HDSP-50xB Series

14.2 mm (0.56 inch) General Purpose Blue Seven Segment Displays

Data Sheet

Description

These 14.2 mm (0.56 inch) blue displays use industry standard size and pin-out. The devices are available as either common anode or common cathode. The HDSP-50xB series are suitable for indoor use.

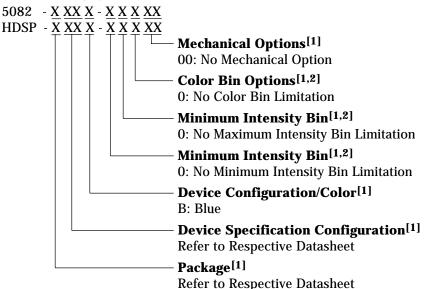
Devices

Blue		
HDSP-	Description	
501B	Common Anode Right Hand Decimal	
503B	Common Cathode Right Hand Decimal	

Note:

1. For details, please contact your local Avago components sales office or an authorized distributor.

Part Numbering System



Notes:

- 1. For codes not listed in the figure above, please refer to the respective datasheet or contact your nearest Avago representative for details.
- 2. Bin options refer to shippable bins for a part-number. Color and Intensity Bins are typically restricted to 1 bin per tube (exceptions may apply). Please refer to respective datasheet for specific bin limit information.



Features

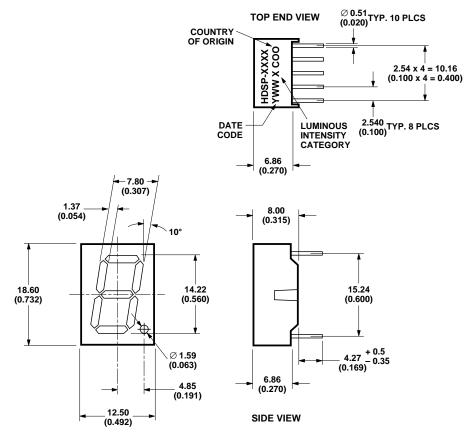
- · Industry standard size
- Industry standard pin-out
- 15.24 mm (0.6 in.) DIP leads on 2.54 mm (0.1 in.) centers
- · Blue color
- Mitered font
- Mitered corners on segments
- Gray face paint Gray package gives optimum contrast
- + $\pm 50^{\circ}$ viewing angle
- Design flexibility
 Common anode or common cathode
- Categorized for luminous intensity

Applications

- Suitable for indoor use
- Not recommended for industrial applications, i.e., operating temperature requirements exceeding 80°C or below –20°C^[1]
- Extreme temperature cycling not recommended^[1]







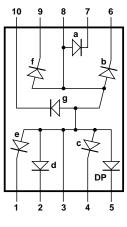
FRONT VIEW

NOTES:

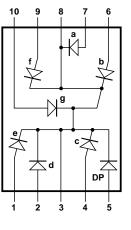
1. ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).

2. UNLESS OTHERWISE STATED, TOLERANCES ARE ± 0.25 mm.

Internal Circuit Diagram







	HDSP-501B		HDSP-503B		
0	COMMON ANODE	c	OMMON CATHODE		
PIN	FUNCTION	PIN	FUNCTION		
1	CATHODE e	1	ANODE e		
2	CATHODE d	2	ANODE d		
3	COMMON ANODE	3	COMMON CATHODE		
4	CATHODE c	4 ANODE c			
5	CATHODE DP	5	ANODE DP		
6	CATHODE b	6	ANODE b		
7	CATHODE a	7	ANODE a		
8	COMMON ANODE	8	COMMON CATHODE		
9	CATHODE f	9 ANODE f			
10	CATHODE g	10	ANODE g		

COMMON CATHODE

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	HDSP-501B HDSP-503B	Units
Power Dissipated per Segment or DP	PD	135	mW
Peak Forward Current per Segment or DP (1/10 Duty Cycle, 0.1 ms Pulse Width)	I _{PEAK}	70	mA
DC Forward Current per Segment or DP ^[1]	IF	30[1]	mA
Reverse Voltage per Segment or DP	VR	5	V
Operating Temperature	T ₀	-20 to +80	°C
Storage Temperature	T _S	-30 to +85	°C
Wave Soldering Conditions	Temperature	250	°C
(1.6 mm [0.063 in.] below Body)	Time	3	S

Note:

1. Derate above 25°C at 0.33 mA/°C.

Optical/Electrical Characteristics at T_A=25°C

Devices HDSP-	Parameter	Symbol	Min.	Тур.	Max.	Units	Test Conditions
	Luminous Intensity/Segment (Segment Average) ^[1,2]	I _v	2.02	3.40		mcd	$I_{\rm F} = 10 \ {\rm mA}$
501B	Forward Voltage/Segment or DP	V _F		3.80	4.50	V	$I_F = 20 \text{ mA}$
503B	Peak Wavelength	λ_{PEAK}		428		nm	
	Dominant Wavelength ^[3]	λ_d		466		nm	
	Reverse Current/Segment or DP ^[4]	IR			100	μΑ	$V_R = 5 V$

Notes:

1. Case temperature of the device immediately prior to the intensity measurement is 25°C.

2. The digits are categorized for luminous intensity. The intensity category is designated by a letter on the side of the package.

3. The dominant wavelength, λ_d , is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

4. Typical specification for reference only. Do not exceed absolute maximum ratings.

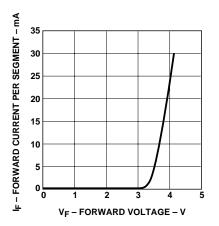
Intensity Bin Limits^[1] (µcd at 10 mA)

Bin Name	Min. ^[2]	Max. ^[2]
Н	2020	2630
Ι	2630	3420
J	3420	4200
K	4200	5040

Notes:

1. Bin categories are established for classification of products. Products may not be available in all bin categories.

2. Tolerance for each bin limit is $\pm 10\%$.



1.20

1.00

0.80

0.60

0.40

0.20

0

5 10 15 20

vs. DC Forward Current.

IF - FORWARD CURRENT PER SEGMENT - mA

Figure 2. Relative Luminous Intensity

25

30

RELATIVE LUMINOUS INTENSITY (NORMALIZED TO 1 AT 20 mA)

Figure 1. Forward Current vs. Forward Voltage.

Contrast Enhancement

For information on contrast enhancement, please see Application Note 1015.

Soldering/Cleaning

Cleaning agents from the ketone family (acetone, methyl ethyl ketone, etc.) and from the chlorinated hydrocarbon family (methylene chloride, trichloroethylene, carbon tetrachloride, etc.) are not recommended for cleaning LED parts. All of these various solvents attack or dissolve the encapsulating epoxies used to form the package of plastic LED parts.

For information on soldering LEDs please refer to Application Note 1027.

Device Reliability

For reliability information, please see the reliability data sheet 14.2 mm (0.56 inch) General Purpose Blue Seven Segment Display.

For product information and a complete list of distributors, please go to our website: **wv**

www.avagotech.com

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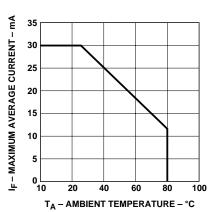


Figure 3. Maximum Allowable Average Current per Dot vs. Ambient Temperature.

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