

0.52" Triple Digit Numeric Displays  
Technical Data Sheet

Model No.: KW3-521XBB

## Features:

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

## Descriptions:

- ◇ The KW3-521XXX series is a larger 13.20mm (0.52") 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 Diffused segments and black surface.

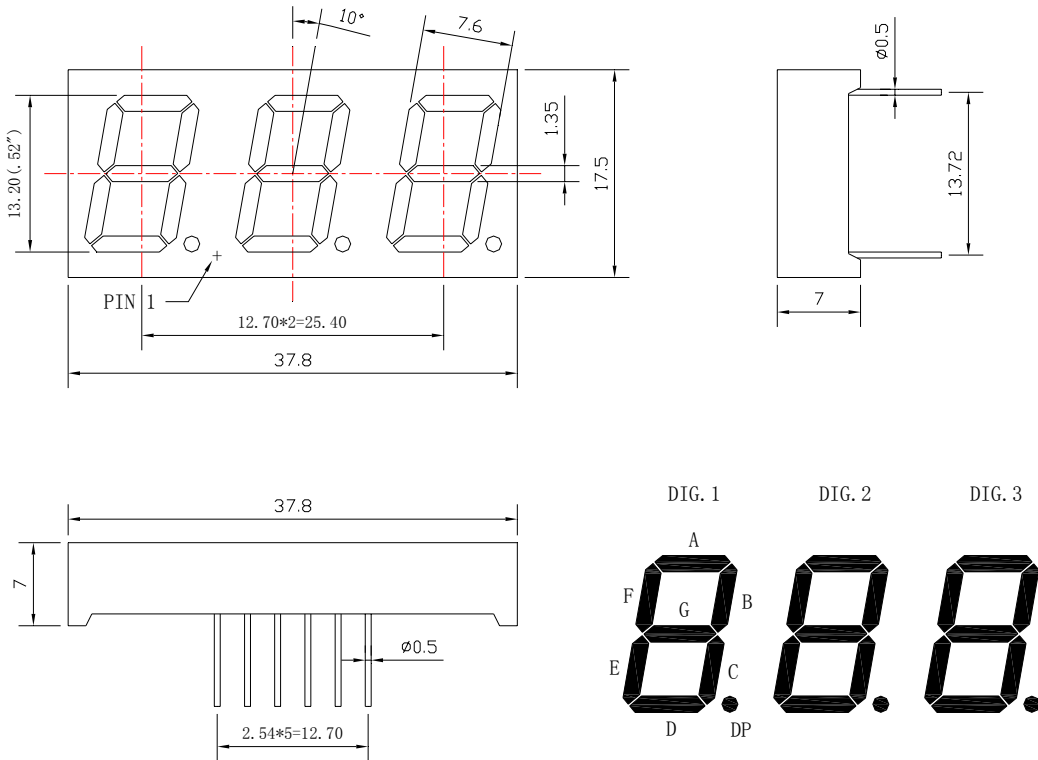
## Applications:

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

## Device Selection Guide:

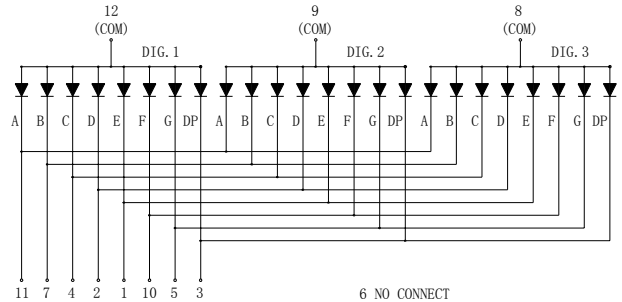
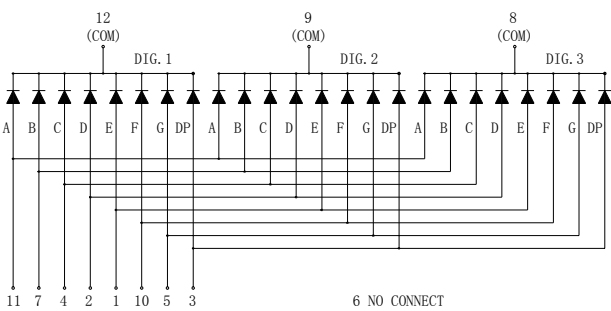
Model No.	Chip Material	Source Color	Description
KW3-521CBB	InGaN	Blue	Common Cathode
KW3-521ABB		Blue	Common Anode

### Package Dimension:



**KW3-521CBB**

**KW3-521ABB**



### 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	100	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
Dating 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

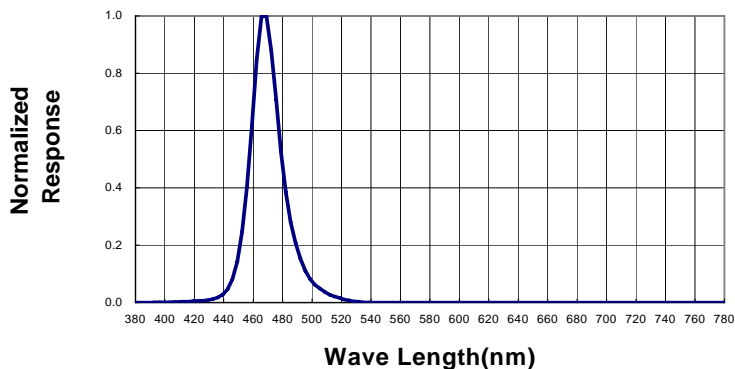
Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity	Iv	2.5	3.0	---	mcd	IF=20mA (Note 1)
Peak Emission Wavelength	$\lambda_p$	463	468	473	nm	IF=20mA
Dominant Wavelength	$\lambda_d$	461	466	471	nm	IF=20mA (Note 2)
Spectral Line Half-Width	$\Delta\lambda$	14	18	21	nm	IF=20mA
Forward Voltage	VF	---	3.6	4.0	V	IF=20mA
Reverse Current	IR	---	---	10	$\mu$ A	VR=5V

#### Notes:

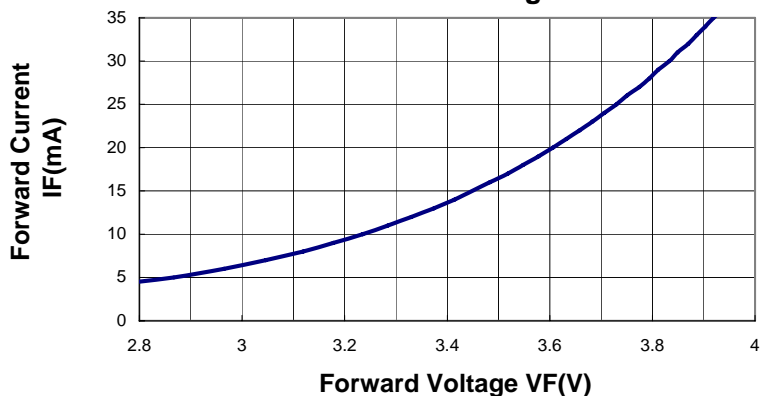
1. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
2. The dominant wavelength ( $\lambda_d$ ) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

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

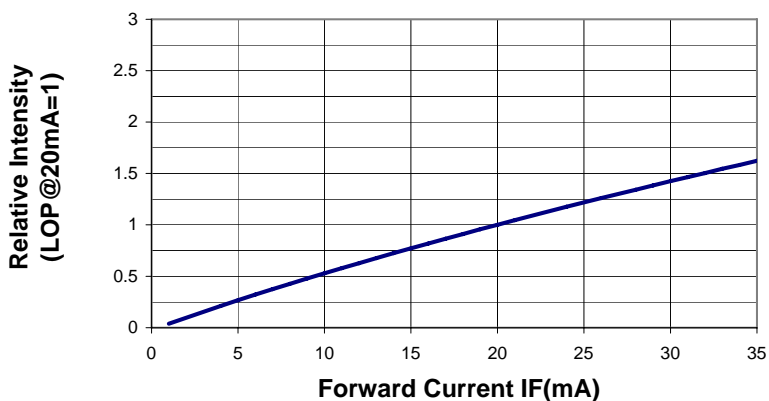
**Spectral Radiance ( Peak @ 468nm)**



**Forward Current vs Forward Voltage**



**Relative Luminous Intensity vs Forward Current**



**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.

**6. Caution in ESD**

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