

HDSM-431W/433W

0.39 inch (10.0 mm)

Single-Digit Surface Mount LED Display



Data Sheet

Description

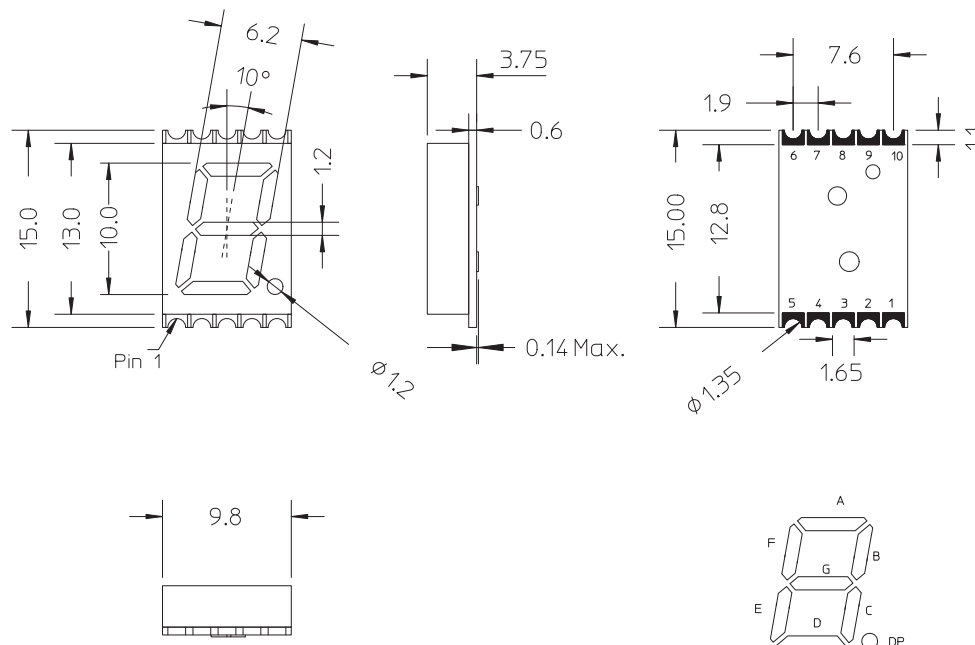
This is 0.39" (10.0 mm) height single-digit display. This device utilizes white ChipLED. This device comes with top surface gray and white segments.

White	Description
HDSM-431W	Common Anode, Right Hand Decimal
HDSM-433W	Common Cathode, Right Hand Decimal

Features

- 0.39" 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



Note:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 mm (0.01"), unless otherwise specified.

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

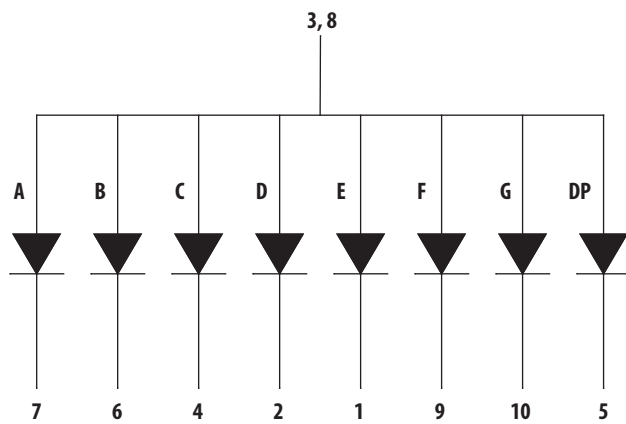
Pin Connection (Common Anode)

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

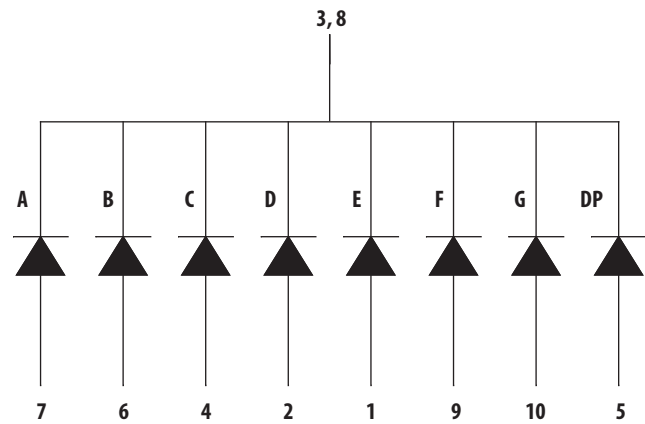
Pin Connection (Common Cathode)

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 @ $T_A = 25\text{ }^{\circ}\text{C}$

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 Derating Linearly From 25 °C Per Segment	10 0.083	mA Z
Reverse Voltage Per Segment	Not designed for reverse bias	V
Operating Temperature Range	-40 °C to +85 °C	°C
Storage Temperature Range	-40 °C to +85 °C	°C

Electrical / Optical Characteristics @ $T_A = 25\text{ }^{\circ}\text{C}$ **White**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I_V	24	40	–	mcd	$I_F = 5\text{ mA}$
Chromaticity Coordinates	(x,y)		See Figure 1			$I_F = 5\text{ mA}$
Forward Voltage, Per Segment	V_F	–	2.95	3.8	V	$I_F = 5\text{ mA}$
Reverse Current, Per Segment ^[1]	I_R	–	–	100	μA	$V_R = 5\text{ V}$
Luminous Intensity Matching Ratio	I_{V-m}	–	–	2:1	–	$I_F = 5\text{ mA}$

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

Typical Electrical / Optical characteristic Curves @ $T_A = 25^\circ\text{C}$

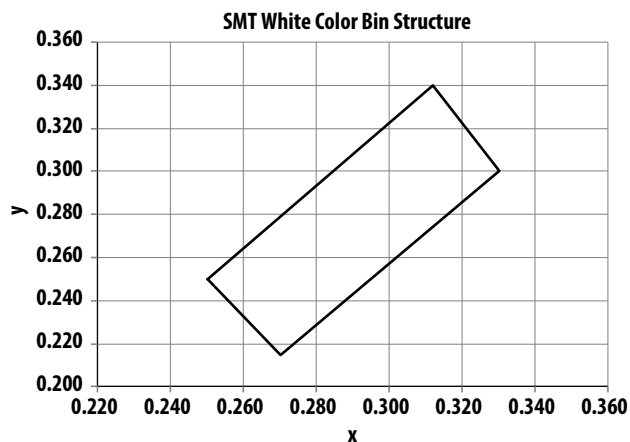


Figure 1. Color bin limit (CIE 1931 Chromaticity Diagram) [Tolerance: ± 0.02]

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

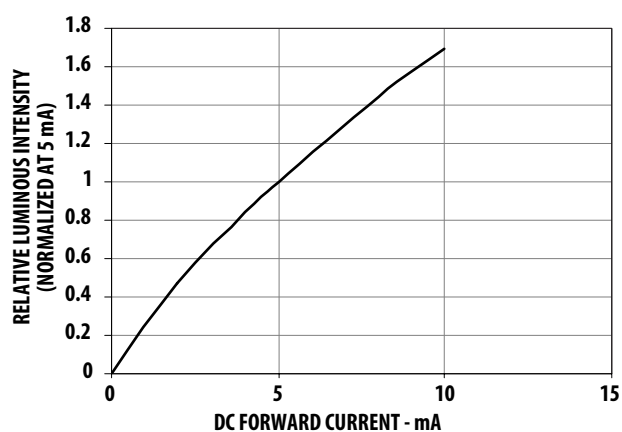


Figure 2. Relative luminous intensity versus forward current

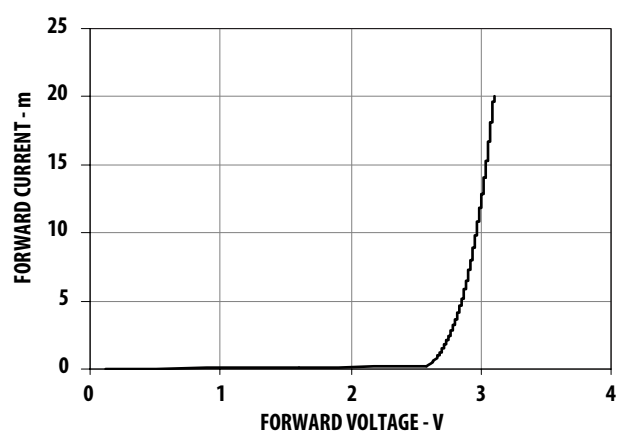


Figure 3. Forward current versus forward voltage

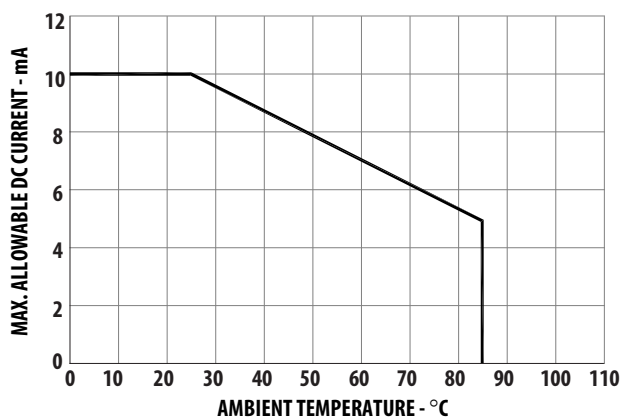


Figure 4. Allowable DC Current Versus Ambient Temperature

Pb free reflow soldering Profile



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.

The diagram illustrates a stencil layout with the following dimensions:

- A horizontal dimension of 2.6 is shown at the top left, with arrows indicating the width of the first opening.
- A vertical dimension of 12.8 is shown on the right side, with arrows indicating the height of the stencil.
- A horizontal dimension of 1.4 is shown in the middle, with arrows indicating the width of the first opening.
- A horizontal dimension of $1.9 \times 4 = 7.6$ is shown at the bottom, with arrows indicating the total width of the four openings.

Technical drawing of a sprocket hole elongated part. The drawing shows a top view and a side view.

Top View Dimensions:

- Total width: 32.00 ± 0.3
- Distance from left edge to center of first sprocket hole: 4.00 ± 0.1
- Distance between centers of adjacent sprocket holes: 16.00 ± 0.1
- Distance from center of last sprocket hole to right edge: 1.75 ± 0.1
- Width of each sprocket hole: 10.20 ± 0.1
- Height of each sprocket hole: 15.40 ± 0.1
- Distance from top edge to center of sprocket hole: 28.40 ± 0.1
- Distance from bottom edge to center of sprocket hole: 15.40 ± 0.1
- Diameter of small circles: $\varnothing 1.50^{+0.10}_{-0.00}$
- Diameter of sprocket hole: $\varnothing 2.00$

Side View Dimensions:

- Total height: 4.00 ± 0.1
- Height of sprocket hole: $1.70^{+0.15}_{-0.05}$
- Distance from right edge to center of sprocket hole: 0.30 ± 0.05
- Diameter of small circles: $1.50^{+0.10}_{-0.00}$

Labels:

- Elongated sprocket hole

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