



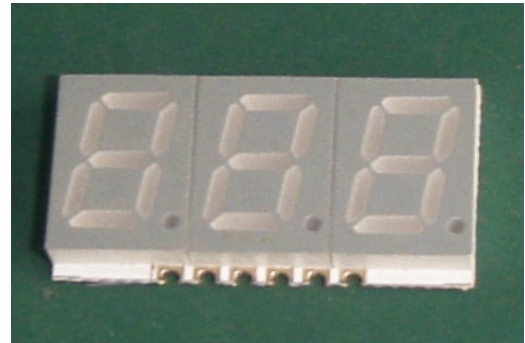
## Technical Data Sheet

### 0.39" Triple Digit SMD Displays

#### ELST-405UBWA

#### Features

- Packaged in tape and reel for SMT manufacturing.
- Design flexibility(common cathode or anode).
- Categorized for luminous intensity.
- The thickness is thinner than traditional display.
- Pb free
- The product itself will remain within RoHS compliant version



#### Descriptions

- The SMD type is much smaller than traditional type components, thus enabling smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.

#### Applications

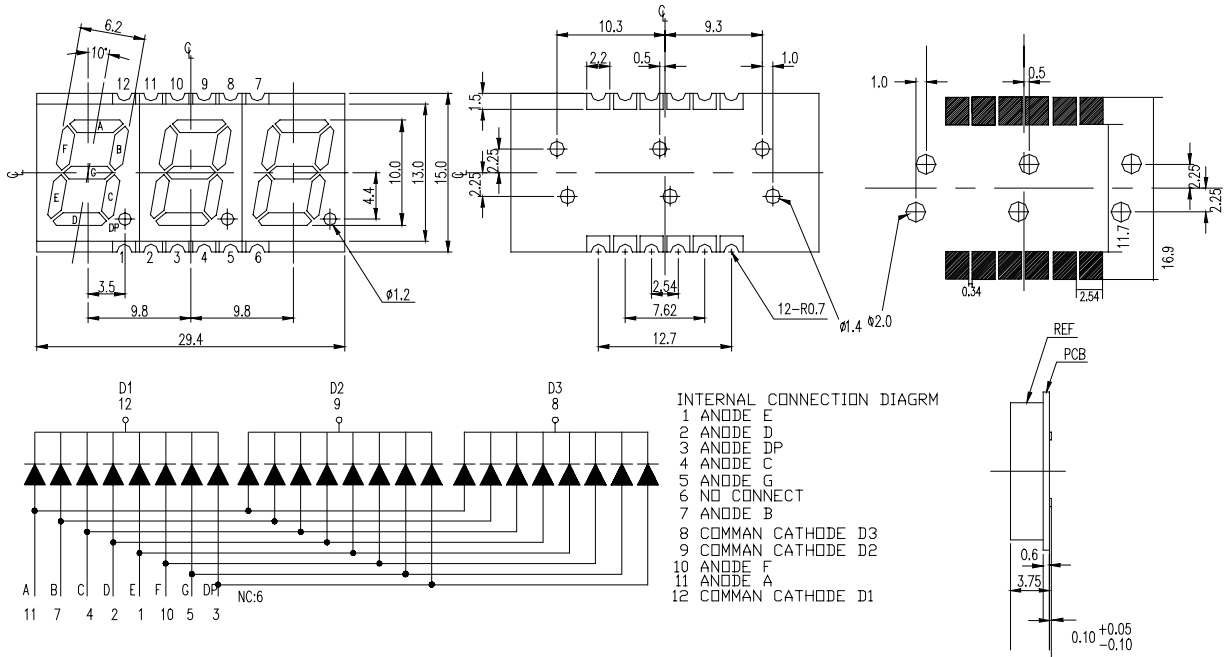
- Suitable for indoor use.
- Audio system.
- Set top box.
- Game machine.
- Channel indicator of TV.

#### Device Selection Guide

Chip		Face Color
Material	Emitted Color	
InGaN/SiC	Blue	Gray

**Package Dimensions**

**Land Pattern(Recommend)**



**Notes:**

- All dimensions are in millimeters, tolerance is 0.25mm unless otherwise noted.
- Above specification may be changed without notice. Supplier will reserve authority on material change for above specification.

**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Rating	Units
Forward Current	I <sub>F</sub>	30	mA
Pulse Forward Current <sup>*1</sup>	I <sub>FP</sub>	100	mA
Operating Temperature	T <sub>opr</sub>	-40 ~ +85	°C
Storage Temperature	T <sub>stg</sub>	-40 ~ +85	°C
Reflow Temperature <sup>*2</sup>	T <sub>sol</sub>	260	°C
Electrostatic Discharge	ESD	150	V
Power Dissipation	P <sub>d</sub>	130	mW
Reverse Voltage	V <sub>R</sub>	5	V

**Notes:** \*1:I<sub>FP</sub> Conditions--Pulse Width ≤ 10msec and Duty ≤ 1/10.

\*2:Reflow time ≤ 5 seconds.

**Electro-Optical Characteristics (Ta=25°C)**

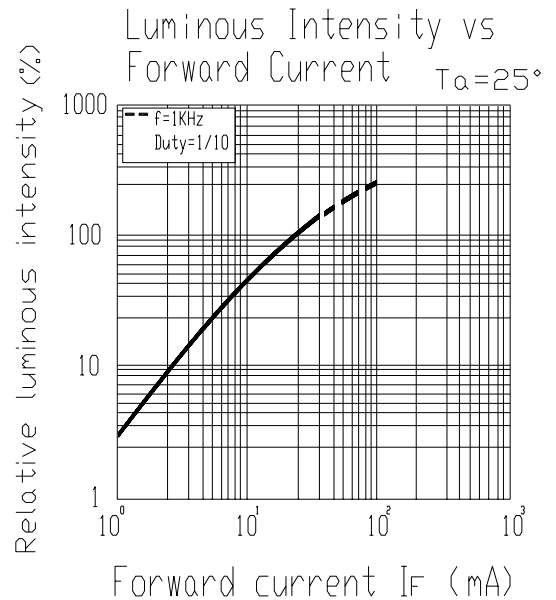
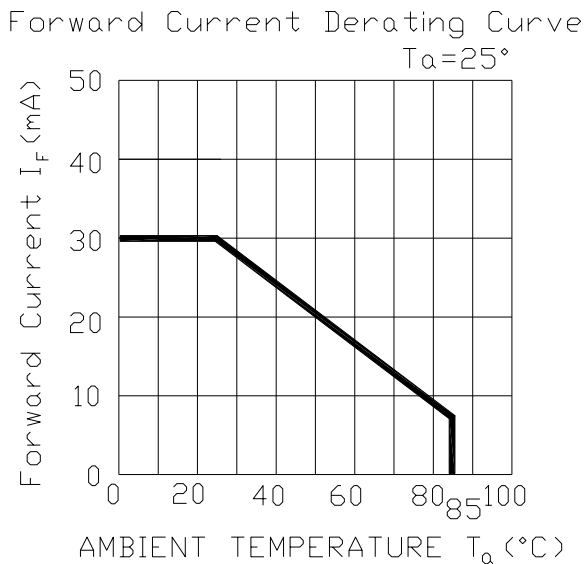
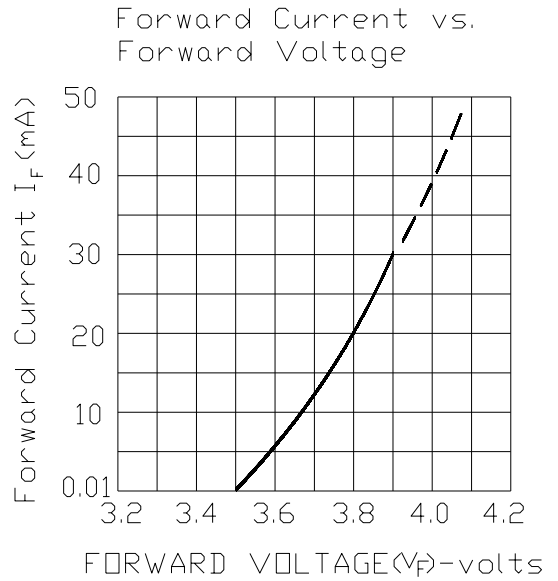
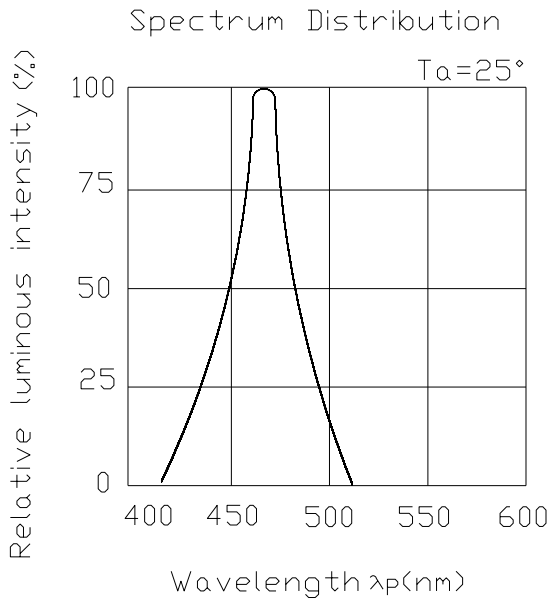
Parameter		Symbol	Min.	Typ.	Max.	Units	Condition
Forward Voltage		$V_F$	--	3.5	4.3	V	$I_F=20mA$
Reverse Current		$I_R$	--	--	50	$\mu A$	$V_R=5V$
Luminous Intensity	Per segment	$I_V$	15.0	26.1	--	mcd	$I_F=10mA$
	Per decimal point		4.0	7.2	--		
Peak Wavelength		$\lambda_p$	--	468	--	nm	$I_F=20mA$
Dominant Wavelength		$\lambda_d$	--	470	--	nm	$I_F=20mA$
Spectrum Radiation Bandwidth		$\Delta \lambda$	--	26	--	nm	$I_F=20mA$

**Chromaticity Coordinates Specifications for Bin Grading (Unit: mcd)**

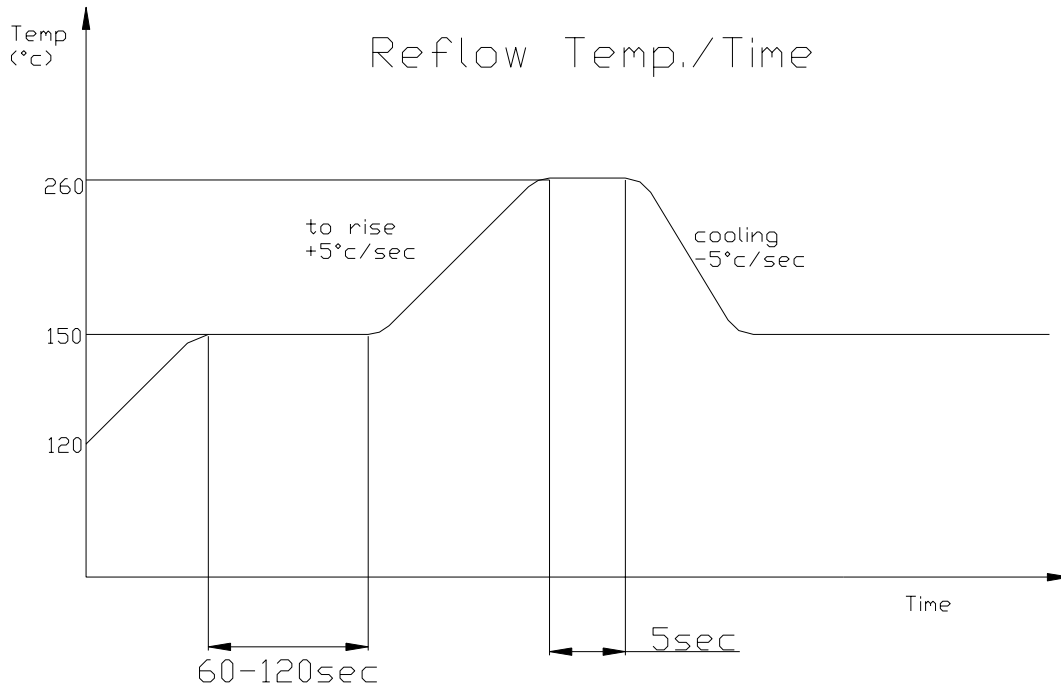
Rank	Min.	Max.	Rank	Min.	Max.
S	15.00	24.00	W	59.00	94.00
T	21.00	34.00	X	83.00	133.00
U	30.00	48.00	Y	116.00	186.00
V	42.00	67.00	---	---	---

**Typical Electro-Optical Characteristics Curves**

( UB )



■ **Reflow Temp. / Time :**



■ **Soldering Iron :**

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

■ **Rework :**

1. Customer must finish rework within 5 sec under  $260^{\circ}\text{C}$ .
2. The head of iron can not touch copper foil.

**Reliability test items and conditions:**

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Ac/Re
1	Reflow	TEMP:260°C±5°C Min:5 sec	6 MIN	22 PCS	0/1
2	Temperature Cycle	H : +100°C 15min ∫ 5min L : -40°C 15min	300 CYCLES	22 PCS	0/1
3	Thermal Shock	H : +100°C 5min ∫ 10 sec L : -10°C 5min	300 CYCLES	22 PCS	0/1
4	High Temperature Storage	TEMP:100°C	1000 HRS	22PCS	0/1
5	Low Temperature Storage	TEMP:-40°C	1000 HRS	22 PCS	0/1
6	DC Operating Life	TEMP:25°C If = 10mA	1000 HRS	22 PCS	0/1
7	High Temperature / High Humidity	85°C / 85% RH	1000 HRS	22 PCS	0/1