Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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# HDSM-531W/533W

0.56 inch (14.0 mm)
Single-Digit Surface Mount LED Display

## Data Sheet

### Description

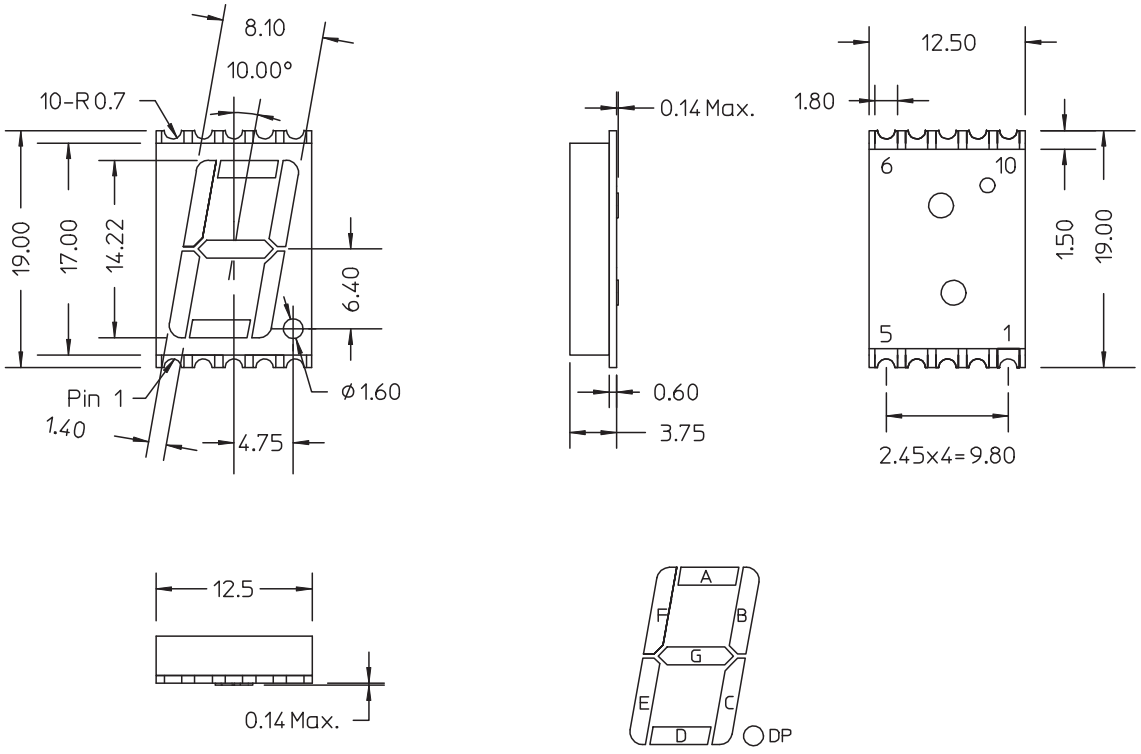
This is 0.56" (14.22 mm) height single-digit display. This device utilizes white ChipLED. This device comes with top surface gray and white segments.

| White HDSM- | Description |
|---|---|
| 531W | Common Anode, Right Hand Decimal |
| 533W | Common Cathode, Right Hand Decimal |

### Features

- 0.56" digit height
- Low current operation
- Excellent characters appearance
- Available in CA and CC
- 1000 pieces per reel
- Moisture Sensitivity Level: Level 3
- RoHS compliant

### Package Dimensions




Notes:
All dimensions are in millimeters (inches).
Tolerance: ±0.25 mm (0.01"), unless otherwise noted.

***CAUTION:*** *LEDs are Class 1A ESD sensitive per JESD22-A114C.01. Please observe appropriate precautions during handling and processing.*

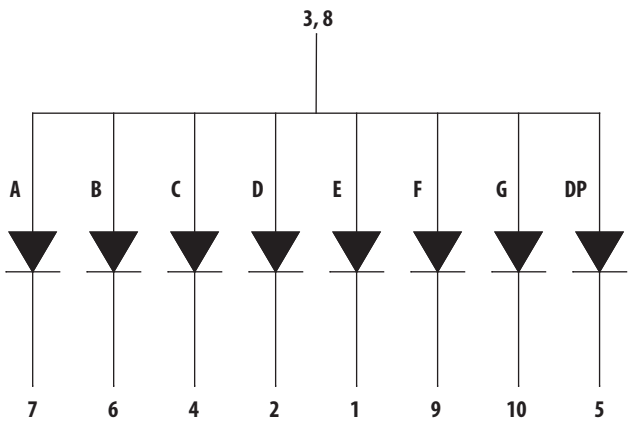
**Pin Connection (Common Anode)**

| Pin No. | Connection |
|---|---|
| 1 | CATHODE E |
| 2 | CATHODE D |
| 3 | COMMON ANODE |
| 4 | CATHODE C |
| 5 | CATHODE DP |
| 6 | CATHODE B |
| 7 | CATHODE A |
| 8 | COMMON ANODE |
| 9 | CATHODE F |
| 10 | CATHODE G |

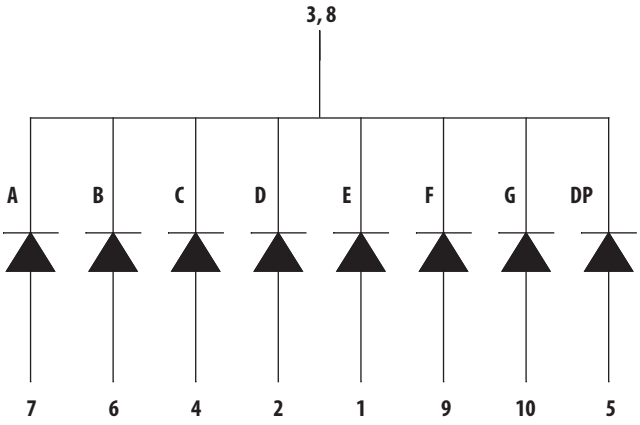
**Pin Connection (Common Cathode)**

| Pin No. | Connection |
|---|---|
| 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 |

**Internal Circuit Diagram (Common Anode)**




**Internal Circuit Diagram (Common Cathode)**



## Absolute Maximum Ratings @ $T_A = 25\ °C$

| Parameter | White | Unit |
|---|---|---|
| Power Dissipation Per Segment | 39 | mW |
| Peak Forward Current Per Segment (1/10 Duty Cycle., 0.1 ms pulse width) | 80 | mA |
| Continuous Forward Current Per Segment | 10 | mA |
| Derating Linearly From 25 °C Per Segment | 0.083 | mA/°C |
| Reverse Voltage Per Segment | Not designed for reverse bias | V |
| Operating Temperature Range | -40 °C to +85 °C | |
| Storage Temperature Range | -40 °C to +85 °C | |

## Electrical / Optical Characteristics @ $T_A = 25\ °C$

### White

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|---|---|---|---|---|---|---|
| Average Luminous Intensity | $I_V$ | 28 | 44 | – | mcd | $I_F = 5$ mA |
| Chromaticity Coordinates | (x,y) | | See Figure 1 | | | $I_F = 5$ mA |
| Forward Voltage, Per Segment | $V_F$ | – | 2.95 | 3.8 | V | $I_F = 5$ mA |
| Reverse Current, Per Segment [1] | $I_R$ | – | – | 100 | μA | $V_R = 5$ V |
| Luminous Intensity Matching Ratio | $I_{V\text{-}m}$ | – | – | 2:1 | – | $I_F = 5$ mA |

Note 1. Indicates production final test condition only. Long term reverse biasing is not recommended.

## Typical Electrical / Optical characteristic Curves @ $T_A = 25\ ^\circ C$

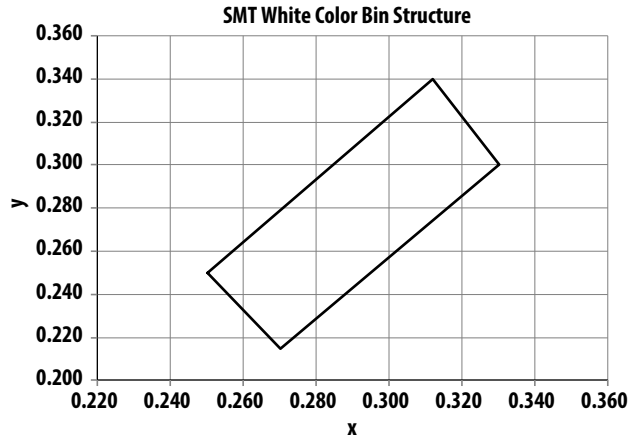



Figure 1. Color bin limit (CIE 1931 Chromatically Diagram) [Tolerance: ±0.02]

| Chromaticity Coordinates | | | | |
|---|---|---|---|---|
| x | 0.250 | 0.270 | 0.330 | 0.312 |
| y | 0.250 | 0.215 | 0.300 | 0.340 |

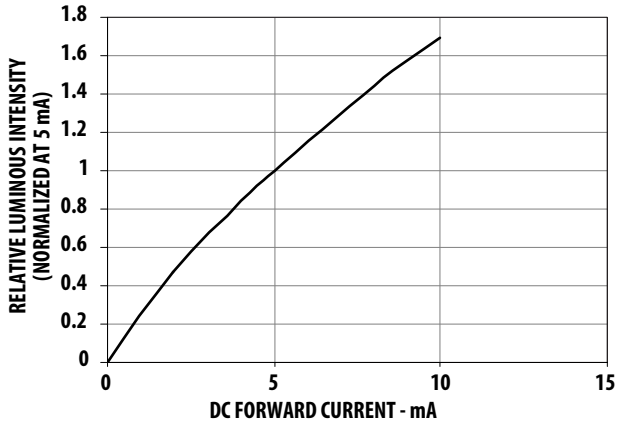



Figure 2. Relative luminous intensity versus forward current

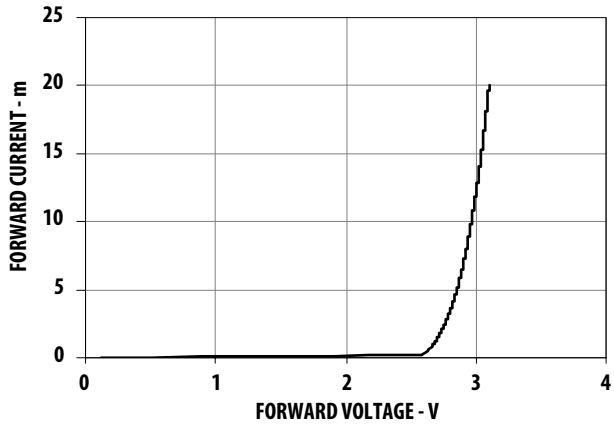



Figure 3. Forward current versus forward voltage

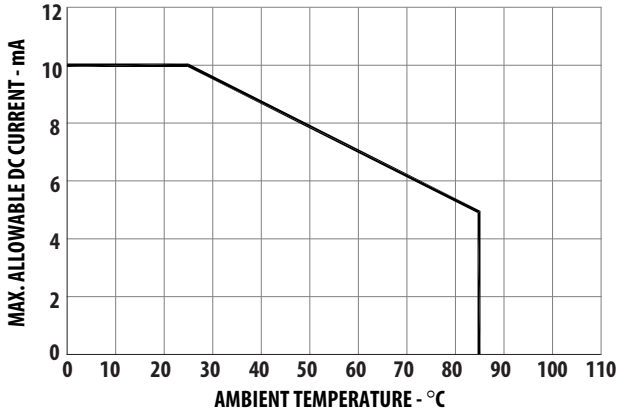
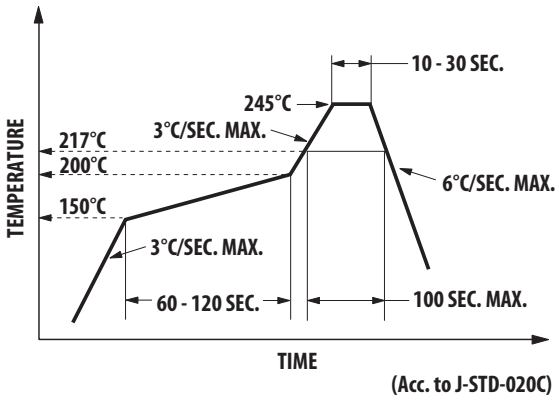



Figure 4. Allowable DC Current Versus Ambient Temperature

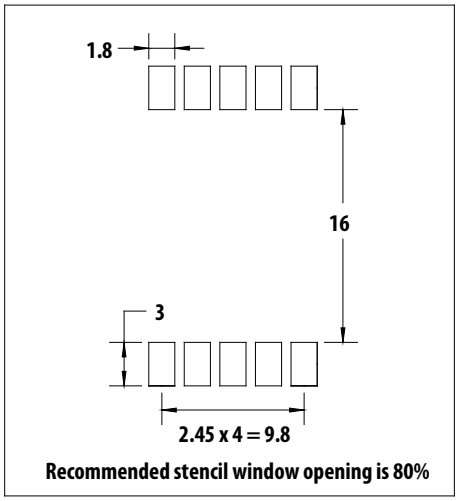
## SMT Soldering Profile

### Pb free reflow soldering Profile

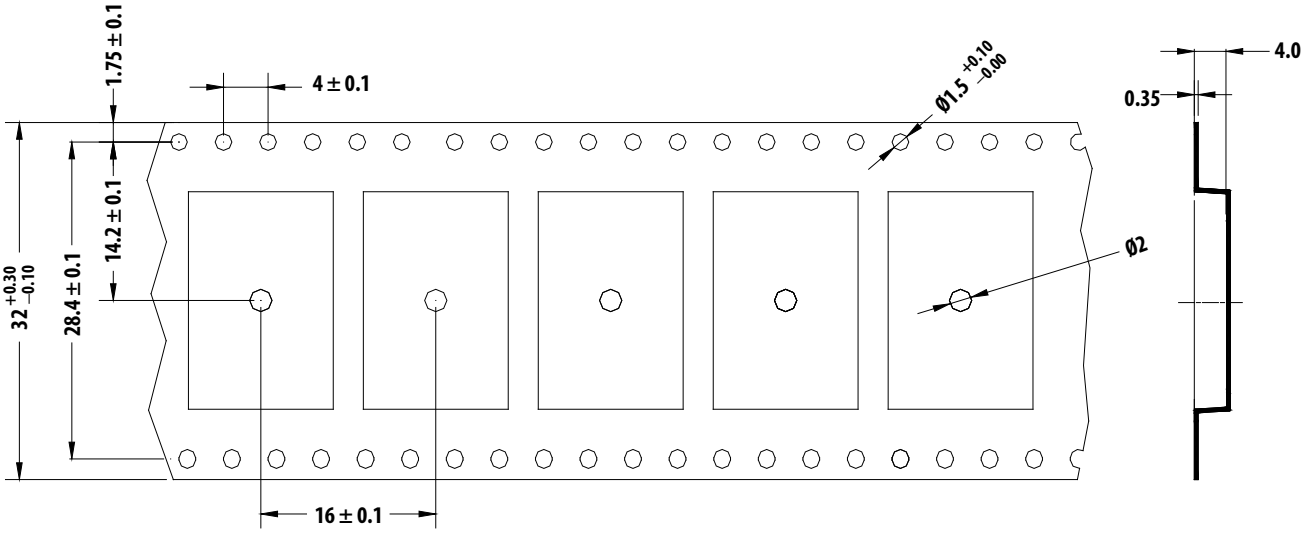



Notes:
1. The peak temperature refers to the peak package body temperature.
2. Number of reflow process shall be limited to maximum 2 times only. Cooling process to normal temperature is required between first and second soldering process.

## Recommended Soldering Pattern (unit: mm)




## Tape Specification (unit: mm)




For product information and a complete list of distributors, please go to our web site: **www.avagotech.com**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