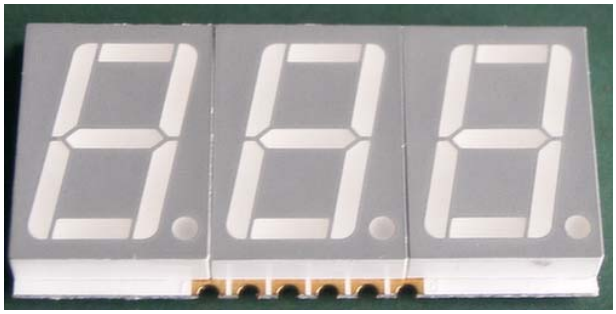
Technical Data Sheet

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 thinness 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

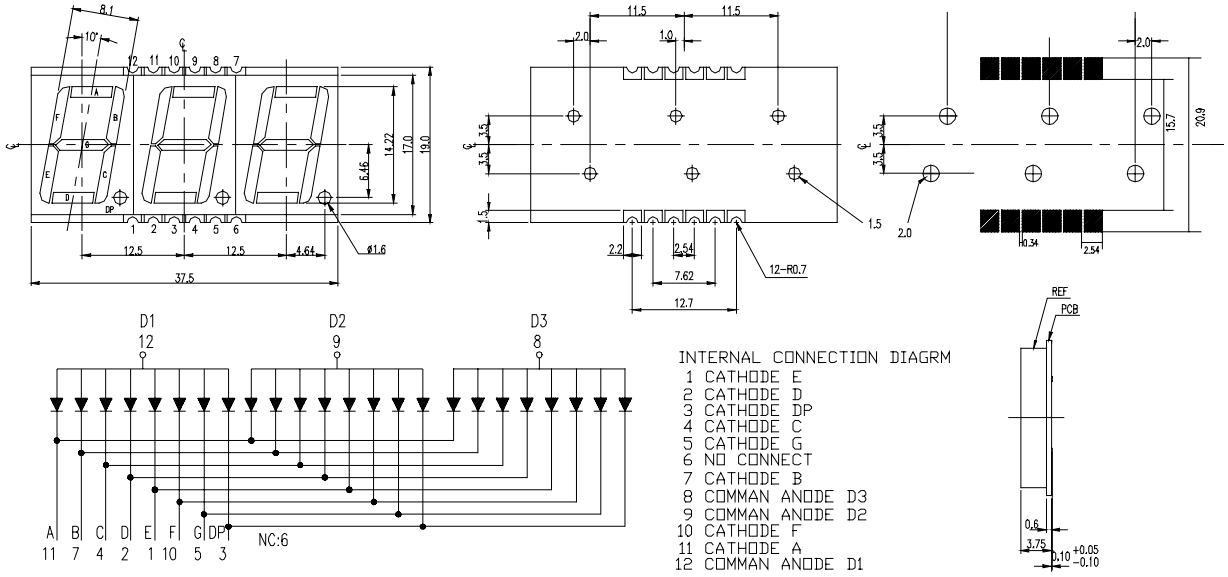
- Suitable for indoor use.
- Audio system.
- Set top box.
- Game machine.
- Channel indicator of TV.

Device Selection Guide

Chip		Face Color
Material	**Emitted Color**	
AlGaInP	Hyper Red	Gray

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℃)

Parameter	Symbol	Rating	Units
Forward Current	I_F	25	mA
Pulse Forward Current*1	I_{FP}	160	mA
Operating Temperature	T_{opr}	-40 ~ +105	℃
Storage Temperature	T_{stg}	-40 ~ +105	℃
Reflow Temperature	T_{ref}	260	℃
Electrostatic Discharge	ESD	2000	V
Power Dissipation	P_d	60	mW
Reverse Voltage	V_R	5	V

Notes: *1:I_{FP} Conditions--Pulse Width≦10msec and Duty≦1/10.

*2:Reflow time≦5 seconds.

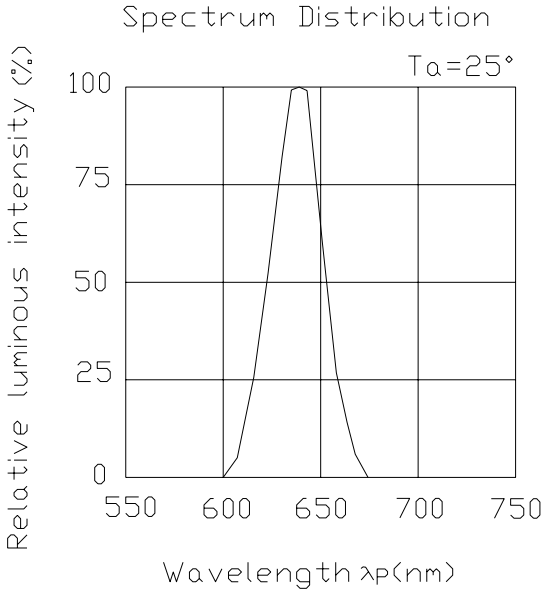
Electro-Optical Characteristics (Ta=25℃)

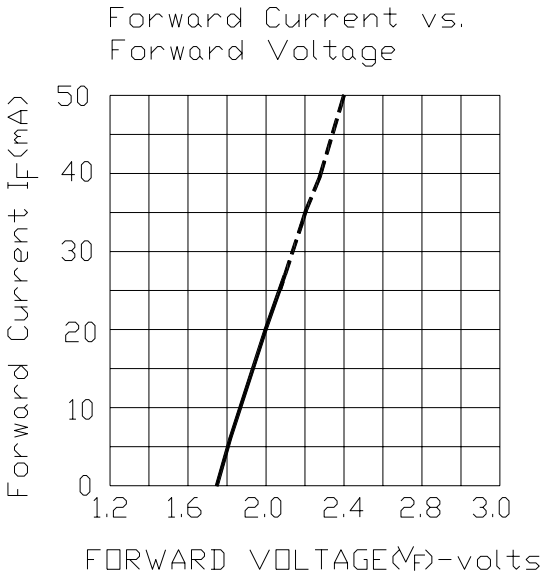
Parameter		Symbol	Min.	Typ.	Max.	Units	Condition
Forward Voltage		V_F	--	2.0	2.4	V	I_F=20mA
Reverse Current		I_R	--	--	10	μA	V_R=5V
Luminous Intensity	Per segment	I_V	11.0	21.6	--	mcd	I_F=10mA
	Per decimal point		5.6	9.8	--		
Peak Wavelenght		λp	--	632	--	nm	I_F=20mA
Dominant Wavelenght		λd	--	624	--	nm	I_F=20mA
Spectrum Radiation Bandwidth		△λ	--	20	--	nm	I_F=20mA

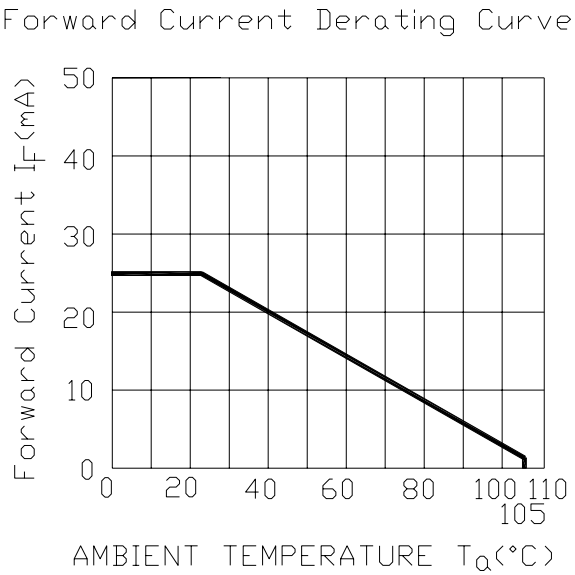
Chromaticity Coordinates Specifications for Bin Grading (Unit: mcd)

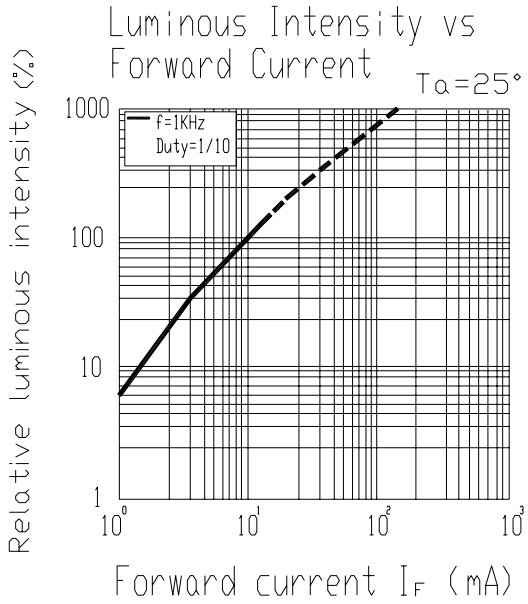
Rank	Min.	Max.	Rank	Min.	Max.
R	11.0	17.6	U	30.0	48.0
S	15.0	24.0	V	42.0	67.0
T	21.0	34.0	W	59.0	94.0

Typical Electro-Optical Characteristics Curves

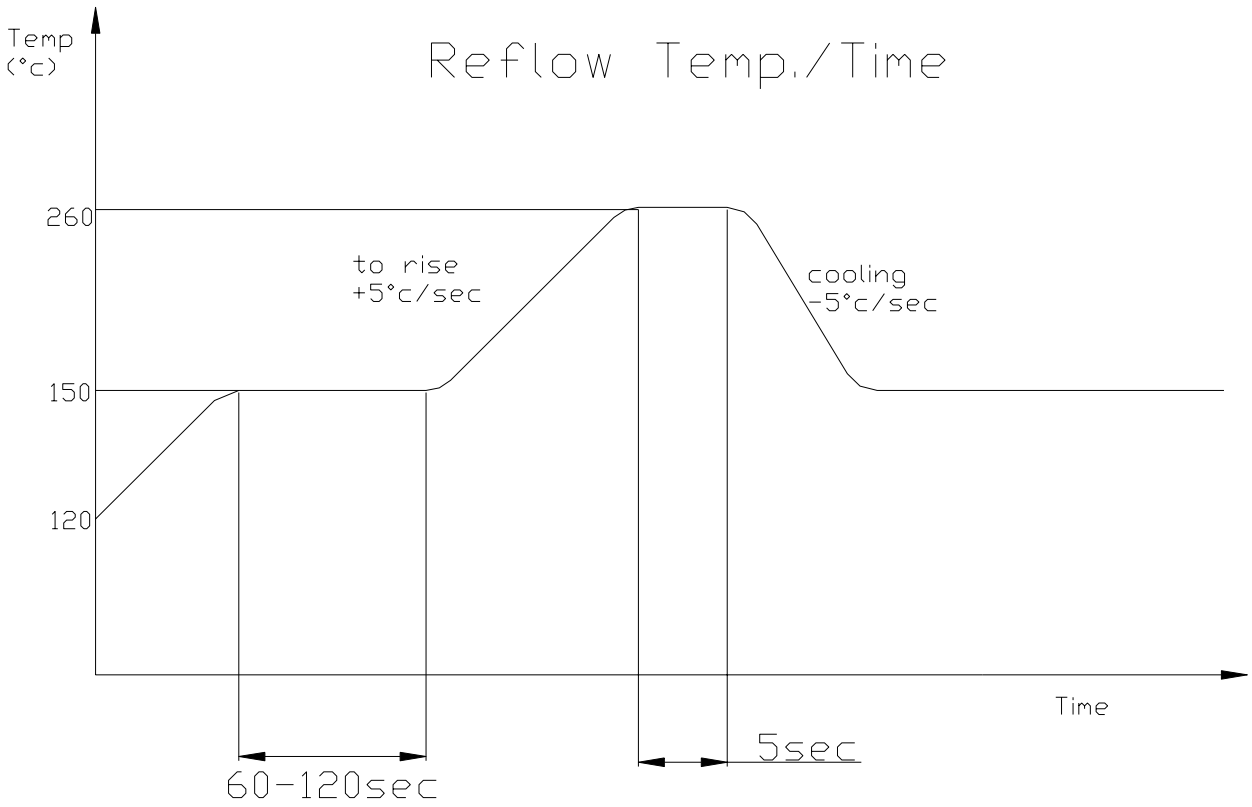








■ Reflow Temp. / Time :



■ Soldering Iron :

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

■ Rework :

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

■ 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	Iv≦Ivt*0.5 or Vf≧U or Vf≦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：Ivt：The test Iv value of the chip before the reliablility test
Iv：The test value of the chip that has completed the reliablility test
U：Upper Specification Limit
L： Lower Specification Limit