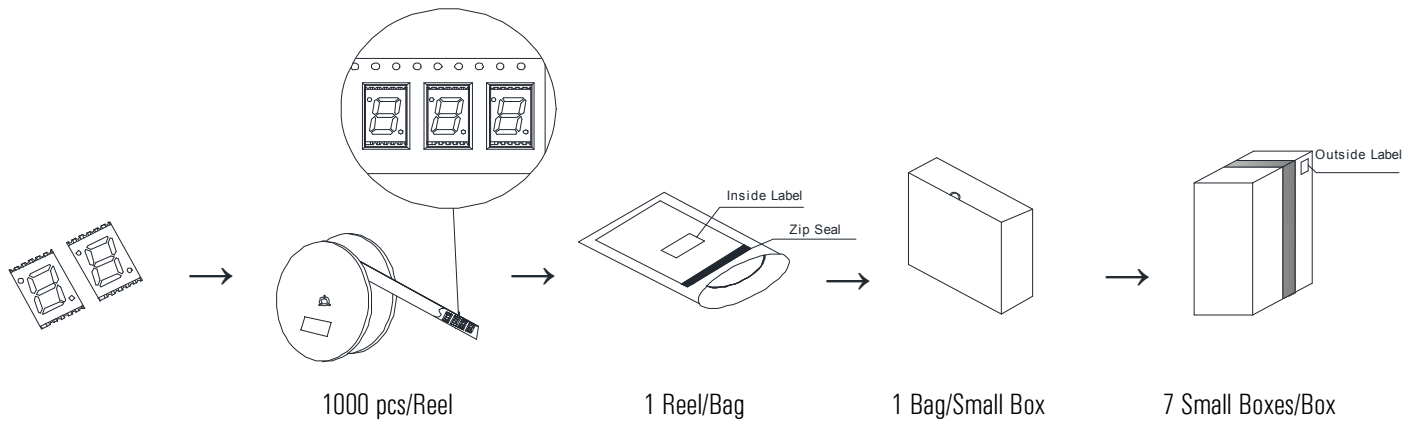
Note: Tolerances unless mentioned  $\pm 0.25\text{mm}$ .

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**Packing & Label Specifications**

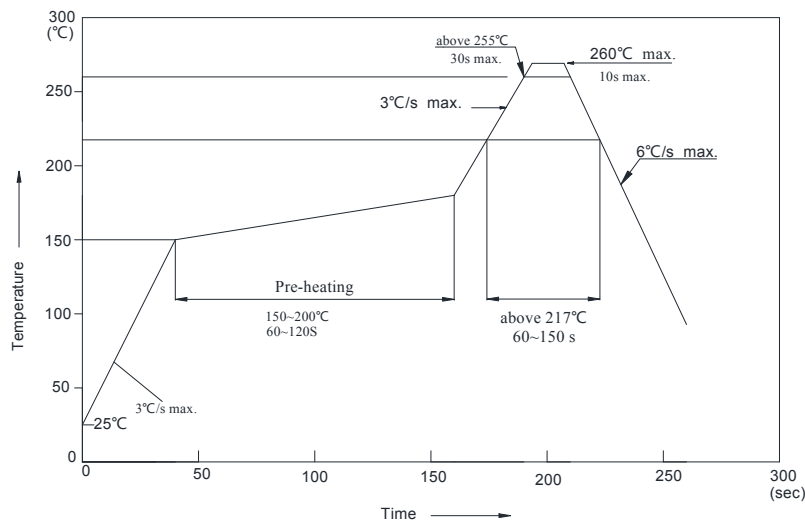


**Precautions for Use**

**1. Caution in ESD**

Static electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices equipment and machinery must be properly grounded.

**2. SMT Soldering Condition**







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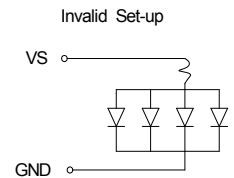
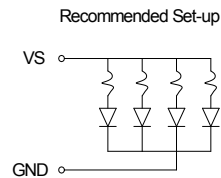
**4. Circuit Design Notes:**

a. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.

b. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.

c. 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.

d. The safe operating current should be chosen after considering the maximum ambient temperature of the operating environment.

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5. The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, it may cause migration resulting in LED damage.