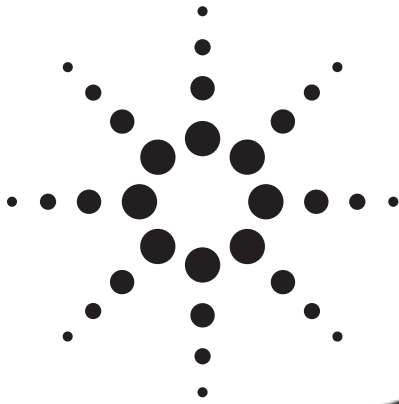


# Agilent HDSP-B0xG 18:88 and 88:88 0.56" Four Digit GaP Green Seven Segment Display Data Sheet



## Features

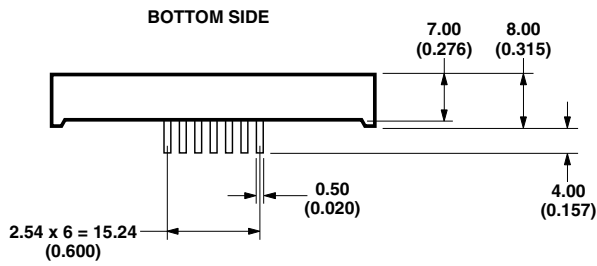
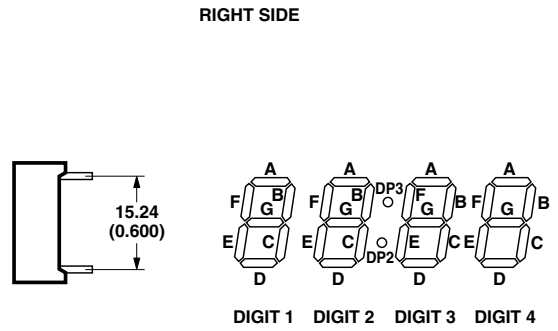
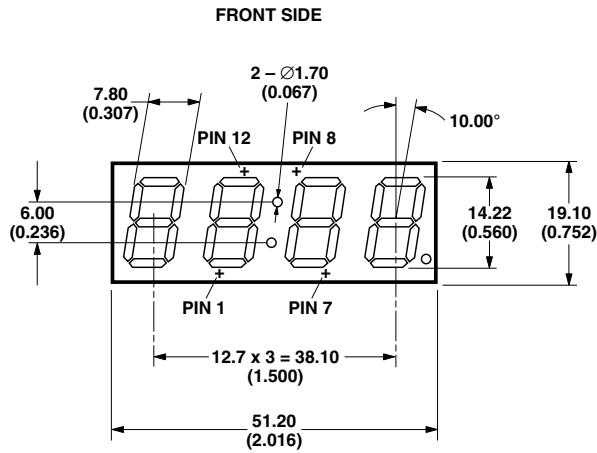
- Excellent appearance
- Evenly illuminated segments
- Gray face for optimum on/off contrast
- Choice of colors: Green
- Choice of character size: 0.56 inch

## Description

The 18:88 and 88:88 0.56" Four Digit Seven Segment Displays have surface painted in neutral gray and black for enhanced on/off contrast. All devices are available in either common anode or common cathode configuration with tinted green segments or untinted segments.

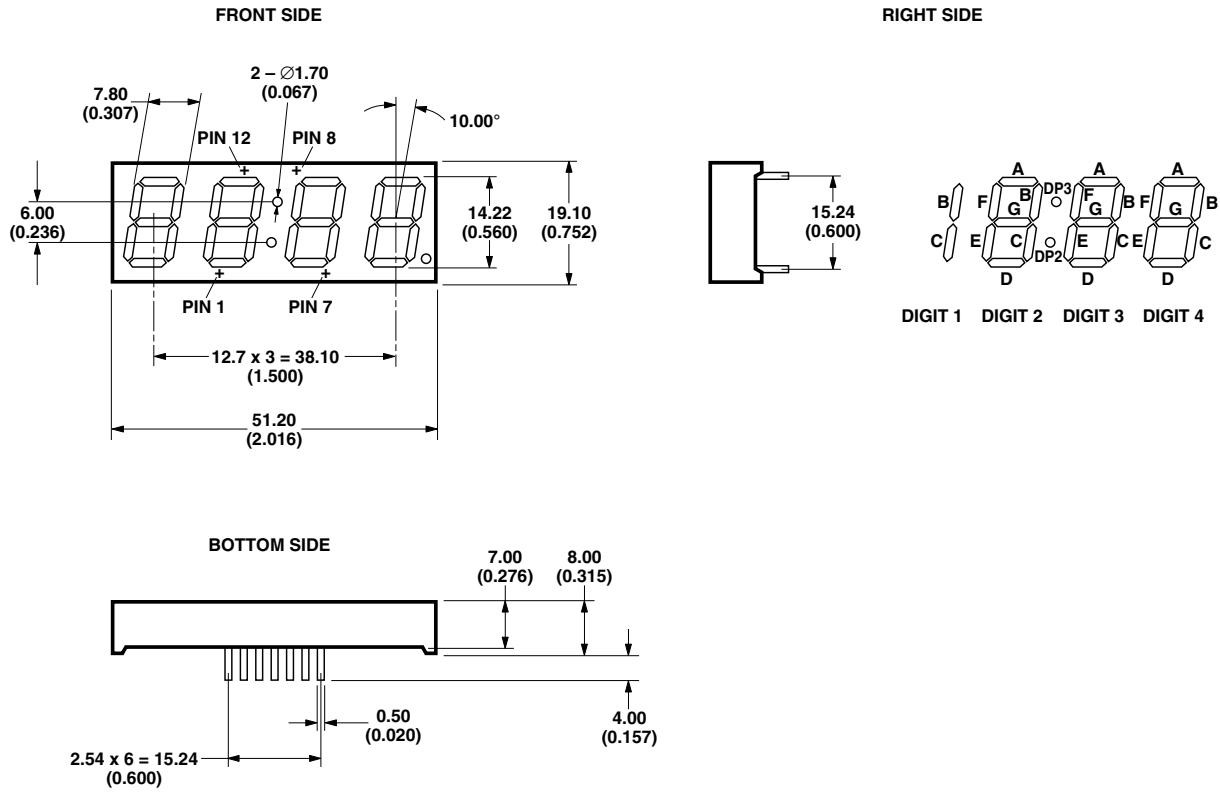


**Package Dimensions**  
 88:88 0.56" Four Digit Display



**NOTE:**  
 ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).  
 UNLESS OTHERWISE STATED, TOLERANCES ARE  $\pm 0.25$  mm.

**Package Dimensions**  
 18:88 0.56" Four Digit Display



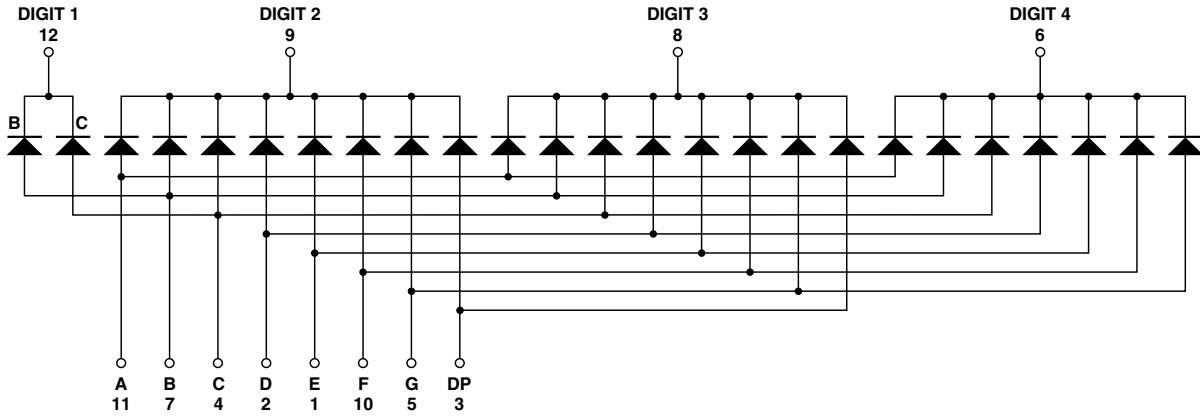
**NOTE:**  
 ALL DIMENSIONS ARE IN MILLIMETERS (INCHES).  
 UNLESS OTHERWISE STATED, TOLERANCES ARE  $\pm 0.25$  mm.

**Pin Configuration**

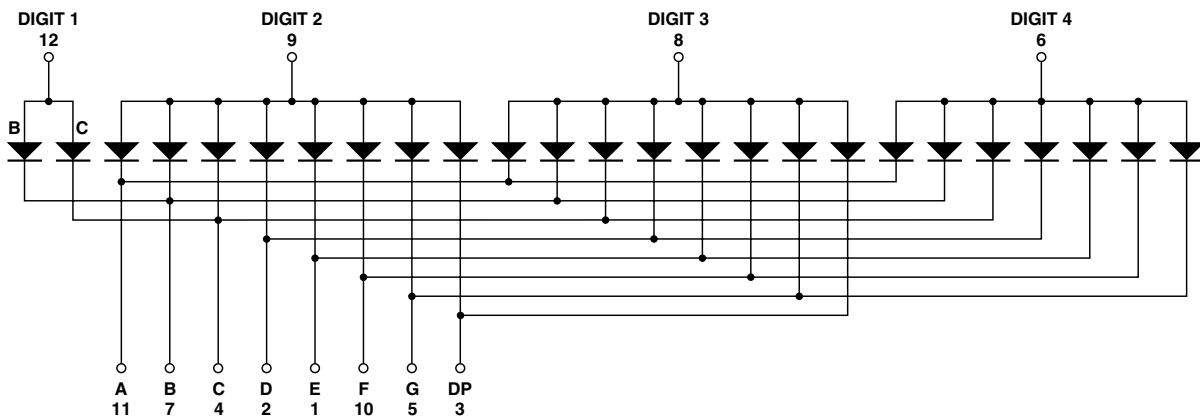
Pin	Function	
	HDSP-B01G/B03G/B05G/B07G/B09G	HDSP-B02G/B04G/B06G/B08G/B10G
1	Anode E	Cathode E
2	Anode D	Cathode D
3	Anode DP	Cathode DP
4	Anode C	Cathode C
5	Anode G	Cathode G
6	Digit 4 Common Cathode	Digit 4 Common Anode
7	Anode B	Cathode B
8	Digit 3 Common Cathode	Digit 3 Common Anode
9	Digit 2 Common Cathode	Digit 2 Common Anode
10	Anode F	Cathode F
11	Anode A	Cathode A
12	Digit 1 Common Cathode	Digit 1 Common Anode

### Internal Circuit Diagram

HDSP-B01G and HDSP-B05G (Common Cathode)

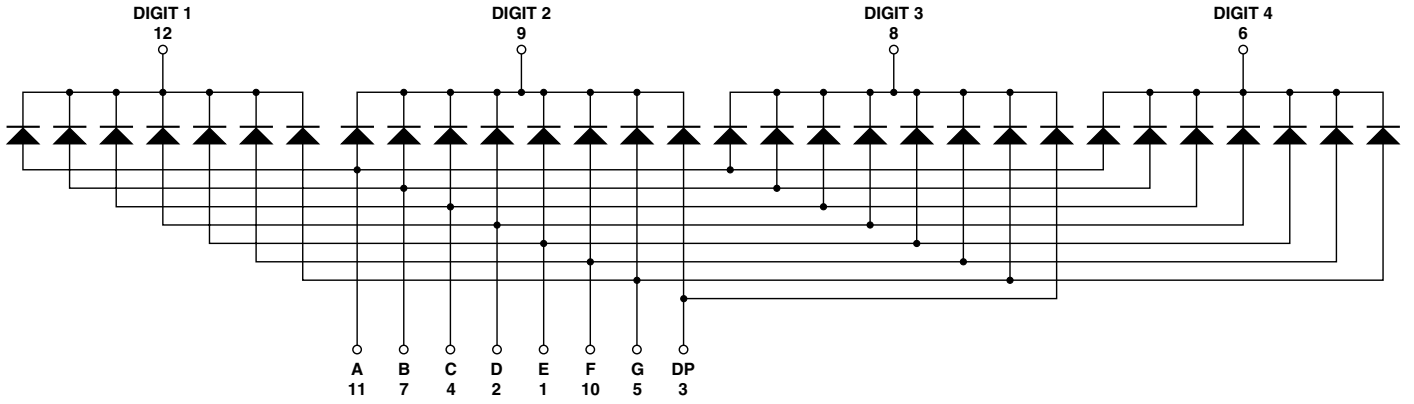


HDSP-B02G and HDSP-B06G (Common Anode)

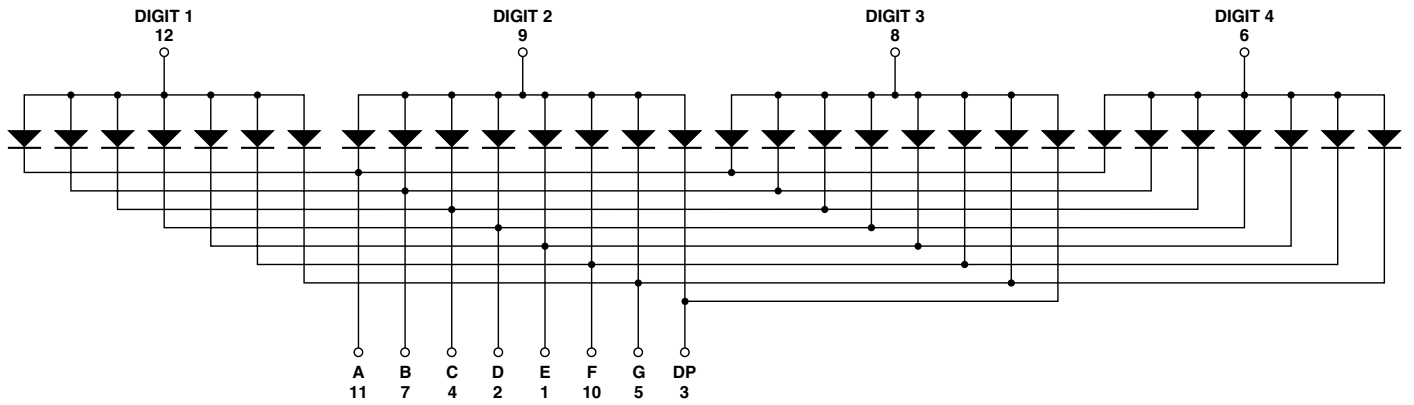


### Internal Circuit Diagram

HDSP-B03G, HDSP-B07G, and HDSP-B09G (Common Cathode)



HDSP-B04G, HDSP-B08G, and HDSP-B10G (Common Anode)

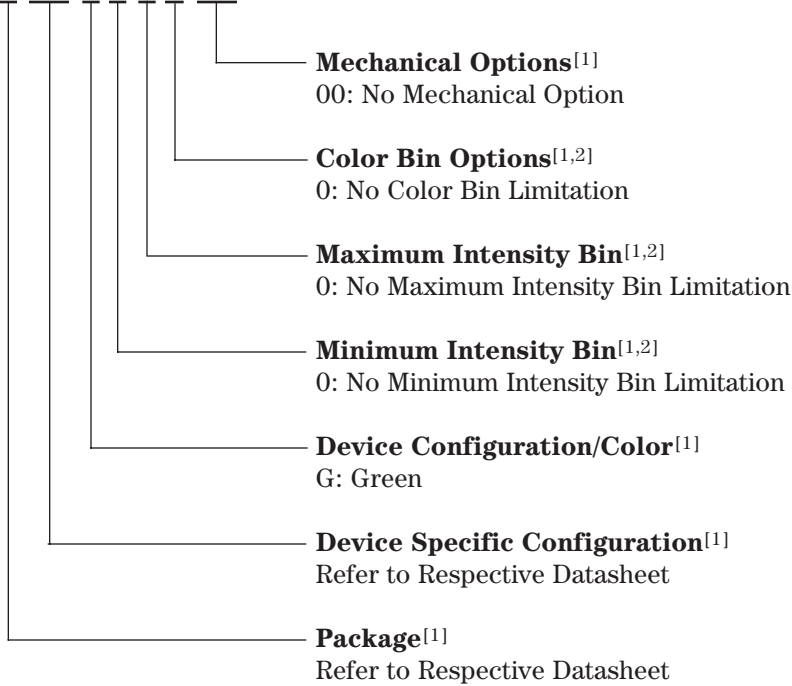


## Devices

HDSP-	Description
B01G	88:88 0.56" Green 4 Digit, Tinted Green, Common Cathode, Display 18:88, Gray Color Surface
B02G	88:88 0.56" Green 4 Digit, Tinted Green, Common Anode, Display 18:88, Gray Color Surface
B03G	88:88 0.56" Green 4 Digit, Tinted Green, Common Cathode, Display 88:88, Gray Color Surface
B04G	88:88 0.56" Green 4 Digit, Tinted Green, Common Anode, Display 88:88, Gray Color Surface
B05G	88:88 0.56" Green 4 Digit, Untinted, Common Cathode, Display 18:88, Gray Color Surface
B06G	88:88 0.56" Green 4 Digit, Untinted, Common Anode, Display 18:88, Gray Color Surface
B07G	88:88 0.56" Green 4 Digit, Untinted, Common Cathode, Display 88:88, Gray Color Surface
B08G	88:88 0.56" Green 4 Digit, Untinted, Common Anode, Display 88:88, Gray Color Surface
B09G	88:88 0.56" Green 4 Digit, Untinted, Common Cathode, Display 88:88, Black Color Surface
B10G	88:88 0.56" Green 4 Digit, Untinted, Common Anode, Display 88:88, Black Color Surface

## Part Numbering System

5082 -X X X X-X X X X X  
 HDSP-X X X X-X X X X X



### Notes:

1. For codes not listed in the figure above, please refer to the respective datasheet or contact your nearest Agilent 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.

## Absolute Maximum Ratings

Description	Green	Units
Average Power per Segment or DP	65	mW
Peak Forward Current per Segment or DP	100	mA
DC Forward Current per Segment or DP	25	mA
Operating Temperature Range	-40 to +105	°C
Storage Temperature Range	-40 to +105	°C
Reverse Voltage per Segment or DP	5	V
Wavesoldering Temperature for 3 seconds 2 mm below body	250	°C

**Note:**

1. Derate above 40°C at 0.33 mA/°C for green.

## Electrical/Optical Characteristics at T<sub>A</sub> = 25°C

Device Series	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
HDSP- B01G, B02G, B03G, B04G	Luminous Intensity/Segment (Digit Average)	I <sub>V</sub>	2000	3200		μcd	I <sub>F</sub> = 10 mA
B05G, B06G, B07G, B08G, B09G, B10G			3200	4500			
All Devices	Forward Voltage/Segment or DP	V <sub>F</sub>	1.80	2.20	2.60	V	I <sub>F</sub> = 20 mA
	Peak Wavelength	λ <sub>PEAK</sub>		568		nm	I <sub>F</sub> = 20 mA
	Dominant Wavelength	λ <sub>d</sub>		573		nm	I <sub>F</sub> = 20 mA
	Luminous Intensity Matching Ratio	I <sub>V-M</sub>			2:1		I <sub>F</sub> = 10 mA
	Reverse Current	I <sub>R</sub>			100	μA	V <sub>R</sub> = 5 V

**Notes:**

1. Typical specification for reference only. Do not exceed absolute maximum ratings.
2. The dominant wavelength, λ<sub>d</sub>, is derived from the CIE chromaticity diagram and is that single wavelength which defines the color of the device.

## Intensity Bin Limits (μcd at 10 mA)

Device Series	HDSP- B01G, B02G, B03G, B04G		B05G, B06G, B07G, B08G, B09G, B10G	
Bin Name	Min. <sup>[1]</sup>	Max. <sup>[1]</sup>	Min. <sup>[1]</sup>	Max. <sup>[1]</sup>
K	2000	3200	NA	NA
L	3200	5050	3200	5050
M	NA	NA	5050	8000

**Note:**

1. Tolerance for each bin limit is ±10%.

## Color Categories (Tolerance ± 1 nm)

Rank	Symbol	Hue Range	Unit
2	2	573.5–576.5	nm
3	3	570.5–573.5	nm

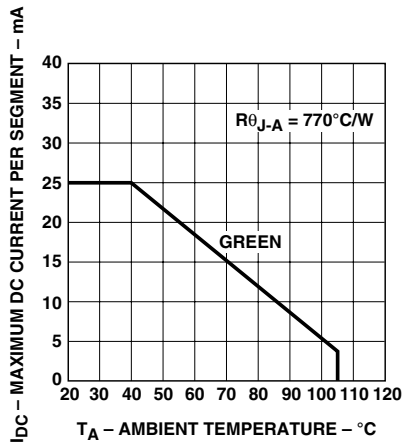


Figure 1. Maximum allowable DC current vs. ambient temperature.

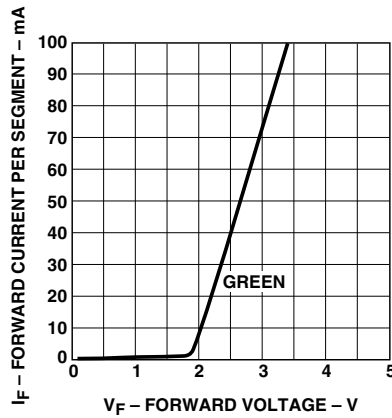


Figure 2. Forward current vs. forward voltage.

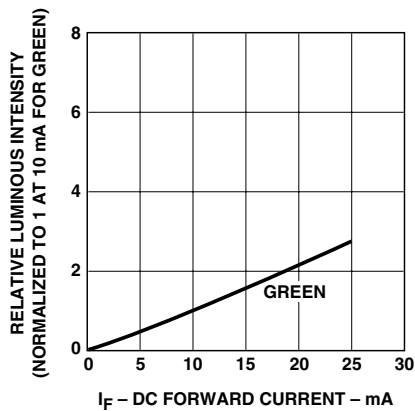


Figure 3. Relative luminous intensity vs. DC forward current.

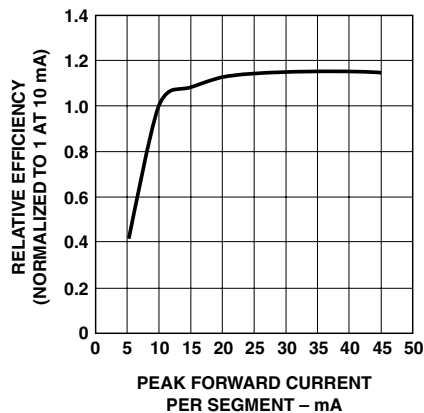


Figure 4. Relative efficiency (luminous intensity per unit current) vs. peak current.

### 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 these various solvents attack or dissolve the encapsulating epoxies used to form the package of plastic LED parts.

### [www.agilent.com/semiconductors](http://www.agilent.com/semiconductors)

For product information and a complete list of distributors, please go to our web site.

For technical assistance call:

Americas/Canada: +1 (800) 235-0312 or (916) 788-6763

Europe: +49 (0) 6441 92460

China: 10800 650 0017

Hong Kong: (+65) 6756 2394

India, Australia, New Zealand: (+65) 6755 1939

Japan: (+81 3) 3335-8152(Domestic/International), or 0120-61-1280(Domestic Only)

Korea: (+65) 6755 1989

Singapore, Malaysia, Vietnam, Thailand, Philippines, Indonesia: (+65) 6755 2044

Taiwan: (+65) 6755 1843

Data subject to change.

Copyright © 2004 Agilent Technologies, Inc.

Obsoletes 5988-5381EN

June 30, 2004

5988-7859EN