

HDSP-A22G, HDSP-A27G

13.7-mm (0.54-in) Dual-Digit Alphanumeric Display



Description

The Broadcom® 13.7-mm (0.54-in.) dual-digit GaP green displays are available in common anode and common cathode.

Devices

GaP Green	Description
HDSP-A22G	Common Anode
HDSP-A27G	Common Cathode

Features

- High reliability
- GaP green color
- Gray face paint
- Excellent appearance
 - Evenly lighted segments
 - Gray package gives optimum contrast
 - $\pm 50^\circ$ viewing angle
- Categorized for luminous intensity. Green categorized for color
- Easy assembly

Applications

- Suitable for indoor use
- Not recommended for industrial application; that is, operating temperature requirements exceeding 85°C or below -25°C (see note)
- Extreme temperature cycling not recommended

NOTE: For additional details, please contact your local Broadcom sales office or an authorized distributor.

Figure 1: Package Dimensions

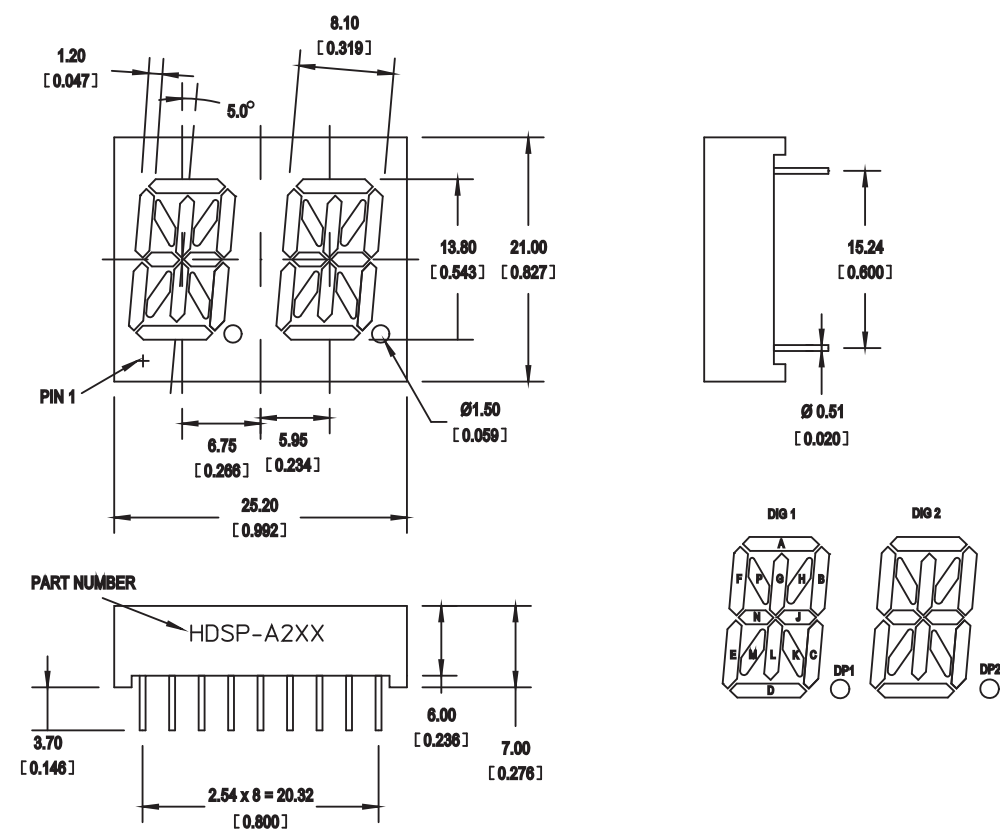
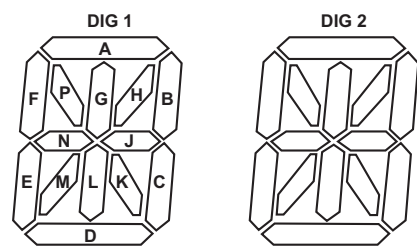
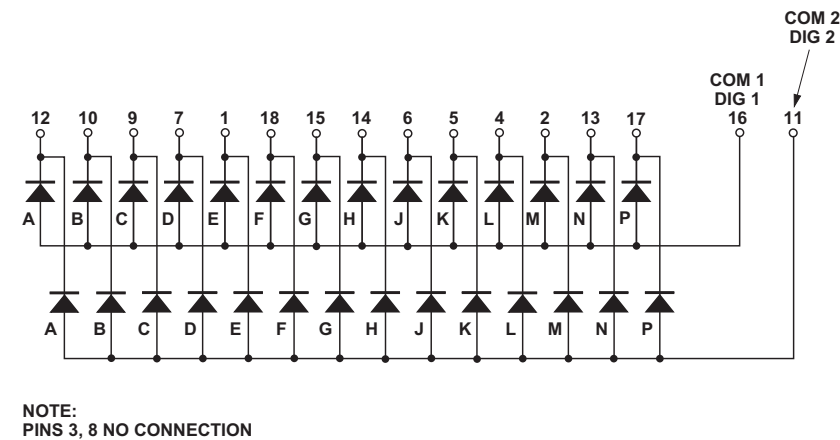


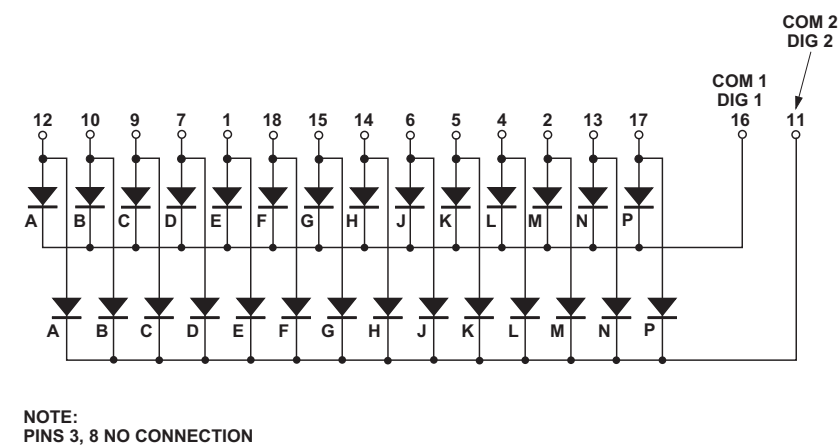
Figure 2: Internal Circuit Diagram



Internal Circuit Diagram (Common Anode)



Internal Circuit Diagram (Common Cathode)



Pin Connection

Pin	Function	Pin	Function
1	1E/2E	10	1B/2B
2	1M/2M	11	Digit No. 2 Common Anode/Common Cathode
3	No Connection	12	1A/2A
4	1L/2L	13	1N/2N
5	1K/2K	14	1H/2H
6	1J/2J	15	1G/2G
7	1D/2D	16	Digit No. 1 Common Anode/Common Cathode
8	No Connection	17	1P/2P
9	1C/2C	18	1F/2F

Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	GaP Green	Units
Power Dissipation Segment	52	mW
Forward Current Segment ^a	20	mA
Peak Forward Current Per Segment (1/10 Duty Factor at 10 kHz)	100	mA
Operating Temperature Range	-35 to +85	°C
Storage Temperature Range	-35 to +85	°C
Reverse Voltage per Segment or DP ^b	5	V
Wavesoldering Temperature for 3 Seconds (at 2-mm Distance from the Body)	250	°C

a. Derate above 25°C at 0.33 mA/°C.

b. Indicates product final test condition. Long term reverse bias is not recommended.

Electrical/Optical Characteristics at $T_A = 25^\circ\text{C}$

Devices HDSP-	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
A22G/A27G	Luminous Intensity/Segment	I_V	3.20	5.05	—	mcd	$I_F = 10\text{ mA}$
	Forward Voltage	V_F	1.80	2.25	2.60	V	$I_F = 20\text{ mA}$
	Peak Wavelength	λ_{PEAK}	—	568	—	nm	
	Dominant Wavelength	λ_d	—	573	—	nm	
	Reverse Voltage	V_R	—	5	—	V	$I_R = 100\text{ }\mu\text{A}$

Intensity Bin Limits (mcd at 10 mA)

Bin Name	Green	
	Min. ^{a, b}	Max. ^{a, b}
L	3.201	5.050
M	5.051	8.000

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

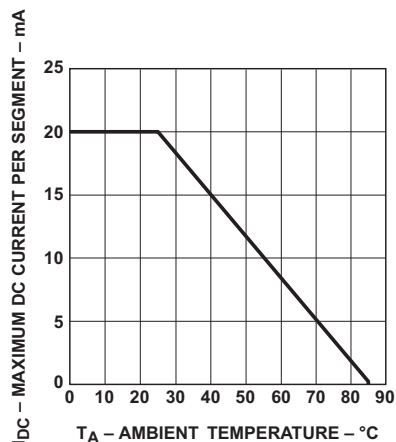
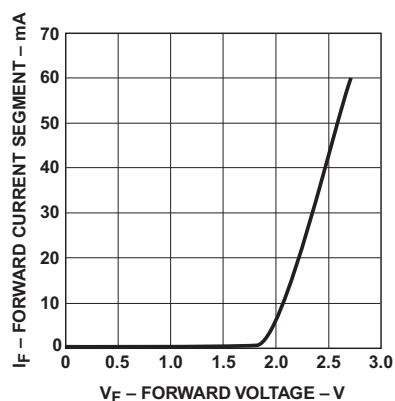
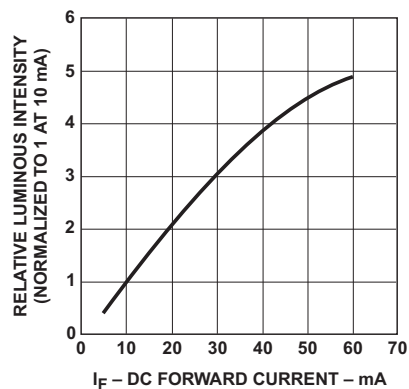
b. Tolerance for each bin limit is $\pm 10\%$.

Color Bin Limits (nm at 10 mA)

Color	Dominant Wavelength (nm)		
	Bin	Min. ^{a, b}	Max. ^{a, b}
Green	2	573.5	576.5
	3	570.5	573.5

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

b. Tolerance for each bin limit is $\pm 1\text{ nm}$.

Figure 3: Maximum Allowable Average or DC Current vs. Ambient Temperature**Figure 4: Forward Current vs. Forward Voltage****Figure 5: Relative Luminous Intensity vs. DC Forward Current**

Soldering and Cleaning

Cleaning agents from ketone family (acetone, methyl ethyl ketone, and so on) and from the chlorinated hydrocarbon family (methylene chloride, trichloro ethylene, 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.

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