DATASHEET

Display ▪ Surface-mount
ELSS-205SYGWA/S530-E2/S290

Features

- Custom design Display for unique customized usage.
- Packaged in tape and reel for SMT manufacturing.
- The thickness is thinness than tradition display.
- Low power consumption.
- Categorized for luminous intensity.
- The product itself will remain with RoHS Compliant version.
- Compliance with EU REACH and Pb free.

Description

- The ELSS-205SYGWA/S530-E2/S290 is a 5.08mm (0.2") digit height seven-segment display.
- The display provides excellent reliability in bright ambient light.
- The device is made with white segments and gray surface.

Applications

- Home appliances.
- Instrument panels.
- Digital readout displays.

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
AlGaInP	Brilliant Yellow Green	White Diffusion

Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Rating	Unit
Reverse Voltage	V_R	5	V
Forward Current	I_F	25	mA
Peak Forward Current (Duty 1/10 @1KHz)	I_{FP}	60	mA
Power Dissipation	Pd	60	mW
Operating Temperature	T_{opr}	-40 ~ +105	℃
Storage Temperature	T_{stg}	-40 ~ +105	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 5 sec. Hand Soldering : 350 ℃ for 3 sec.	

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity*1	Iv	4.0	8.9	-----	mcd	I_F=10mA
Peak Wavelength	λp	-----	575	-----	nm	I_F=20mA
Dominant Wavelength	λd	-----	573	-----	nm	I_F=20mA
Spectrum Radiation Bandwidth	Δλ	-----	20	-----	nm	I_F=20mA
Forward Voltage	V_F	-----	2.0	2.4	V	I_F=20mA
Reverse Current	I_R	-----	-----	10	μA	V_R=5V

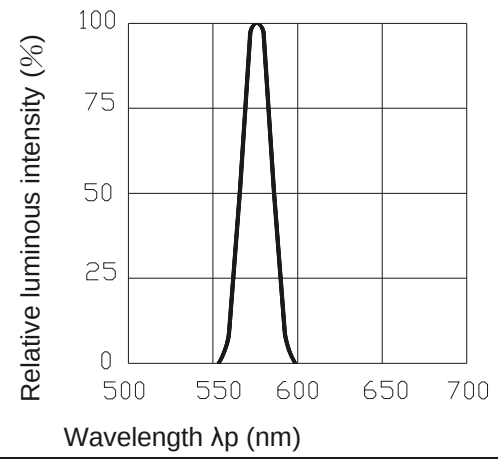
Note:
1. Luminous Intensity is a average value which is measured one 7-segment.
2. Tolerance of Luminous Intensity: ± 10 %
3. Tolerance of Forward Voltage: ± 0.1V

Bin Range of Luminous Intensity

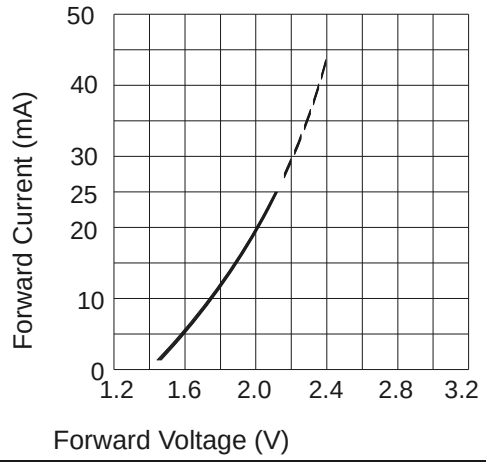
Bin Code	Min.	Max.	Unit	Condition
N	4.0	6.4	mcd	I_F =10mA
P	5.6	8.9		
Q	7.8	12.5		
R	11.0	17.6		
S	15.0	24.0		
T	21.0	34.0		

Typical Electro-Optical Characteristics Curves

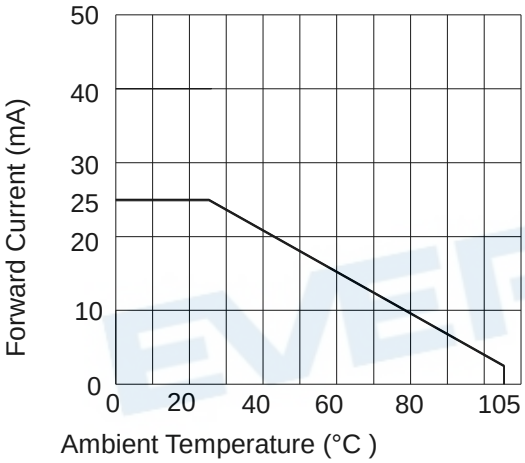
Spectrum Distribution (Ta=25℃)



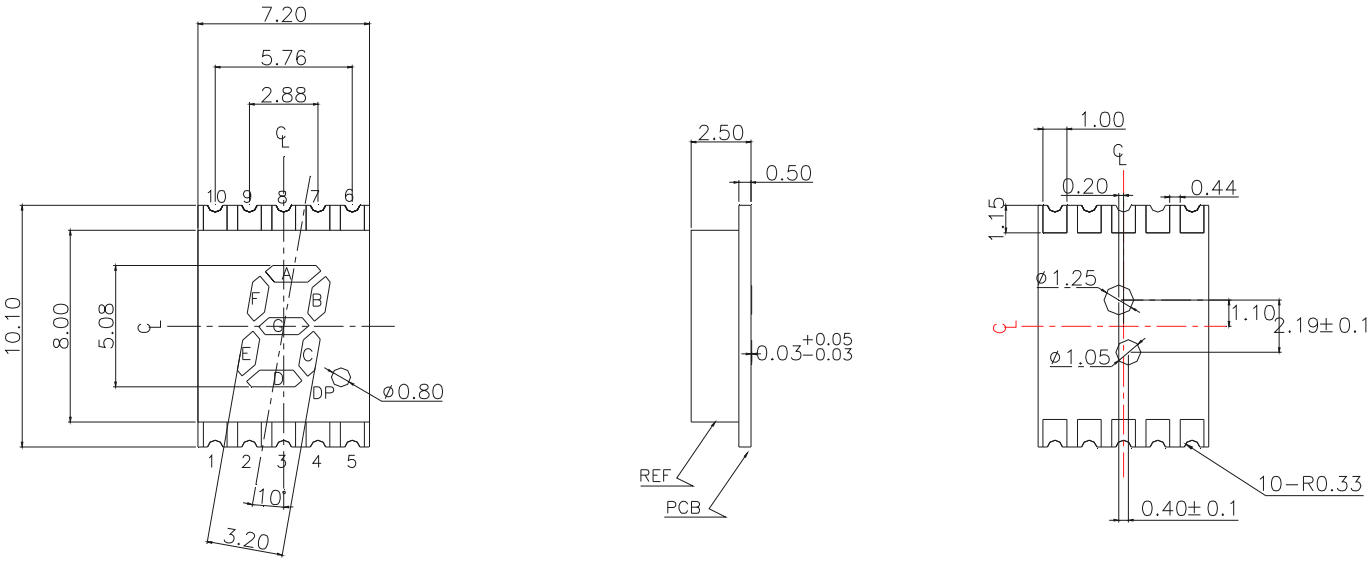
Forward Current vs. Forward Voltage (Ta=25℃)



Forward Current Derating Curve

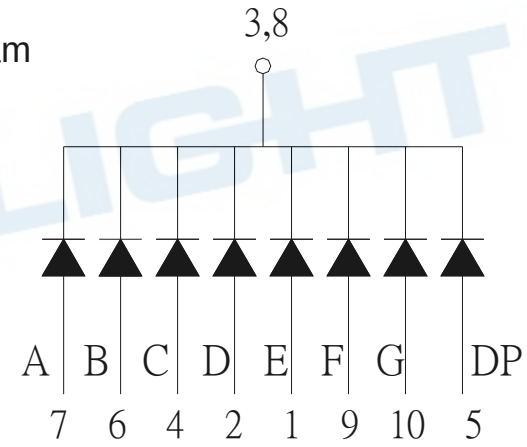


Package Dimension & Internal Circuit Diagram



Internal Connection Diagram

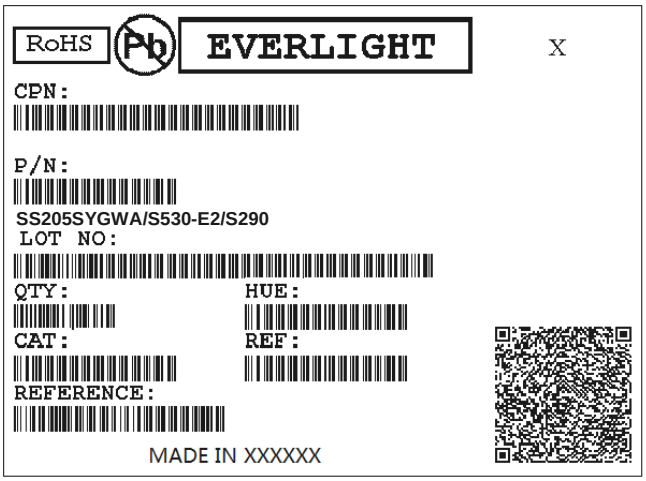
1. Anode E
2. Anode D
3. Common Cathode
4. Anode C
5. Anode DP
6. Anode B
7. Anode A
8. Common Cathode
9. Anode F
10. Anode G



Note:
1. Tolerances unless mentioned ±0.25mm. Unit = mm
2. This product is too small to be stamped, so there is no stamp on the product.

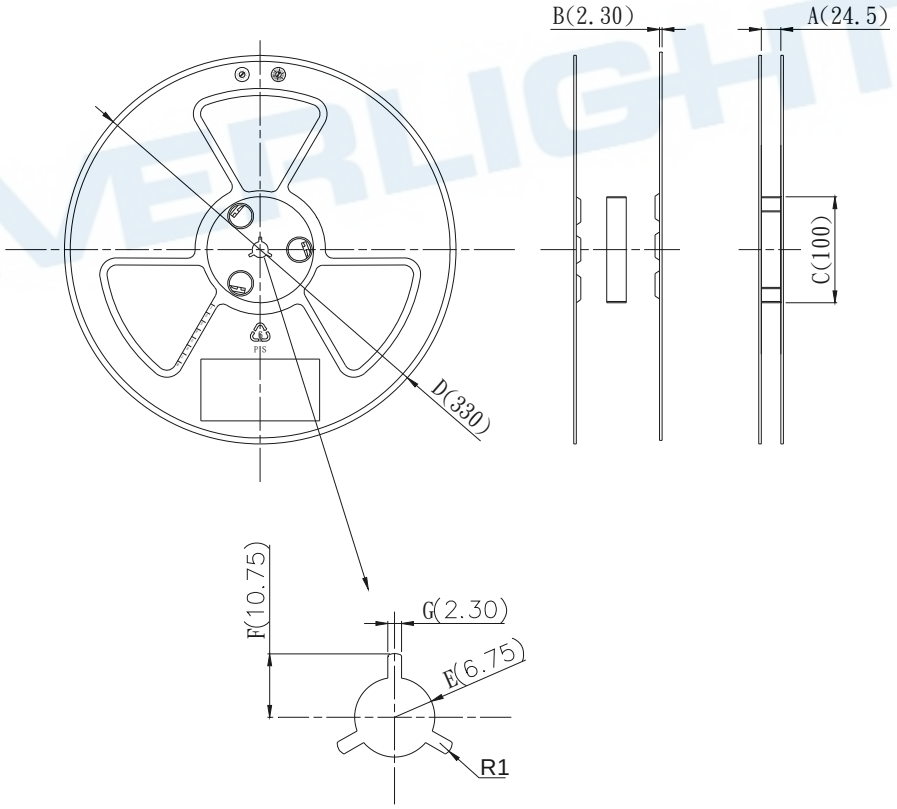
Packing Materials

Label Explanation

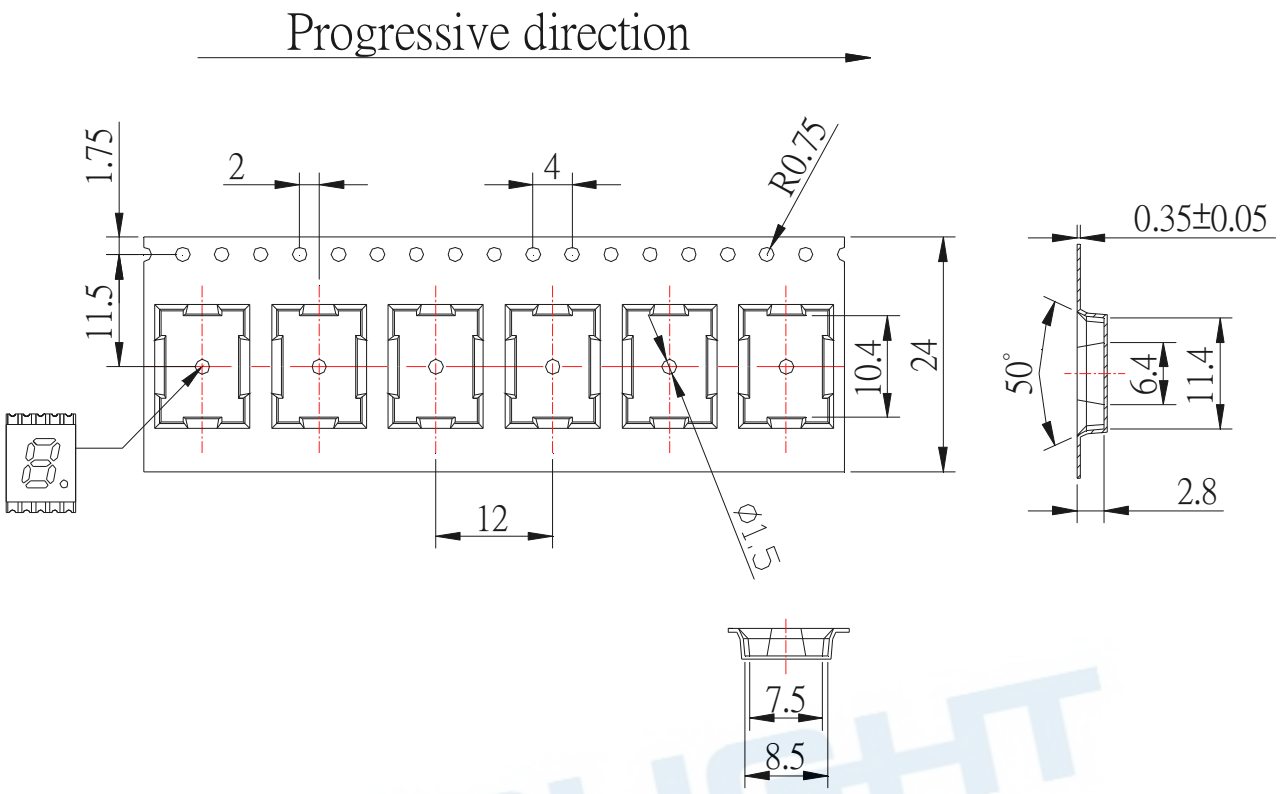


·CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Reference
- REF: Reference
- LOT No: Lot Number
- REFERENCE: Volume Label code

Reel Dimensions

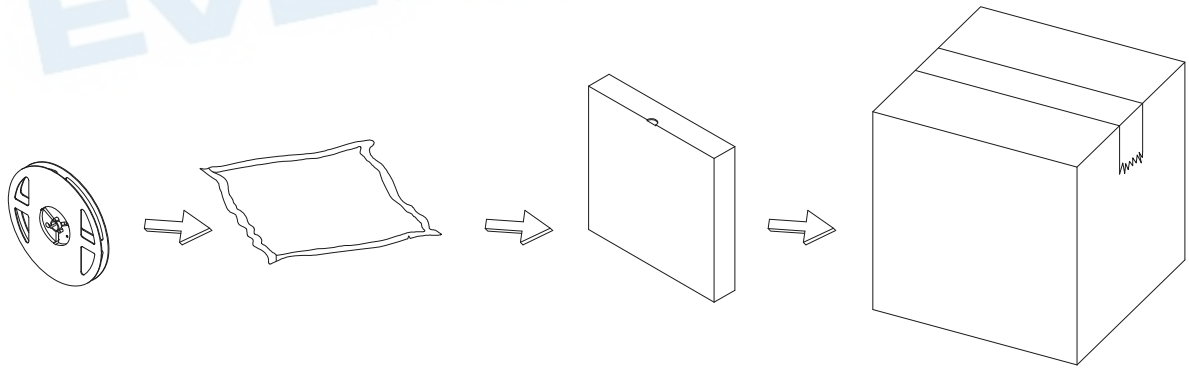


Carrier Tape Dimensions: Loaded Quantity 1500 PCS Per Reel



Note: Tolerances unless mentioned ±0.25mm. Unit = mm

Packing Process

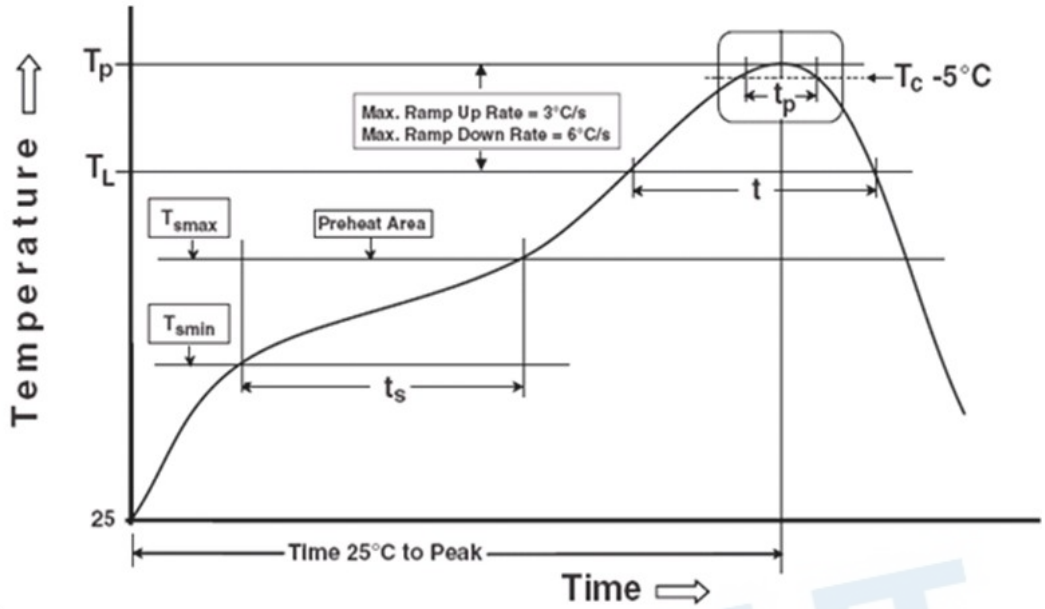


1500 PCS/Roll **1 Roll/Bag** **1 Bag/Small box** **7 Small boxes/Box**

Precautions for Use

1. Soldering Condition

1.1 (A) Maximum Body Case Temperature Profile for evaluation of Reflow Profile



Note: Reference: IPC/JEDEC J-STD-020D

Preheat

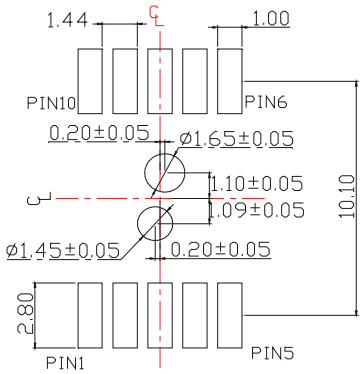
Temperature min (T_{smin})	150 °C
Temperature max (T_{smax})	200 °C
Time (T_{smin} to T_{smax}) (t_s)	60-120 seconds
Average ramp-up rate (T_{smax} to T_p)	3 °C/second max.

Other

Liquidus Temperature (T_L)	217 °C
Time above Liquidus Temperature (t_L)	60-150 seconds
Peak Temperature (T_P)	260 °C
Time within 5 °C of Actual Peak Temperature: T_P - 5°C	30 seconds
Ramp- Down Rate from Peak Temperature	6 °C/second max.
Time 25°C to peak temperature	8 minutes max.
Reflow times	1 time

All parameters are maximum body case temperature values and cannot be considered as a soldering profile. The body case temperature was measured by soldering a thermal couple to the soldering point of LEDs.

1.2 (B) Recommend soldering pad



Note: Suggested pad dimension is just for reference only. Please modify the pad dimension based on individual need.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The Product meet EVERLIGHT published specification for a period of twelve(12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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 the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized Everlight sales agent for special application request.
7. ESD (Electrostatic Discharge)
   - The products are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability. When handling the products, the following measures against electrostatic discharge are strongly recommended:
     Eliminating the charge
     Grounded wrist strap, ESD footwear, clothes, and floors
     Grounded workstation equipment and tools
     ESD table/shelf mat made of conductive materials
   - Proper grounding is required for all devices, equipment, and machinery used in product assembly. Surge protection should be considered when designing of commercial products.
   - If tools or equipment contain insulating materials such as glass or plastic, the following measures against electrostatic discharge are strongly recommended:
     Dissipating static charge with conductive materials
     Preventing charge generation with moisture
     Neutralizing the charge with ionizers
8. The LEDs should be operated with forward bias. The driving circuit must be designed so that the LEDs are not subjected to forward or reverse voltage while it is off. If reverse voltage is continuously applied to the LEDs, it may cause migration resulting in LED damage.