



EVERLIGHT ELECTRONICS CO.,LTD.

# DATA SHEET

PART NO. : ELS-515SURWA/S530-A3

DATE : 2004/6/25

DEPARTMENT : CHRD1

REVISION : 2

|                                                            |                 |                |                 |
|------------------------------------------------------------|-----------------|----------------|-----------------|
| <b>RECEIVED</b>                                            |                 |                |                 |
| <input checked="" type="checkbox"/> <b>MASS PRODUCTION</b> |                 |                |                 |
| <input type="checkbox"/> <b>PRELIMINARY</b>                |                 |                |                 |
| <input type="checkbox"/> <b>CUSTOMER DESIGN</b>            |                 |                |                 |
| <b>DEVICE NUMBER :</b> CDDS-515-010                        |                 |                |                 |
| <b>PAGE :</b> 6                                            |                 |                |                 |
| <b>CUSTOMER</b>                                            | <b>DESIGNER</b> | <b>CHECKER</b> | <b>APPROVER</b> |
|                                                            |                 |                |                 |

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| REV. | DESCRIPTION | RELEASE DATE |

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## Technical Data Sheet

### 0.52" Single Digit Displays

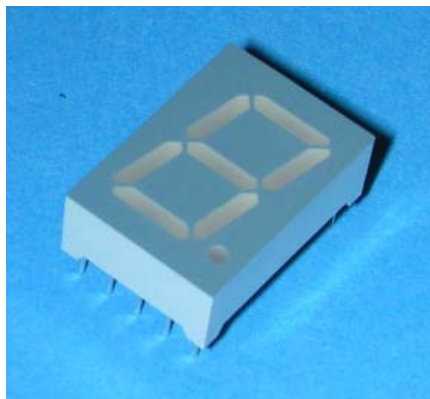
#### ELS-515SURWA/S530-A3

##### ■ Features :

- Industrial standard size.
- Low power consumption.
- Categorized for luminous intensity.
- Pb free
- The product itself will remain within RoHS compliant version

##### ■ Descriptions :

- The ELS-515 series is a large 13.2 mm (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 segments and gray surface.



##### ■ Applications :

- Audio equipment
- Instrument panels
- Digital read out display

| PART NO.             | Chip     |               |
|----------------------|----------|---------------|
|                      | Material | Emitted Color |
| ELS-515SURWA/S530-A3 | AlGaInP  | Hyper Red     |

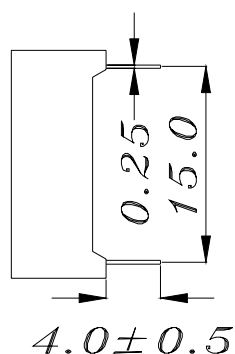
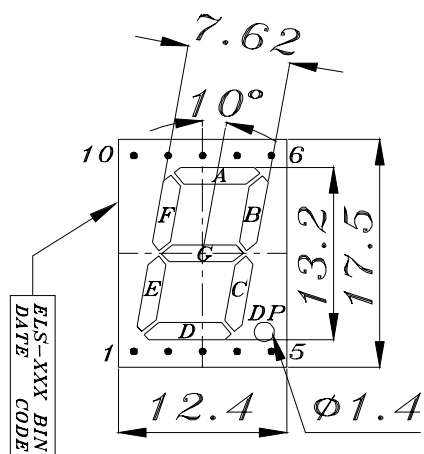
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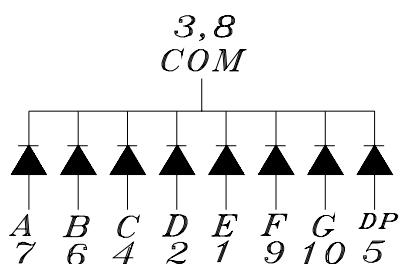
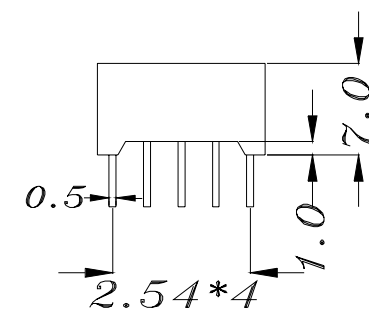
Technical Data Sheet  
0.52" Single Digit Displays

ELS-515SURWA/S530-A3

Package Dimensions



*COMMON CATHODE*  
*1 ANODE E*  
*2 ANODE D*  
*3 COMMON CATHODE*  
*4 ANODE C*  
*5 ANODE DP*  
*6 ANODE B*  
*7 ANODE A*  
*8 COMMON CATHODE*  
*9 ANODE F*  
*10 ANODE G*



**Notes:** 1.All dimensions are in millimeters , tolerance is 0.25mm unless otherwise noted.  
2.Above specification may be changed without notice.  
Supplier will reserve authority on material change for above specification.



# Technical Data Sheet

## 0.52" Single Digit Displays

### ELS-515SURWA/S530-A3

■ Absolute maximum ratings at Ta = 25°C :

| Parameter                              | Symbol   | Rating      | Unit |
|----------------------------------------|----------|-------------|------|
| Reverse Voltage                        | VR       | 5           | V    |
| Forward Current                        | IF       | 25          | mA   |
| Operating Temperature                  | Topr     | -40 to +85  | °C   |
| Storage Temperature                    | Tstg     | -40 to +100 | °C   |
| Soldering Temperature *                | Tsol     | 260 ± 5     | °C   |
| Electrostatic Discharge                | ESD      | 2000        | V    |
| Power Dissipation                      | Pd       | 60          | mW   |
| Peak Forward Current(Duty 1/10 @ 1KHz) | IF(Peak) | 160         | mA   |

Note: \*Soldering time ≤ 5 seconds.

■ Electronic optical characteristics :

| Parameter                    |                   | Symbol         | Min. | Typ. | Max. | Unit | Condition            |
|------------------------------|-------------------|----------------|------|------|------|------|----------------------|
| Luminous Intensity           | Per segment       | I <sub>v</sub> | ---- | 2.5  | ---- | mcd  | I <sub>F</sub> =2mA  |
|                              |                   |                | 5.6  | 10.0 | ---- | mcd  | I <sub>F</sub> =10mA |
|                              | Per decimal point |                | ---- | 0.6  | ---- | mcd  | I <sub>F</sub> =2mA  |
|                              |                   |                | 2.0  | 3.0  | ---- | mcd  | I <sub>F</sub> =10mA |
| Peak Wavelength              |                   | λ <sub>p</sub> | ---- | 632  | ---- | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength          |                   | λ <sub>d</sub> | ---- | 624  | ---- | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth |                   | △λ             | ---- | 20   | ---- | nm   | I <sub>F</sub> =20mA |
| Forward Voltage              |                   | V <sub>F</sub> | ---- | 2.0  | 2.4  | V    | I <sub>F</sub> =20mA |
| Reverse Current              |                   | I <sub>R</sub> | ---- | ---- | 100  | μA   | V <sub>R</sub> =5V   |

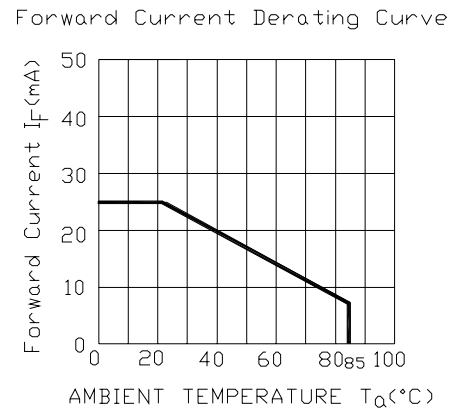
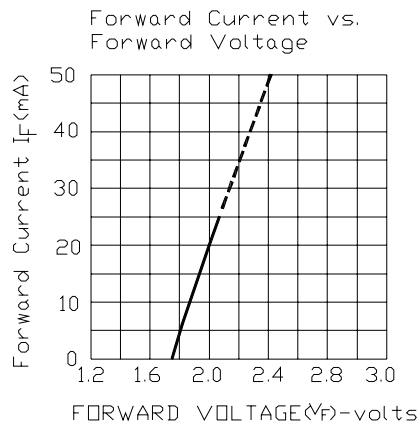
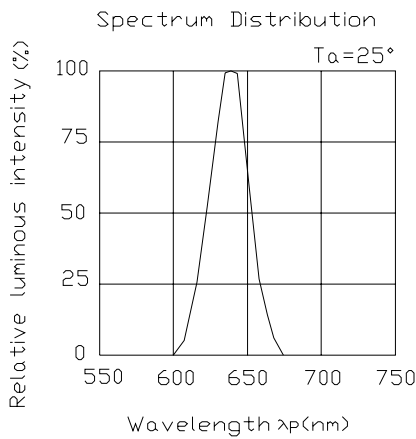


Technical Data Sheet  
0.52" Single Digit Displays

ELS-515SURWA/S530-A3

■ Typical Electro-Optical Characteristic Curves:

(SUR)





# Technical Data Sheet

## 0.52" Single Digit Displays

ELS-515SURWA/S530-A3

### 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  | Solder Heat                      | TEMP : 260°C ± 5 °C                           | 5 SEC            | 76 PCS      | $I_v \leq I_{vt} * 0.5$<br>or<br>$V_f \geq U$<br>or<br>$V_f \leq L$ | 0/1   |
| 2  | Temperature Cycle                | H : +85°C 30min<br>§ 5 min<br>L : -55°C 30min | 50 CYCLE         | 76 PCS      |                                                                     | 0/1   |
| 3  | Thermal Shock                    | H : +100°C 5min<br>§ 10 sec<br>L : -10°C 5min | 50 CYCLE         | 76 PCS      |                                                                     | 0/1   |
| 4  | High Temperature Storage         | TEMP : 100°C                                  | 1000 HRS         | 76 PCS      |                                                                     | 0/1   |
| 5  | Low Temperature Storage          | TEMP : -55°C                                  | 1000 HRS         | 76 PCS      |                                                                     | 0/1   |
| 6  | DC Operating Life                | IF = 10 mA                                    | 1000 HRS         | 76 PCS      |                                                                     | 0/1   |
| 7  | High Temperature / High Humidity | 85°C/85% RH                                   | 1000 HRS         | 76 PCS      |                                                                     | 0/1   |

Note : I<sub>vt</sub> : The test I<sub>v</sub> value of the chip before the reliability test

I<sub>v</sub> : The test value of the chip that has completed the reliability test

U : Upper Specification Limit

L : Lower Specification Limit



# EVERLIGHT ELECTRONICS CO.,LTD.

## Technical Data Sheet 0.52" Single Digit Displays

ELS-515SURWA/S530-A3

### ■ Packing Quantity Specification

1.40PCS/tube, 54 tubes/box

2.4Boxes/Carton

### Label Form Specification



CPN: Customer's Production Number

P/N : Production Number

QTY: Packing Quantity

CAT: Ranks

HUE: Dominant Wavelength

REF: Reference

LOT No: Lot Number

MADE IN CHINA: Production Place

### Notes :

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
3. These specification sheets include materials protected under copyright of EVERLIGHT corporation. Please don't reproduce or cause anyone to reproduce them without EVERLIGHT's consent.

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