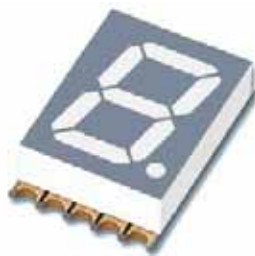


0.39" Single Digit Super Yellow Green  
SMD Displays  
Technical Data Sheet

Model No.: KW1-S391XUGA



## Features:

- 0.39" (inch) digit height.
- Packaged in tape and reel for SMT manufacturing.
- Design flexibility (common cathode and anode).
- Categorized for luminous intensity.
- The thickness is thinner than tradition display.
- The product itself will remain within RoHS compliant Version.

## Descriptions:

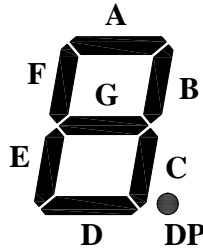
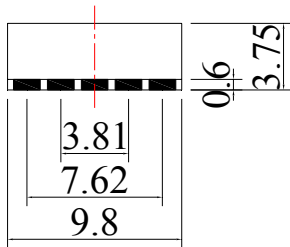
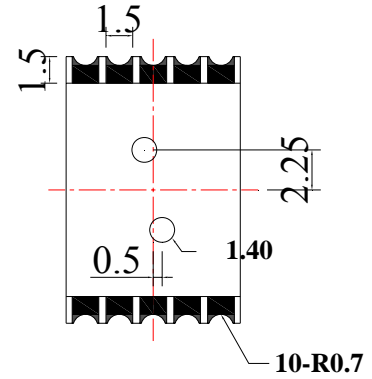
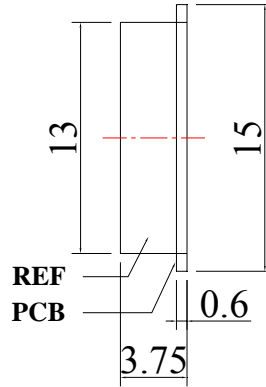
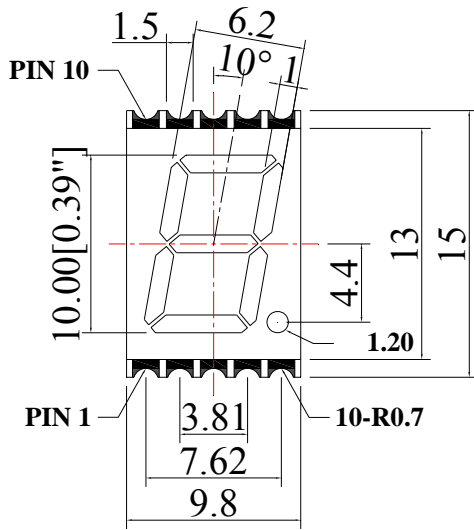
- The SMD type is much smaller than tradition type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
- These devices are made with white segments and gray surface.

## Applications:

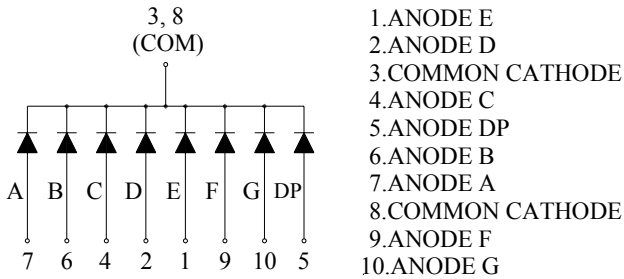
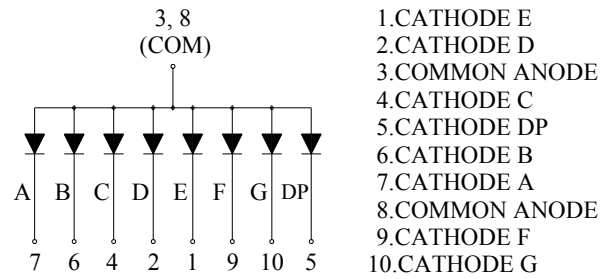
- Suitable for indoor use.
- Audio equipment.
- Set top box.
- Game machine.
- Channel indicator of TV.

## Device Selection Guide:

Model No.	Chip Material	Source Color	Description
KW1-S391CUGA	AlGaInP	Super Yellow Green	Common Cathode
KW1-S391AUGA		Super Yellow Green	Common Anode

**Package Dimension:**


Unit: mm  
Tolerance:  $\pm 0.25$  mm

**KW1-S391CUGA**

**KW1-S391AUGA**

**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

Parameters	Symbol	Max.	Unit
Power Dissipation (Per Segment)	PD	65	mW
Peak Forward Current (Per Segment) (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	100	mA
Continuous Forward Current (Per Segment)	IF	25	mA
Derating Linear From 50		0.25	mA/
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40 to +105	
Storage Temperature Range	Tstg	-40 to +105	
Soldering Temperature	Tsld	260 for 5 Seconds	

### Electrical Optical Characteristics at Ta=25

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity (Per Segment)	IV	2	5	---	mcd	IF=10mA (Note 1)
Luminous Intensity Matching Ratio (Segment To Segment)	I <sub>V-M</sub>	---	---	2:1		IF=10mA
Peak Emission Wavelength	$\lambda_p$	---	575	---	nm	IF=20mA
Dominant Wavelength	$\lambda_d$	---	573	---	nm	IF=20mA (Note 2)
Spectral Line Half-Width	$\lambda$	---	20	---	nm	IF=20mA
Forward Voltage (Per Segment)	VF	1.60	2.00	2.60	V	IF=20mA
Reverse Current (Per Segment)	IR	---	---	100	$\mu$ A	V <sub>R</sub> =5V

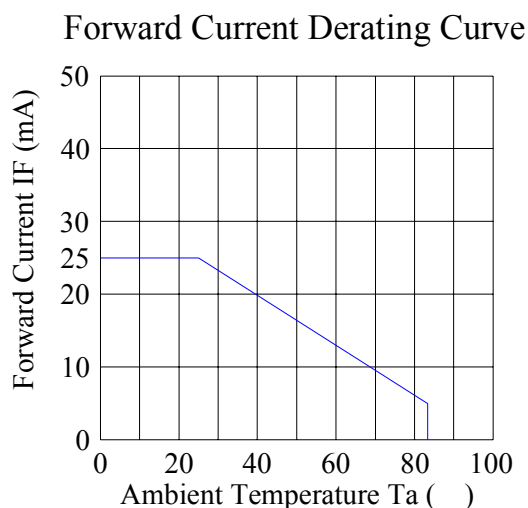
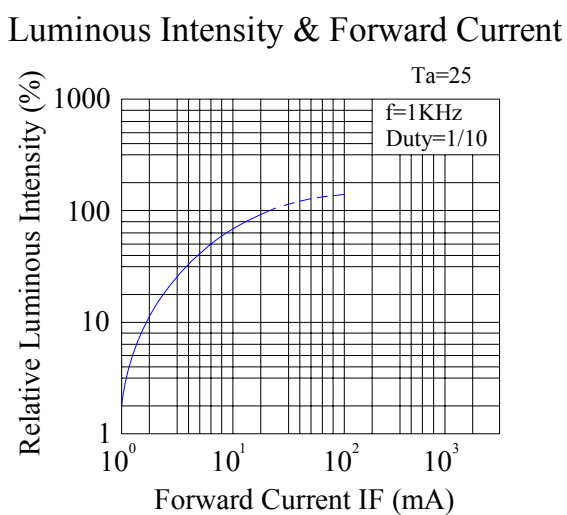
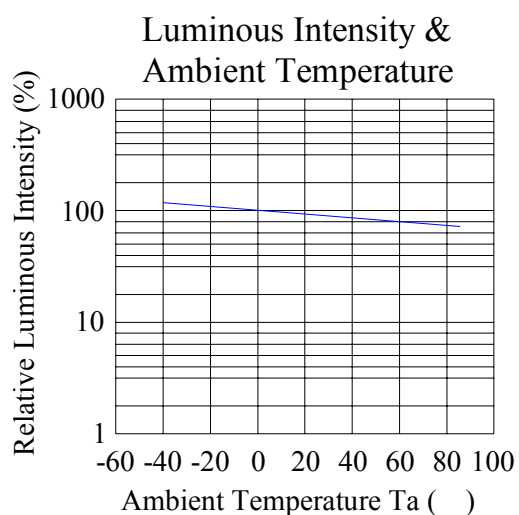
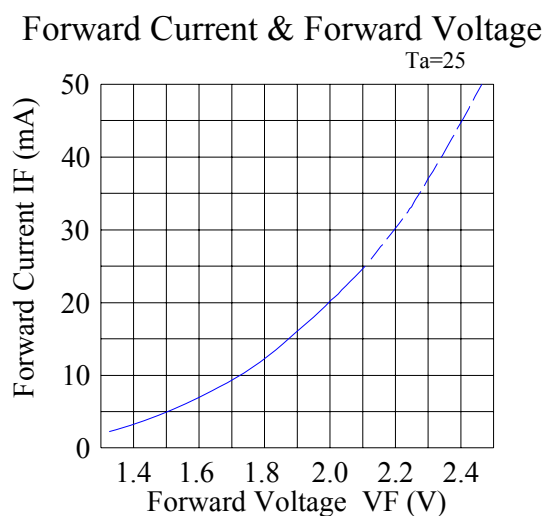
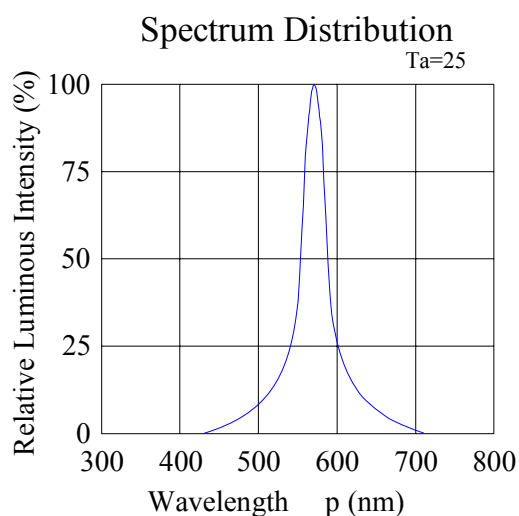
#### Notes:

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 Ambient Temperature Unless Otherwise Noted)



## Reliability Test Items And Conditions:

The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

No.	Test Item	Test Hours/ Cycles	Test Conditions	Failure Judgment Criteria	Sample Size	Ac/Re
1	Solder Heat	5Sec	TEMP.: 260 ± 5	$IV \leq IV_t \times 0.5$ or $VF \geq U$ or $VF \leq L$	76PCS	0/1
2	Temperature Cycle	50Cycle	H: +85 30min ∫ 5 min L: -55 30min		76PCS	0/1
3	Thermal Shock	50Cycle	H: +100 5min ∫ 10sec L: -10 5min		76PCS	0/1
4	High Temperature Storage	1000Hrs	TEMP.: 100		76PCS	0/1
5	Low Temperature Storage	1000Hrs	TEMP.: -55		76PCS	0/1
6	DC Operating Life	1000Hrs	IF=10mA		76PCS	0/1
7	High Temperature / High Humidity	1000Hrs	85 /85% RH		76PCS	0/1

### Notes:

IV<sub>t</sub>: The test IV value of the chip before the reliability test.

IV: The test value of the chip that has completed the reliability test.

U: Upper Specification Limit.

L: Lower Specification Limit.

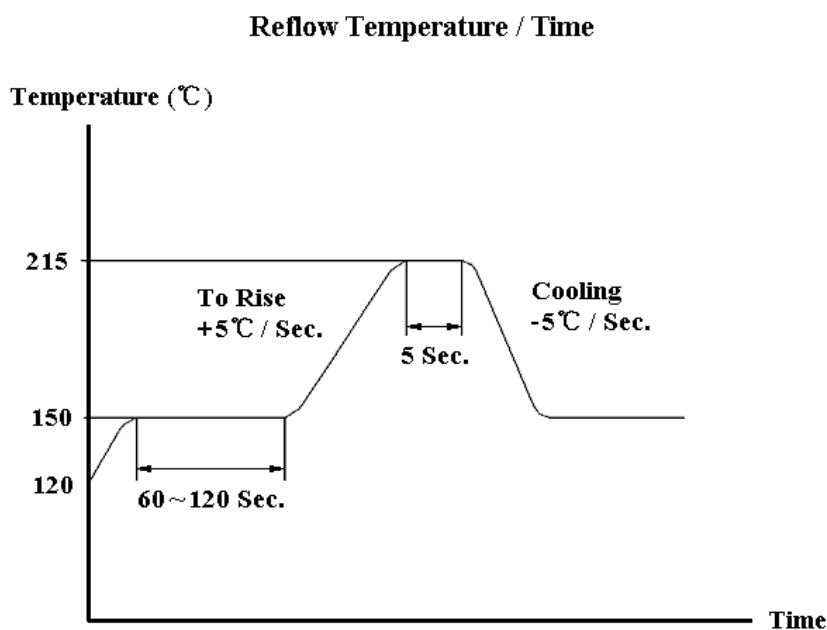
### Soldering iron:

Basic spec is  $\leq 5$  sec when 260 .If temperature is higher, time should be shorter (+10 → -1sec). Power dissipation of iron should be smaller than 15W, and temperature should be controllable. Surface temperature of the device should be under 230 .

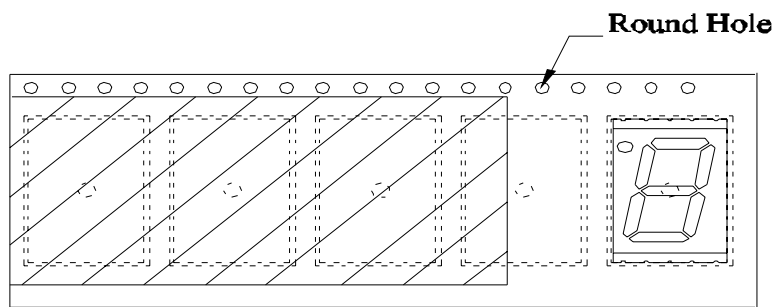
### Rework:

Customer must finish rework within 5 sec under 260 .  
The head of iron can not touch copper foil.

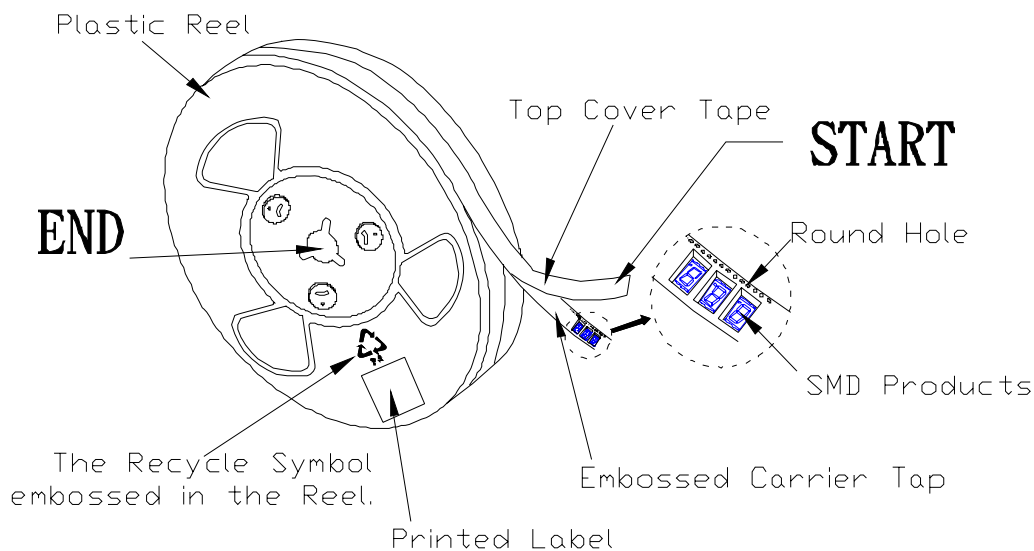
### Reflow temperature / time:



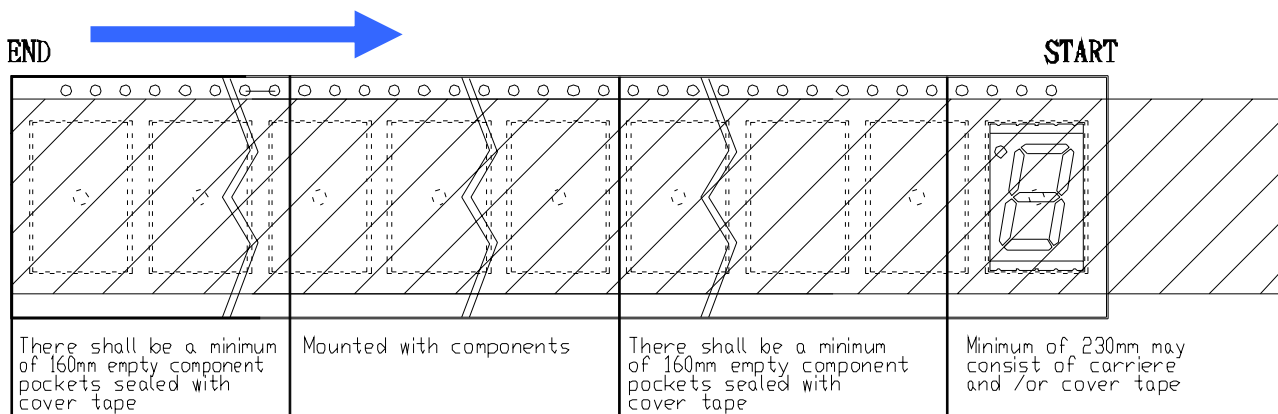
### The Products In The Reel Of Direction:



### Label Direction & Content In The Roll:



### User Feed Direction:



### Package Criteria:

1. Loaded quantity 1000PCS per reel.
2. Max 5 reels/5000PCS are packaged in each carton.



Please read the following notes before using the product:

### 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 80%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 60%RH or less.

2.5 The LEDs should be used within 168 hours (7 days) after opening the package.

### 3. 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.

### 4. Soldering

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.

To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.

Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

Soldering Iron		Wave Soldering	
Temperature	300 Max.	Pre-heat	100 Max.
Soldering Time	3 sec. Max. (one time only)	Pre-heat Time	60 sec. Max.
		Solder Wave	260 Max.
		Soldering Time	5 sec. Max.

Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

### 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.

### 6. 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.