BROADCOM®

Data Sheet

HDSP-431G/433G

10-mm Three-Digit Slim-Font with Two Colons Seven-Segment Displays

Description

The Broadcom® 10-mm (0.4-inch) three-digit slim-font with two colons seven-segment displays incorporate a new slim-font character design. This slim font features narrow-width, specially mitered segments to give a fuller appearance to the illuminated character. Faces of these displays are painted a neutral gray for enhanced on/off contrast.

All devices are available in either a common anode or common cathode configuration with tinted green segments.

Devices

Green	Description
HDSP-431G	Three-Digit, Common Anode, Untinted-Diffused, 0.4-inch Display
HDSP-433G	Three-Digit, Common Cathode, Untinted-Diffused, 0.4-inch Display

Features

- Excellent appearance
- Slim-font design
- Mitered corners, evenly illuminated segments
- Gray face for optimum on/off contrast
- Choice of colors: green
- Choice of character size: 10 mm (0.4 inch)
- Characterized for luminous intensity

Applications

- Suitable for indoor use
- Extreme temperature cycling not recommended

Part Numbering System

5082 - x xx x - x x x xx
HDSP - x xx x - x x x xx

Mechanical Options[1]
00: No Mechanical Option

Color Bin Options[1, 2]
0: No Color Bin Limitation

Maximum Intensity Bin[1, 2]
0: No Maximum Intensity Bin Limitation

Minimum Intensity Bin[1, 2]
0: No Minimum Intensity Bin Limitation

Device Configuration/Color[1]
G: Green

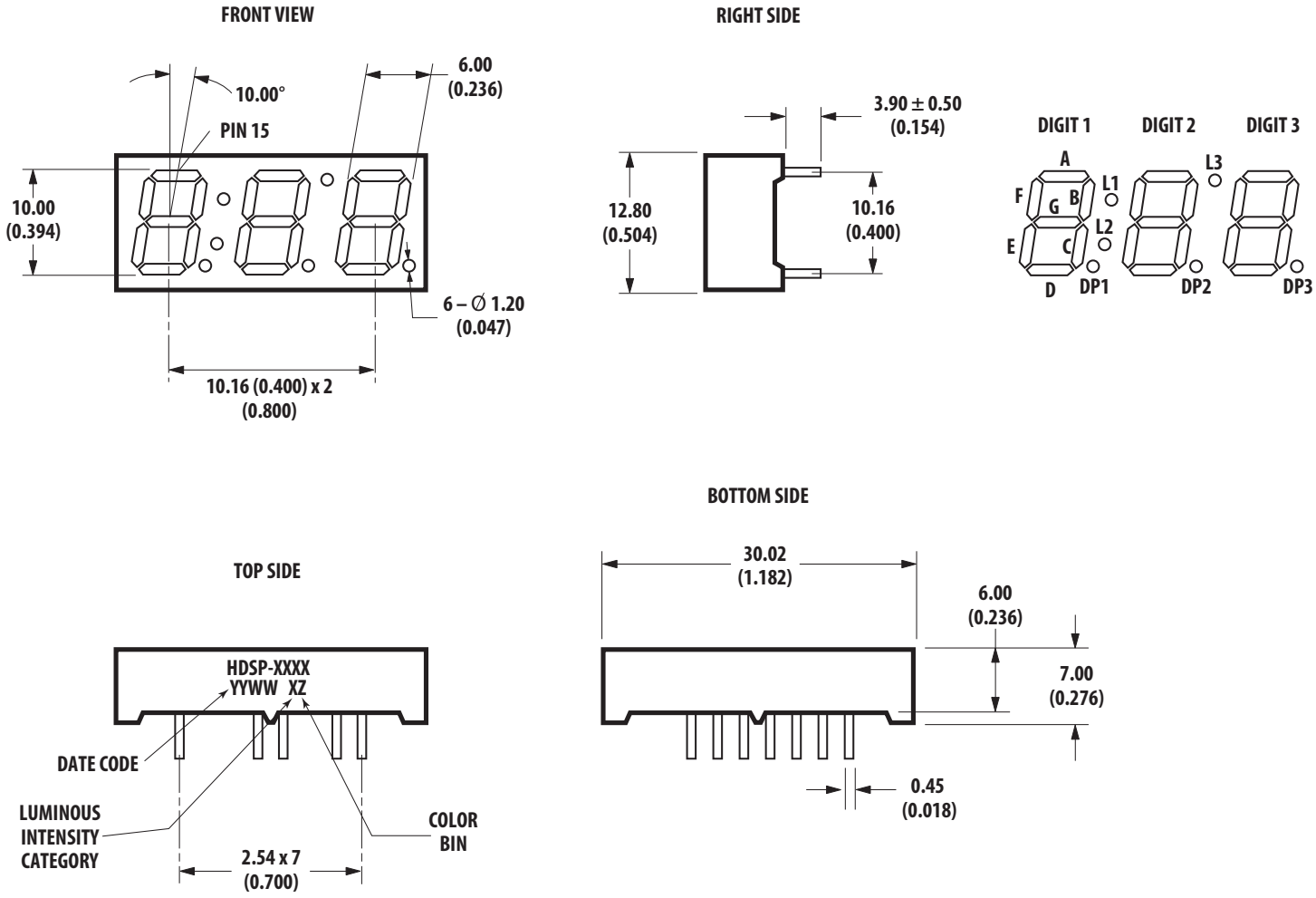
Device Specific Configuration[1]
Refer to Respective Data Sheet

Package[1]
Refer to Respective Data Sheet

NOTE:

1. For codes not listed in the preceding figure, refer to the respective data sheet or contact your nearest Broadcom representative for details.
2. Bin options refer to shippable bins for a part number. Color and intensity bins are typically restricted to one bin per tube (exceptions might apply). Refer to the respective data sheet for specific bin-limit information.

Package Dimensions

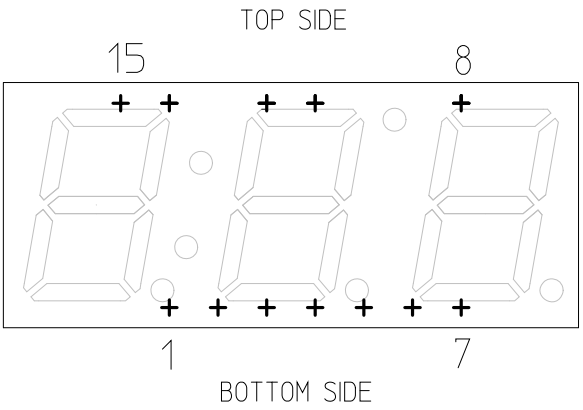


NOTE:

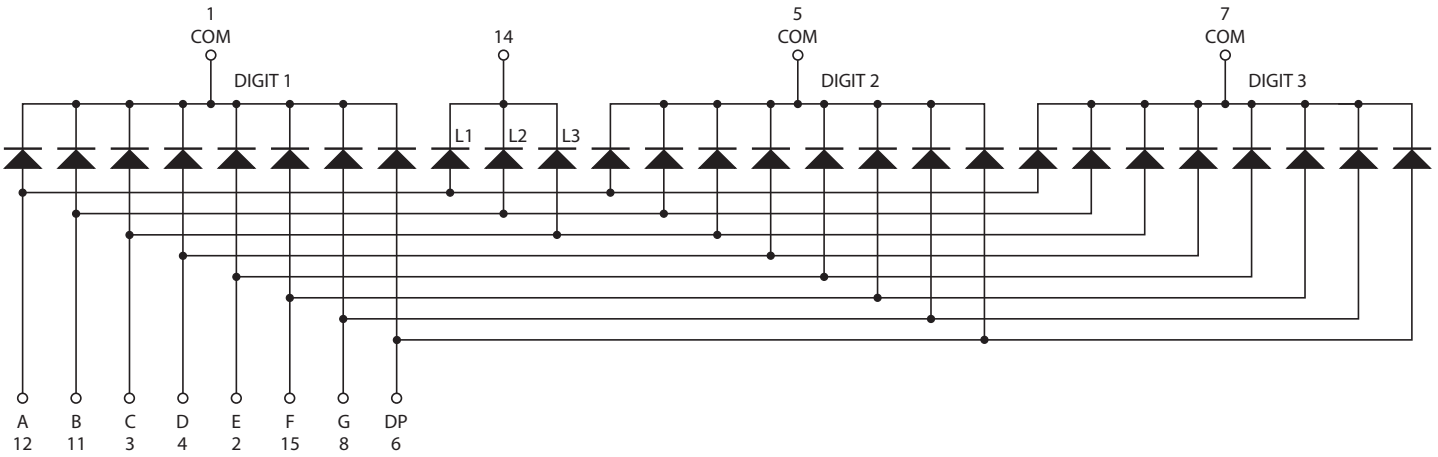
1. All dimensions are in millimeters (inches).
2. Unless otherwise stated, tolerances are ±0.25 mm.

Pin Information

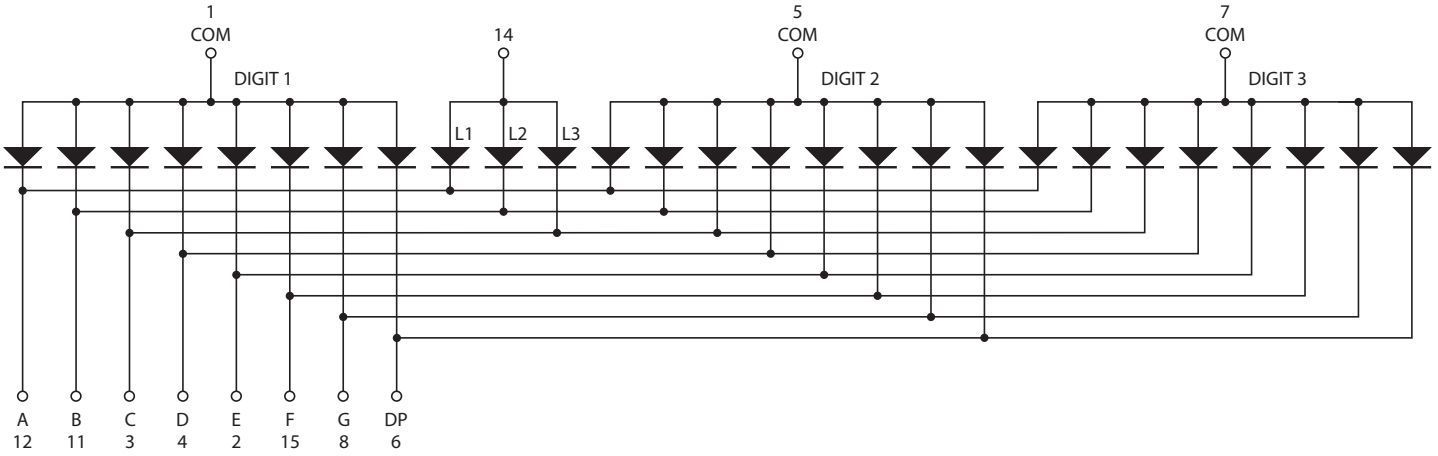
Pin	Function
1	Digit 1 Common A/C
2	E
3	C
4	D
5	Digit 2 Common A/C
6	DP
7	Digit 3 Common A/C
8	G
9	No Pin
10	No Pin
11	B
12	A
13	No Pin
14	L1, L2, and L3 Common A/C
15	F



Internal Circuit Diagram (Common Cathode): HDSP-433G



Internal Circuit Diagram (Common Anode): HDSP-431G



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[1]	25	mA
Operating Temperature Range	–40 to +105	°C
Storage Temperature Range	–40 to +105	°C
Reverse Voltage per Segment or DP	3	V
Wave Soldering Temperature for 3 Seconds, 1.59 mm Below Body	250	°C

NOTE:

1. Derate above 40°C at 33 mA/°C for green.

Electrical/Optical Characteristics at T_A = 25°C

Device Series	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
HDSP-431G/ HDSP-433G	Luminous Intensity/Segment (Digit Average)	I_V	3.200	5.000	—	mcd	I_F = 10 mA
	Forward Voltage/Segment or DP	V_F	—	2.25	2.50	V	I_F = 20 mA
	Peak Wavelength	λ_{PEAK}	—	568	—	nm	I_F = 20 mA
	Dominant Wavelength	λ_d	—	573	—	nm	I_F = 20 mA
	Reverse Current	I_R	—	—	100	µA	V_R = 5V

NOTE:

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

Intensity Bin Limits (mcd) Green

Green		
HDSP-431G/433G		
IV Bin Category	**Min.**	**Max.**
L	3.200	5.050
M	5.051	8.000

Color Categories

Color	Bin	Dominant Wavelength (nm)	
		Min.	**Max.**
Green	3	570.0	574.0
	4	567.0	571.0

NOTE: All categories are established for classification of products. Products might not be available in all categories. Contact your Broadcom representative for further clarification and information.

Figure 1: Maximum Allowable DC Current vs. Ambient Temperature

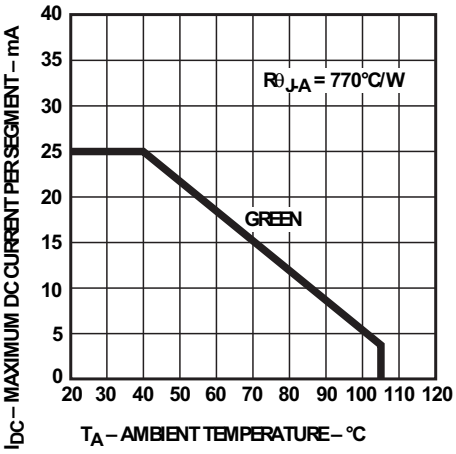


Figure 2: Forward Current vs. Forward Voltage

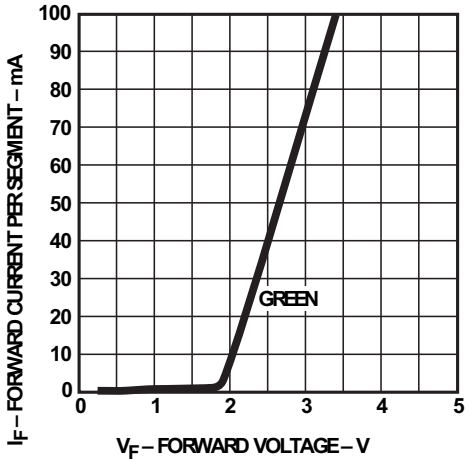
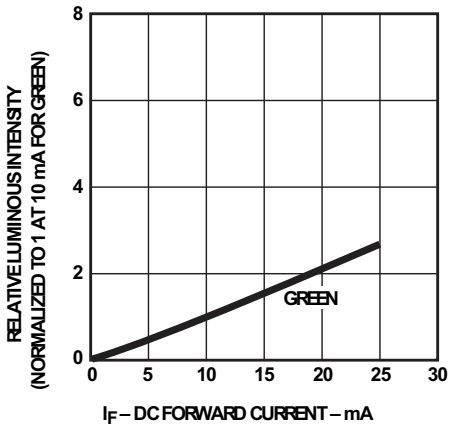


Figure 3: Relative Luminous Intensity vs. DC Forward Current



Contrast Enhancement

For information on contrast enhancement, refer to Application Note 1015.

Soldering/Cleaning

Cleaning agents from the ketone family (acetone, methyl ethyl ketone, and so on) and from the chlorinated hydrocarbon family (methylene chloride, trichloroethylene, carbon tetrachloride, and so on) 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, refer to Application Note 1027.

BROADCOM®

Lead (Pb) Free
RoHS Compliant