

# HDSM-431W/433W

0.39inch (10.0mm)

Single digit surface mount LED display



## Data Sheet

### Description

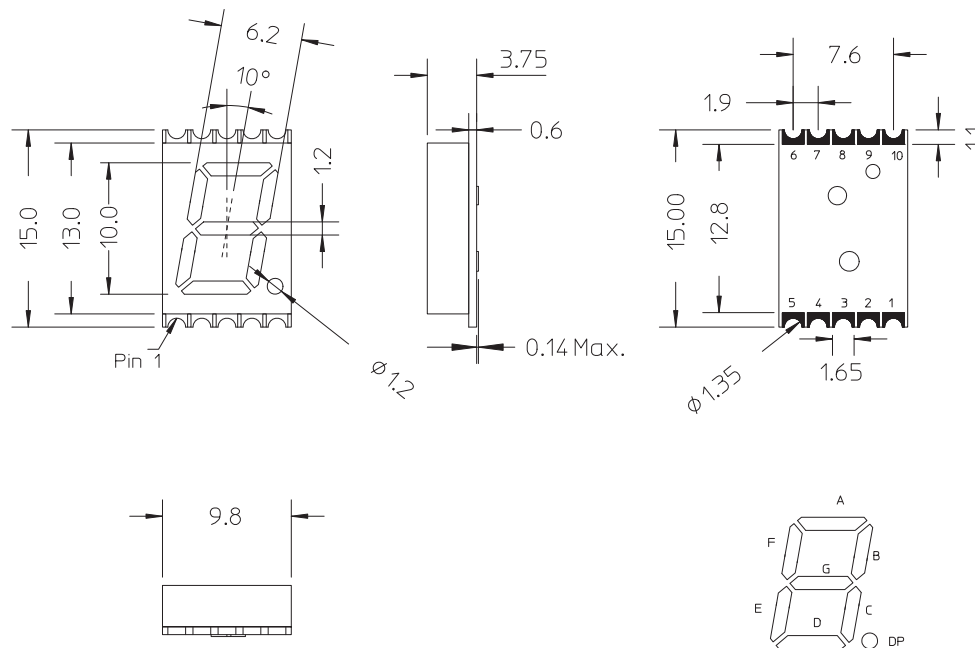
This is 0.39" (10.0mm) height single digit display. This device utilizes white ChipLED. This device comes with top surface gray and white segments.

White HDSM-	Description
431W	Common Anode, Right Hand Decimal
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 are +/- 0.25mm unless otherwise specified.

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

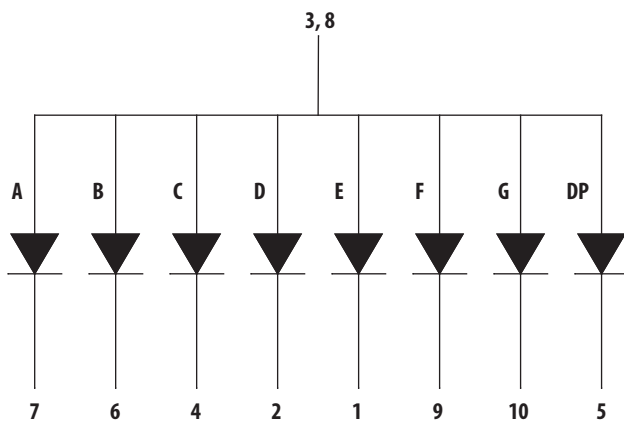
### Pin Connection (Common Anode)

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

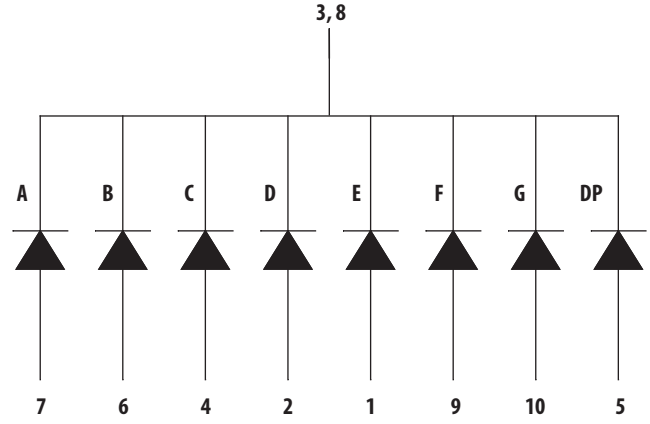
### Pin Connection (Common Cathode)

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<sub>A</sub>=25°C**

Parameter	White	Unit
Power Dissipation Per Segment	39	mW
Peak Forward Current Per Segment (1/10 Duty Cycle, 0.1ms pulse width)	80	mA
Continuous Forward Current Per Segment Derating Linearly From 25°C Per Segment	25 0.25	mA mA/°C
Reverse Voltage Per Segment	5	V
Operating Temperature Range		-40°C to +105°C
Storage Temperature Range		-40°C to +105°C

**Electrical / Optical Characteristics @ T<sub>A</sub>=25°C****White**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	I <sub>V</sub>	24	40	-	mcd	I <sub>F</sub> = 5 mA
Chromaticity Coordinates	(X,Y)		Refer to Figure 1			I <sub>F</sub> = 5 mA
Forward Voltage, Per Segment	V <sub>F</sub>	-	2.95	3.8	V	I <sub>F</sub> = 5 mA
Reverse Current, Per Segment	I <sub>R</sub>	-	-	100	μA	V <sub>R</sub> = 5 V
Luminous Intensity Matching Ratio	I <sub>V-m</sub>	-	-	2:1	-	I <sub>F</sub> = 5 mA

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

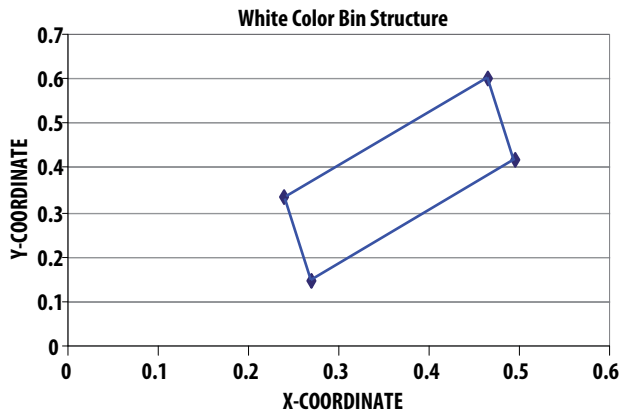


Figure 1. Color bin limit (CIE 1931 Chromatically Diagram)  
[Tolerance: +/-0.02]

Chromaticity Coordinates				
X	0.24	0.495	0.269	0.465
Y	0.332	0.418	0.147	0.602

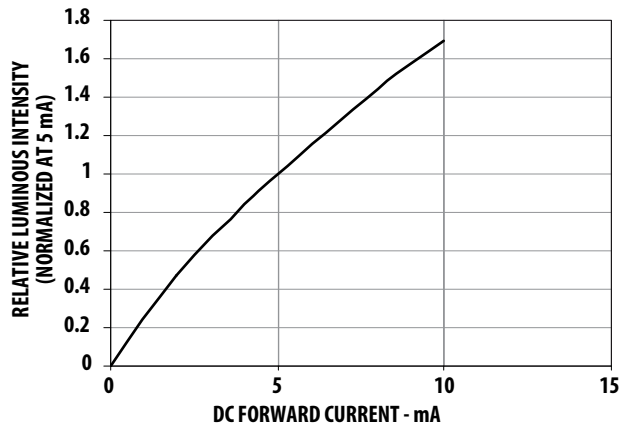


Figure 2. Relative luminous intensity versus forward current

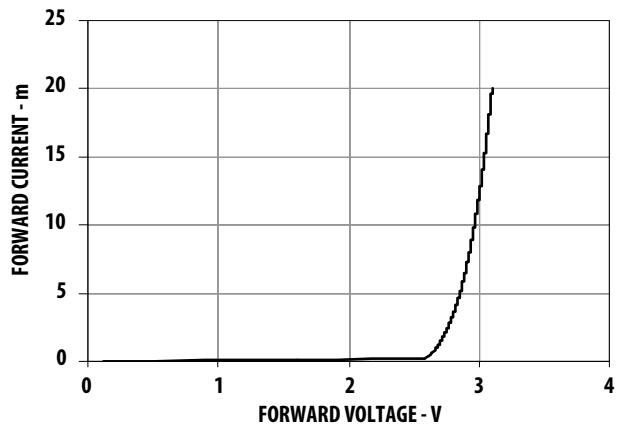


Figure 3. Forward current versus forward voltage

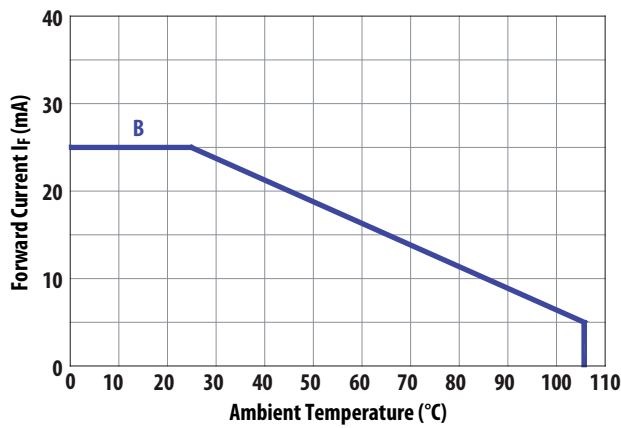
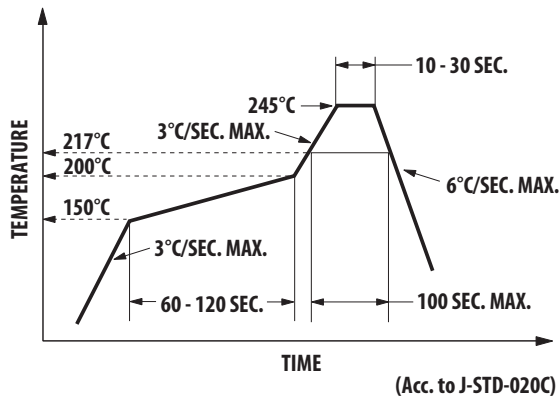


Figure 4. Allowable DC Current Versus Ambient Temperature

## SMT Soldering Profile

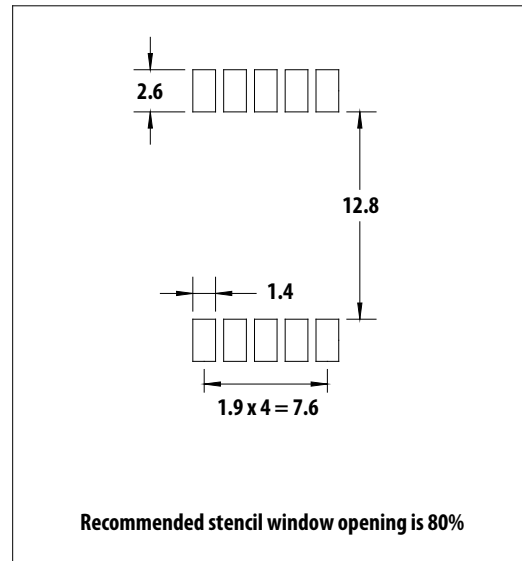
### Pb free reflow soldering Profile



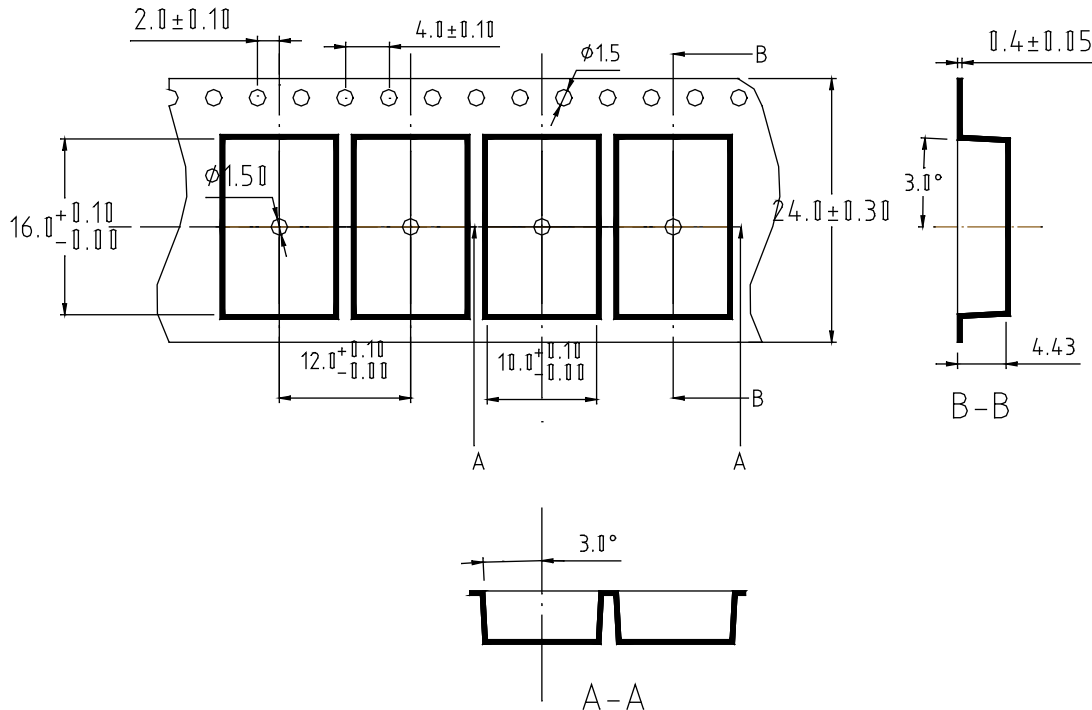
#### Notes:

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)



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