

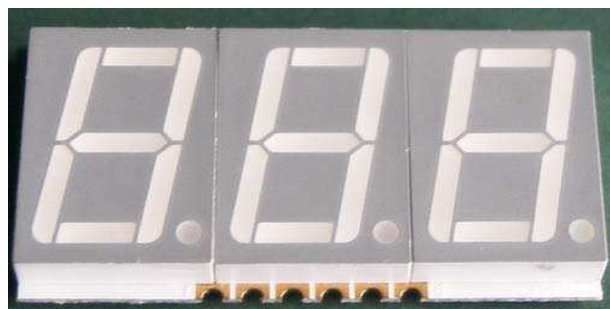
Technical Data Sheet

0.56" Triple Digit SMD Displays

ELST-512SURWA/S530-A3/S290

Features

- Packaged in tape and reel for SMT manufacturing.
- Design flexibility(common cathode or anode).
- Categorized for luminous intensity.
- The thickness is thinner than tradition display.
- Pb free
- 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.

Applications

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

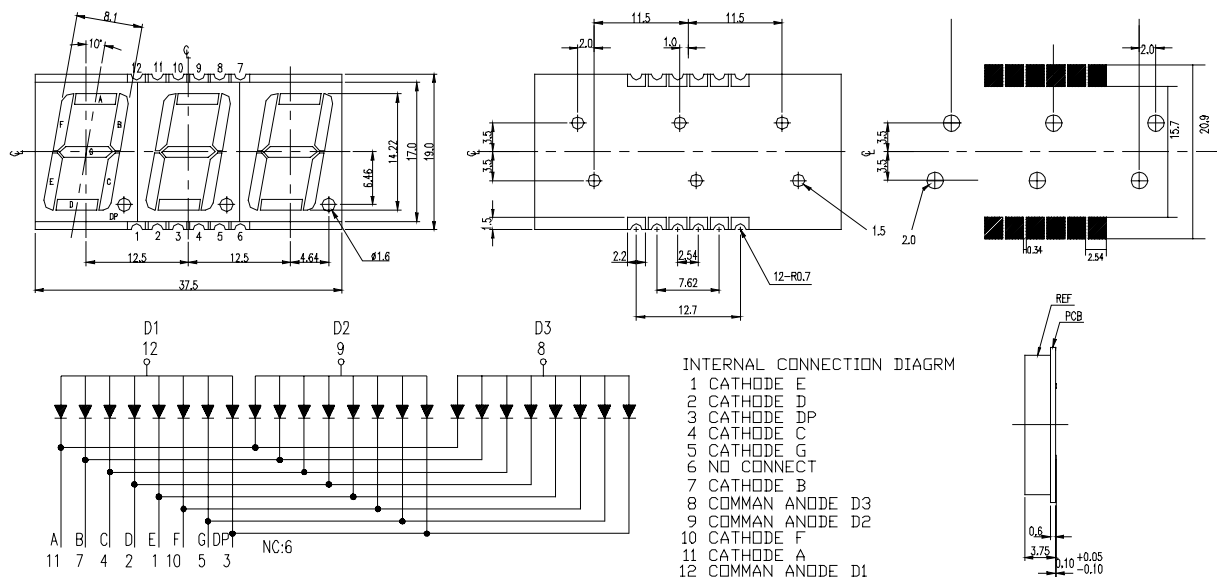
Device Selection Guide

Chip		Face Color
Material	Emitted Color	
AlGaInP	Hyper Red	Gray

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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 _F	25	mA
Pulse Forward Current ^{*1}	I _{FP}	160	mA
Operating Temperature	T _{opr}	-40 ~ +105	°C
Storage Temperature	T _{stg}	-40 ~ +105	°C
Reflow Temperature	T _{ref}	260	°C
Electrostatic Discharge	ESD	2000	V
Power Dissipation	P _d	60	mW
Reverse Voltage	V _R	5	V

Notes: *1: I_{FP} Conditions--Pulse Width $\leq 10\text{msec}$ and Duty $\leq 1/10$.

*2:Reflow time ≤ 5 seconds.

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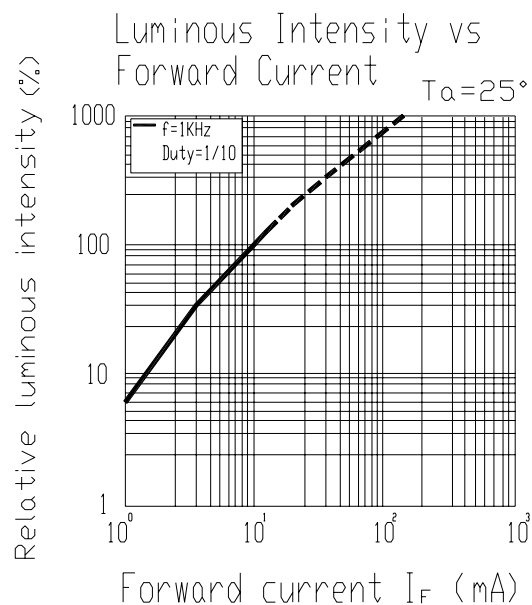
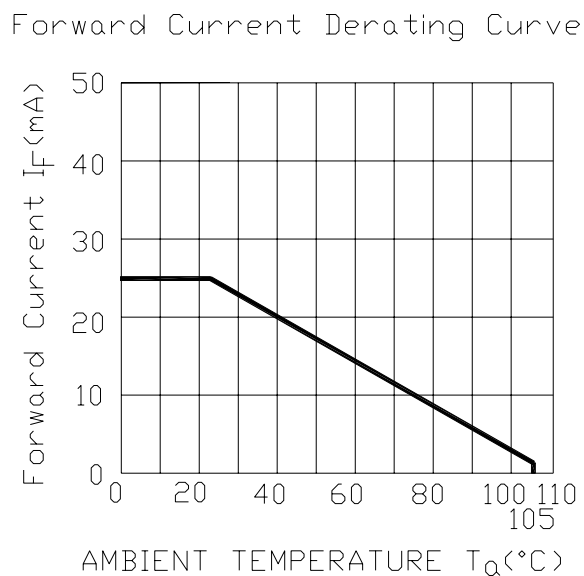
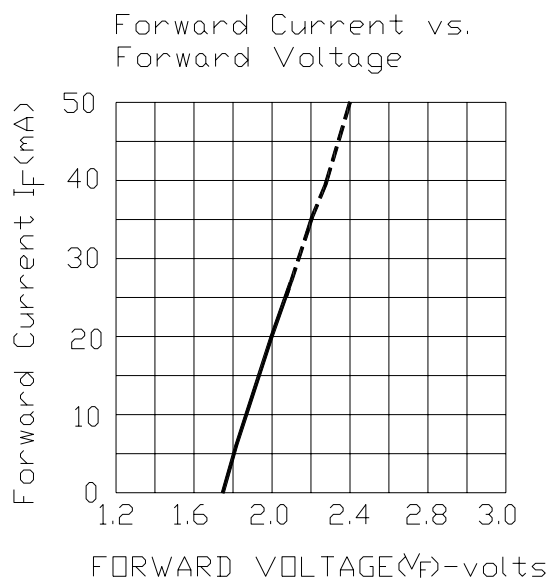
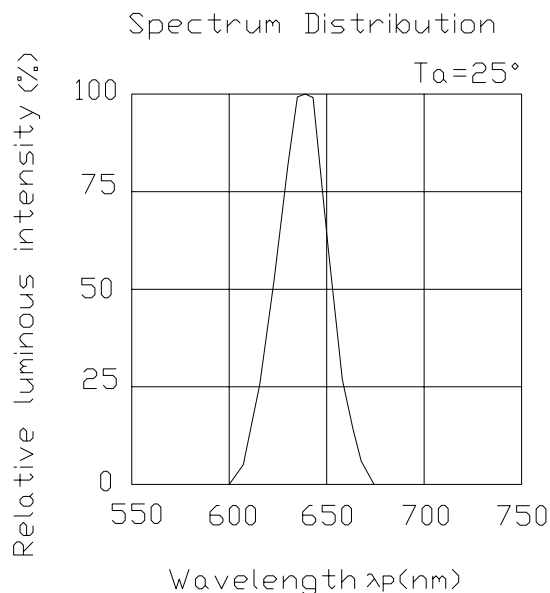
Electro-Optical Characteristics (Ta=25°C)

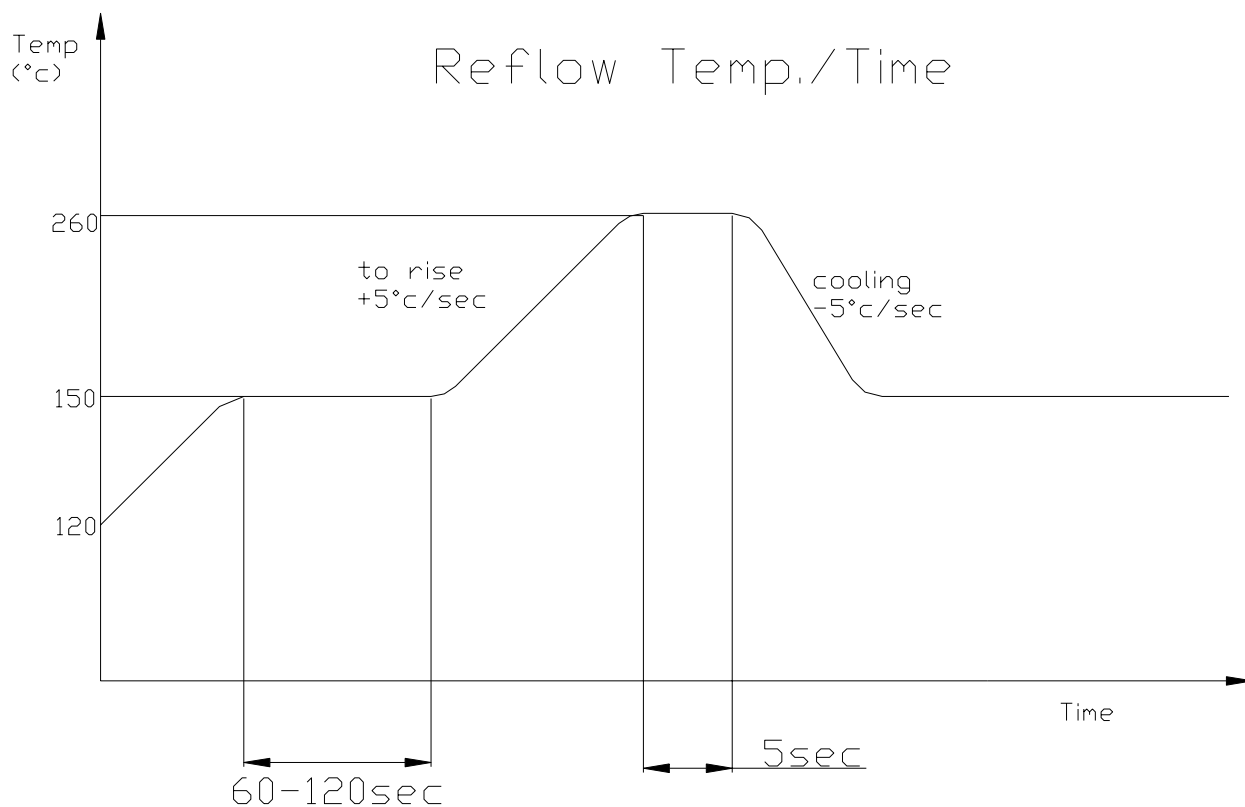
Parameter		Symbol	Min.	Typ.	Max.	Units	Condition
Forward Voltage		V_F	--	2.0	2.4	V	$I_F=20\text{mA}$
Reverse Current		I_R	--	--	10	μA	$V_R=5\text{V}$
Luminous Intensity	Per segment	I_V	11.0	21.6	--	mcd	$I_F=10\text{mA}$
	Per decimal point		5.6	9.8	--		
Peak Wavelength		λ_p	--	632	--	nm	$I_F=20\text{mA}$
Dominant Wavelength		λ_d	--	624	--	nm	$I_F=20\text{mA}$
Spectrum Radiation Bandwidth		$\Delta\lambda$	--	20	--	nm	$I_F=20\text{mA}$

Chromaticity Coordinates Specifications for Bin Grading (Unit: mcd)

Rank	Min.	Max.	Rank	Min.	Max.
R	11.0	17.6	U	30.0	48.0
S	15.0	24.0	V	42.0	67.0
T	21.0	34.0	W	59.0	94.0

Typical Electro-Optical Characteristics Curves



■ Reflow Temp. / Time :**■ Soldering Iron :**

Basic spec is ≤ 5 sec when 260°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°C .

■ Rework :

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

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■ Reliability test items and conditions:

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

Confidence level : 97%

LTPD : 3%

NO	Item	Test Conditions	Test Hours/Cycle	Sample Size	Failure Judgment Criteria	Ac/Re
1	Reflow Heat	TEMP:260°C±5°C	10 SEC	76 PCS	$I_v \leq I_{vt} * 0.5$ or $V_f \geq U$ or $V_f \leq L$	0/1
2	Temperature Cycle	H : +100°C 15min § 5min L : -40°C 15min	300 CYCLES	76 PCS		0/1
3	Thermal Shock	H : +100°C 5min § 10 sec L : -10°C 5min	300 CYCLES	76 PCS		0/1
4	High Temperature Storage	TEMP:100°C	1000 HRS	76PCS		0/1
5	Low Temperature Storage	TEMP:-40°C	1000 HRS	76 PCS		0/1
6	DC Operating Life	TEMP:25°C If=10mA	1000 HRS	76 PCS		0/1
7	High Temperature / High Humidity	85°C / 85% RH	1000 HRS	76 PCS		0/1

Note : I_{vt} : The test I_v value of the chip before the reliability test

I_v : The test value of the chip that has completed the reliability test

U : Upper Specification Limit

L : Lower Specification Limit