

HDSM-281B/283B  
0.28inch (7.0mm)  
Single digit surface mount LED display



## Preliminary Datasheet

### Description

This is 0.28 inch (7.0mm) height single digit display. This device utilizes InGaN/SiC blue LED chips. This device with top surface gray and white segments.

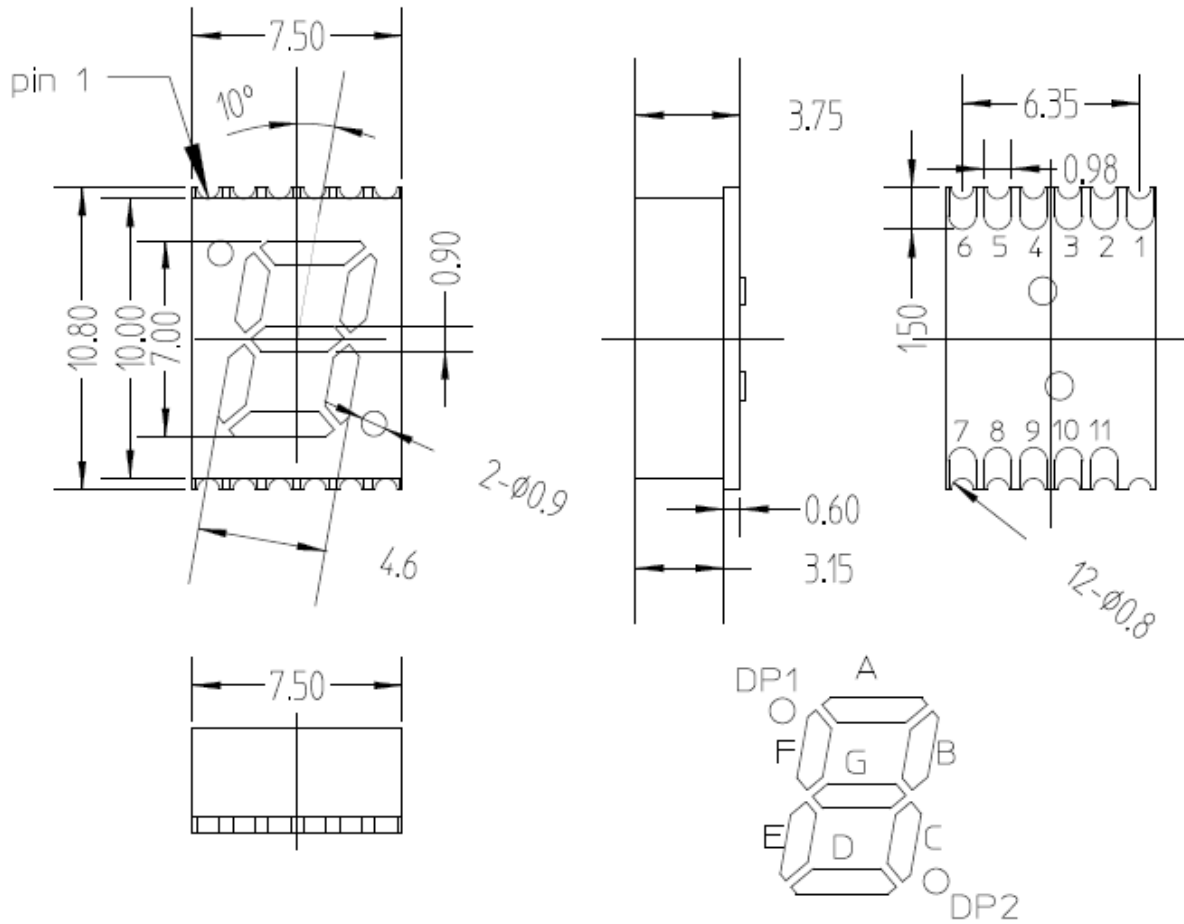
### Features

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

Blue HDSM-	Description
281B	Common Anode, Upper and Lower Decimal
283B	Common Cathode, Upper and Lower Decimal

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**Package Dimensions**



Note:

1. All dimension are in millimeters.
2. Tolerance are +/-0.25mm unless otherwise specified.

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**Pin Connection (Common Anode)**

<b>PIN NO.</b>	<b>CONNECTION</b>
1	CATHODE G
2	CATHODE DP1
3	CATHODE F
4	COMMON ANODE
5	CATHODE A
6	CATHODE B
7	CATHODE DP2
8	CATHODE C
9	COMMON ANODE
10	CATHODE D
11	CATHODE E

**Pin Connection (Common Cathode)**

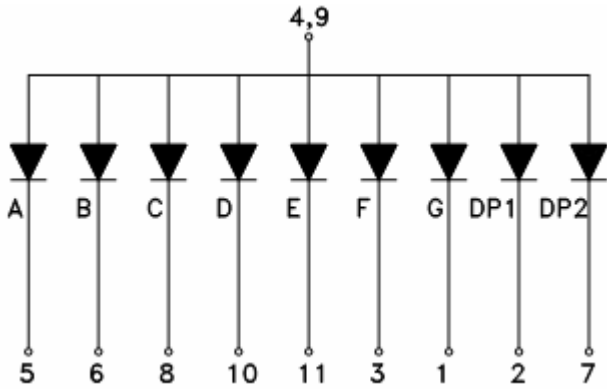
<b>PIN NO.</b>	<b>CONNECTION</b>
1	ANODE G
2	ANODE DP1
3	ANODE F
4	COMMON CATHODE
5	ANODE A
6	ANODE B
7	ANODE DP2
8	ANODE C
9	COMMON CATHODE
10	ANODE D
11	ANODE E

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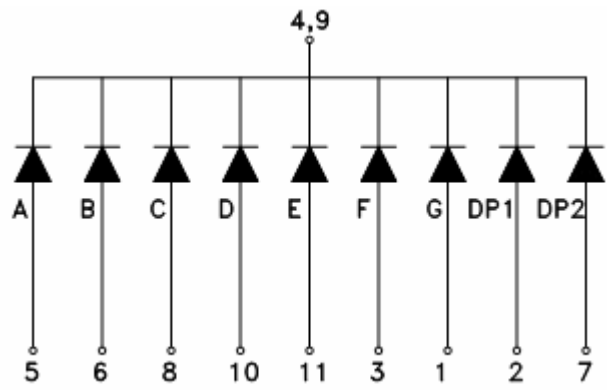
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Internal Circuit Diagram (Common Anode)



Internal Circuit Diagram (Common Cathode)



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**Absolute Maximum Ratings @ T<sub>A</sub>=25°C**

PARAMETER	Blue	UNIT
Power Dissipation Per Segment	100	mW
Peak Forward Current Per Segment ( 1/10 Duty Cycle, .0.1ms pulse width)	80	mA
Continuous Forward Current Per Segment Derating Linear 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	

**Note:** Human Body Model (HBM), supplier gives no other assurances regarding the ability of product to withstand ESD.

**Caution in ESD:** Static Electricity and surge damages the LED. It is recommend to use a wrist strap or anti-electrostatic glove when handing the LED. All devices, equipment and machinery must be properly grounded.

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

**Blue**

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Average Luminous Intensity	I <sub>v</sub>	3.4	6	—	mcd	I <sub>F</sub> = 10 mA
Emission Wavelength	λ <sub>p</sub> /λ <sub>d</sub>	—	462/470	—	nm	I <sub>F</sub> = 20 mA
Spectral Line Half-Width	Δλ	—	26	—	nm	I <sub>F</sub> = 20 mA
Forward Voltage, Per Segment	V <sub>F</sub>	—	3.3	4.0	V	I <sub>F</sub> = 20 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> = 10 mA

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

Blue

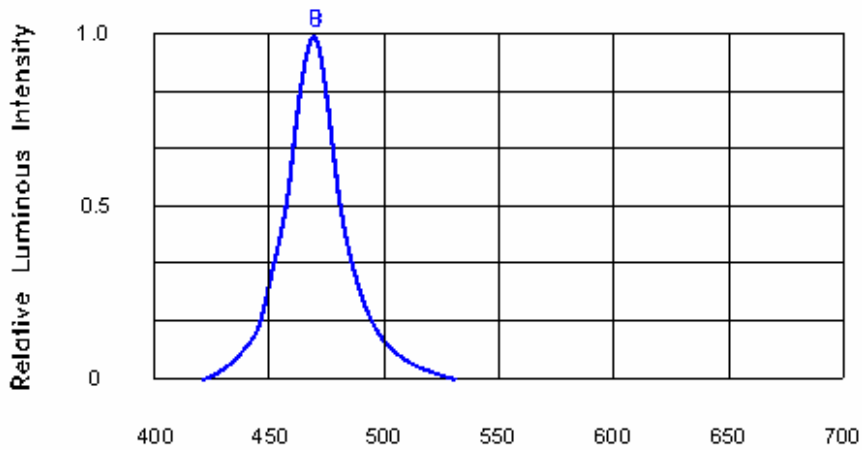
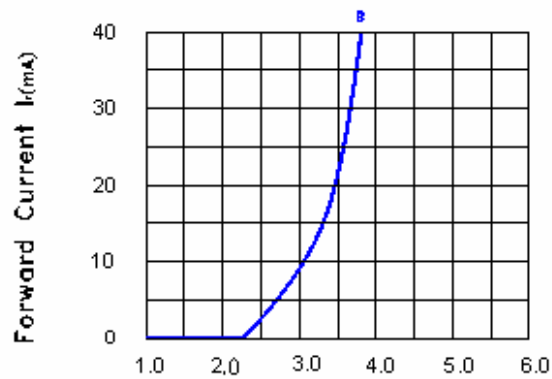
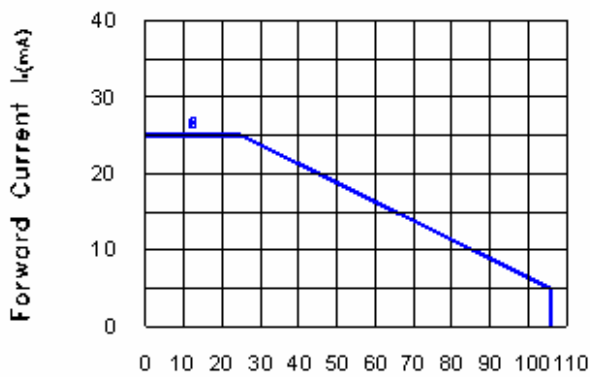


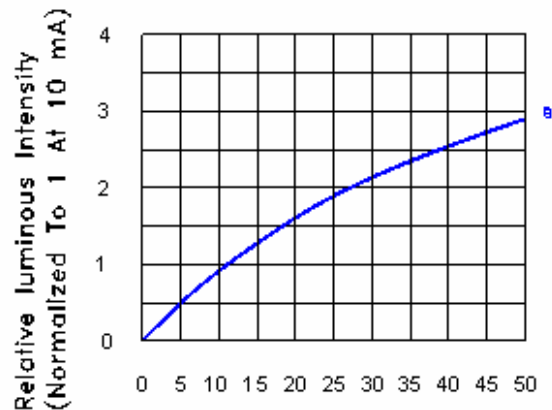
FIG1.RELATIVE LUMINOUS INTENSITY VS.WAVELENGTH



Forward Voltage(V)  
FIG.2 FORWARD Current VS.Forward Voltage



Ambient Temperature( $^\circ\text{C}$ )  
FIG.3 ALLOWABLE DC CURRENT VS.AMBIENT TEMPERATURE



Forward Current(mA)  
FIG.4 Relative Intensity VS.FORWARD Current

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## Intensity Bin Limit (mcd)

### Blue

Iv Bin Category	Min	Max
L	3.401	5.4
M	5.401	8.6
N	8.601	13.7

Tolerance +/-15%

#### Note:

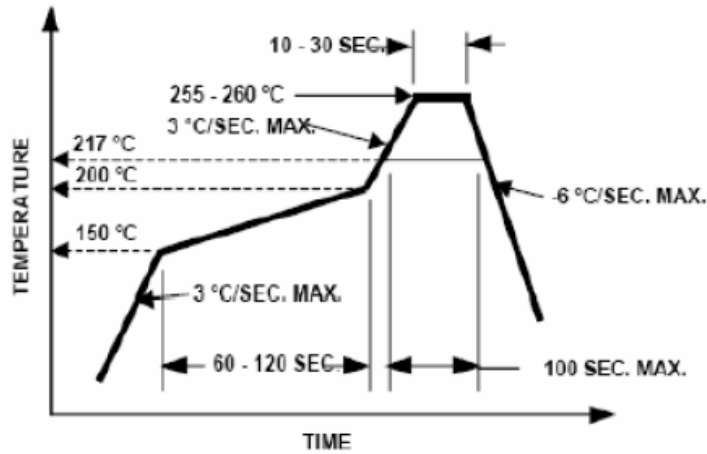
1. Bin categories are established for classification of products. Products may not be available in all categories. Please contact your Avago representative for information on currently available bins.

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## SMT Soldering Profile

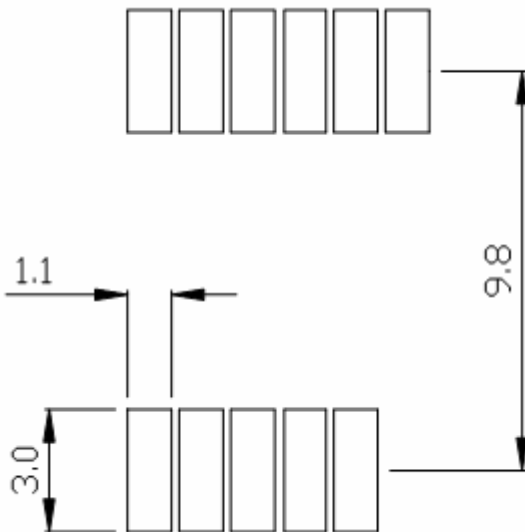


(Acc. to J-STD-020C)

Pb free reflow soldering Profile

**Notes:** Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between the first and than second soldering process.

## Recommended Soldering Pattern (unit: mm)



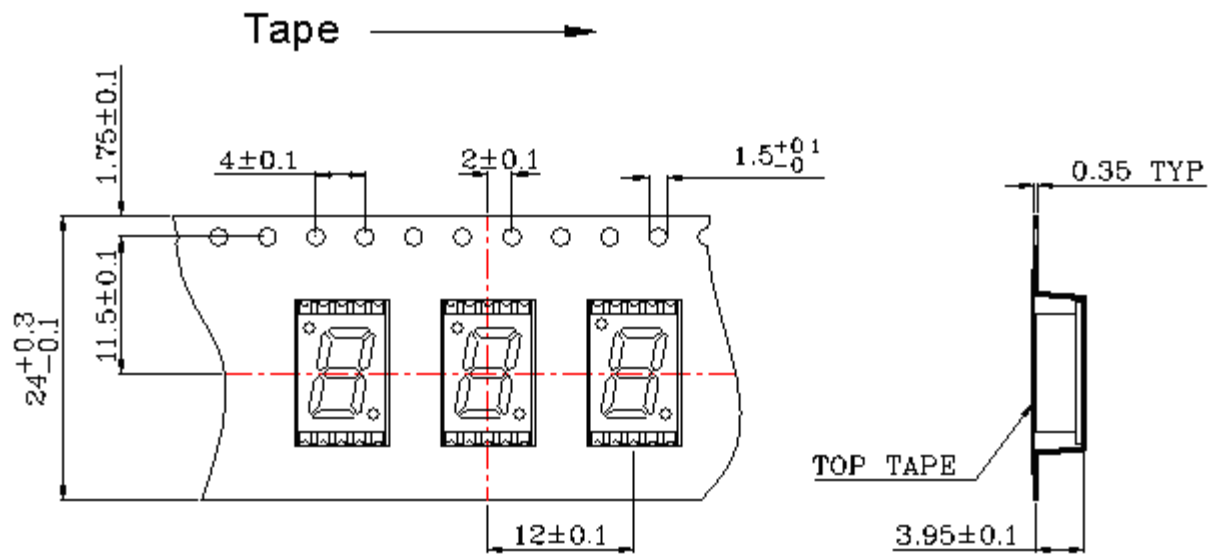
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Tape Specification (unit: mm)



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