

20 mm (0.8 inch) Seven Segment Displays

Technical Data

HDSP-340X Series
HDSP-390X Series
HDSP-420X Series
HDSP-860X Series
HDSP-N15X Series

Features

- **Industry Standard Size**
- **Industry Standard Pinout**
15.24 mm (0.6 in.) DIP Leads
on 2.54 mm (0.1 in.) Centers
- **Choice of Colors**
Red, AlGaAs Red, High
Efficiency Red, Yellow, Green
- **Excellent Appearance**
Evenly Lighted Segments
Mitered Corners on Segments
Gray Package Gives Optimum
Contrast
± 50° Viewing Angle
- **Design Flexibility**
Common Anode or Common
Cathode
Left and Right Hand Decimal
Points
± 1. Overflow Character
- **Categorized for Luminous
Intensity**
Yellow and Green Categorized

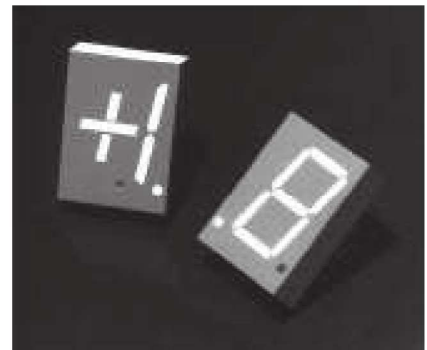
for Color

Use of Like Categories Yields a
Uniform Display

- **High Light Output**
- **High Peak Current**
- **Excellent for Long Digit
String Multiplexing
Intensity and Color
Selection Option**
See Intensity and Color
Selected Displays Data Sheet
- **Sunlight Viewable AlGaAs**

Description

The 20 mm (0.8 inch) LED seven
segment displays are designed
for viewing distances up to 10
metres (33 feet). These devices
use an industry standard size
package and pinout. All devices
are available as either common
anode or common cathode.



These displays are ideal for most
applications. Pin for pin
equivalent displays are also
available in a low current design.
The low current displays are ideal
for portable applications. For
additional information see the
Low Current Seven Segment
Displays data sheet.

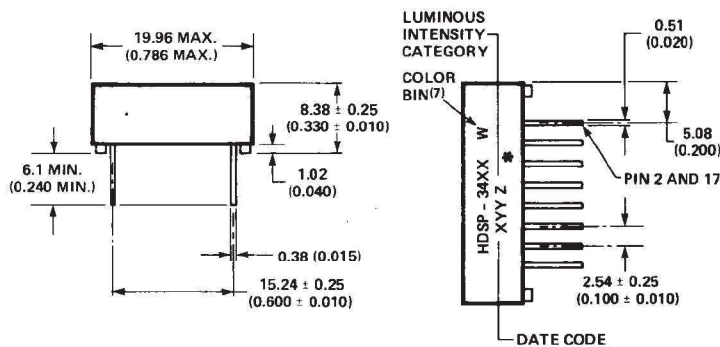
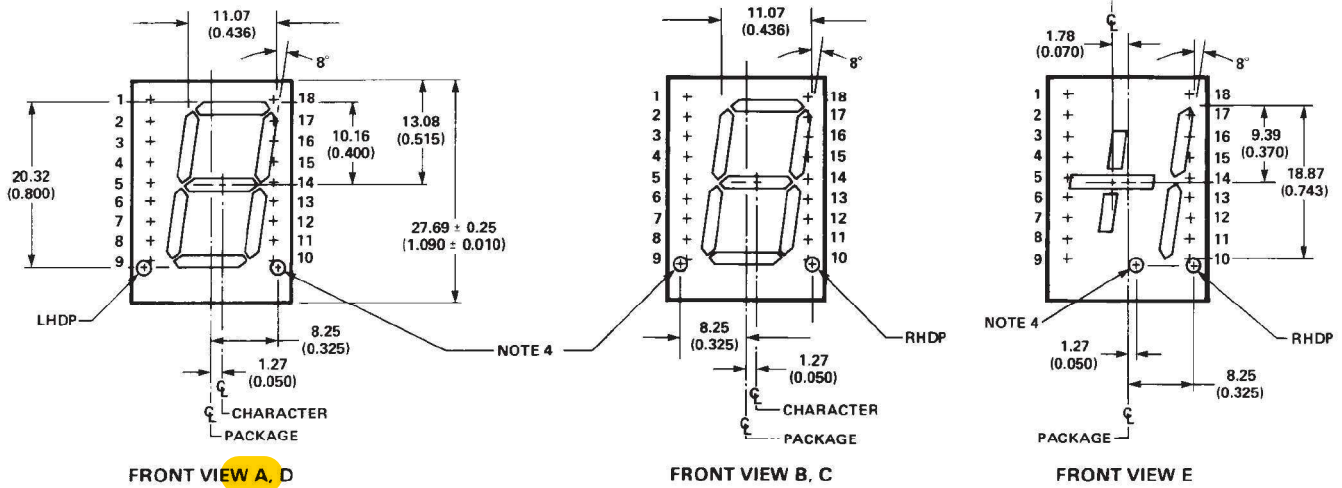
Devices

Red HDSP-	AlGaAs ^[1] HDSP-	HER HDSP-	Yellow HDSP-	Green HDSP-	Description	Package Drawing
3400	N150	3900	4200	8600	Common Anode Left Hand Decimal	A
3401	N151	3901	4201	8601	Common Anode Right Hand Decimal	B
3403	N153	3903	4203	8603	Common Cathode Right Hand Decimal	C
3405	N155	3905	4205	8605	Common Cathode Left Hand Decimal	D
3406	N156	3906	4206	8606	Universal ± 1. Overflow ^[2]	E

Notes:

1. These displays are recommended for high ambient light operation. Please refer to the HDSP-N10X AlGaAs data sheet for low current operation.
2. Universal pinout brings the anode and cathode of each segment's LED out to separate pins. See internal diagram E.

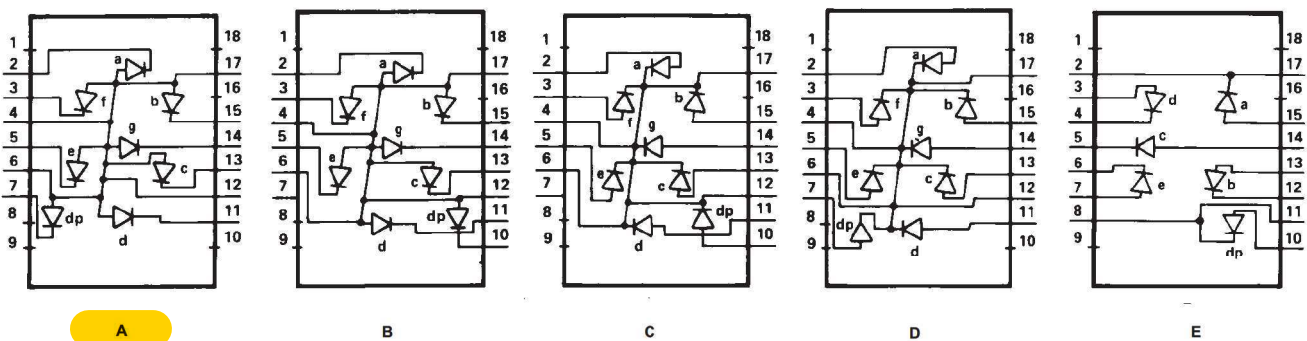
Package Dimensions



Pin	Function				
	A	B	C	D	E
1	NO PIN	NO PIN	NO PIN	NO PIN	NO PIN
2	CATHODE a	CATHODE a	ANODE a	ANODE a	CATHODE a
3	CATHODE f	CATHODE f	ANODE f	ANODE f	ANODE d
4	ANODE ^[3]	ANODE ^[3]	CATHODE ^[6]	CATHODE ^[6]	CATHODE d
5	CATHODE e	CATHODE e	ANODE e	ANODE e	CATHODE c
6	ANODE ^[3]	ANODE ^[3]	CATHODE ^[6]	CATHODE ^[6]	CATHODE e
7	CATHODE dp	NO CONNec.	NO CONNec.	ANODE dp	ANODE e
8	NO PIN	NO PIN	NO PIN	NO PIN	CATHODE dp
9	NO PIN	NO PIN	NO PIN	NO PIN	NO PIN
10	NO PIN	CATHODE dp	ANODE dp	NO PIN	ANODE dp
11	CATHODE d	CATHODE d	ANODE d	ANODE d	CATHODE dp
12	ANODE ^[3]	ANODE ^[3]	CATHODE ^[6]	CATHODE ^[6]	CATHODE b
13	CATHODE c	CATHODE c	ANODE c	ANODE c	ANODE b
14	CATHODE g	CATHODE g	ANODE g	ANODE g	ANODE c
15	CATHODE b	CATHODE b	ANODE b	ANODE b	ANODE a
16	NO PIN	NO PIN	NO PIN	NO PIN	NO PIN
17	ANODE ^[3]	ANODE ^[3]	CATHODE ^[6]	CATHODE ^[6]	CATHODE a
18	NO PIN	NO PIN	NO PIN	NO PIN	NO PIN

- NOTES:**
1. DIMENSIONS IN MILLIMETERS AND (INCHES).
 2. ALL UNTOLERANCED DIMENSIONS ARE FOR REFERENCE ONLY.
 3. REDUNDANT ANODES.
 4. UNUSED dp POSITION.
 5. SEE INTERNAL CIRCUIT DIAGRAM.
 6. REDUNDANT CATHODES.
 7. FOR HDSP-4200/-8600 SERIES PRODUCT ONLY.

Internal Circuit Diagram



Yellow

Device Series	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
HDSP-420X	Luminous Intensity/Segment ^[1,2] (Digit Average)	I_V	2200	7000		μcd	$I_F = 100\text{ mA Peak: 1 of 5 df}$
				3400		μcd	$I_F = 20\text{ mA}$
	Forward Voltage/Segment or DP	V_F		2.6	3.5	V	$I_F = 100\text{ mA}$
	Peak Wavelength	λ_{PEAK}		583		nm	
	Dominant Wavelength ^[3,6]	λ_d	581.5	586	592.5	nm	
	Reverse Voltage/Segment or DP ^[4]	V_R	3.0	25.0		V	$I_R = 100\text{ }\mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/ $^\circ\text{C}$	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{J-PIN}$		375		$^\circ\text{C/W/Seg}$	

Green

Device Series	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
HDSP-860X	Luminous Intensity/Segment ^[1,2] (Digit Average)	I_V	680	1500		μcd	$I_F = 10\text{ mA}$
				1960		μcd	$I_F = 50\text{ mA Peak: 1 of 5 df}$
	Forward Voltage/Segment or DP	V_F		2.1	2.5	V	$I_F = 10\text{ mA}$
	Peak Wavelength	λ_{PEAK}		566		nm	
	Dominant Wavelength ^[3,6]	λ_d		571	577	nm	
	Reverse Voltage/Segment or DP ^[4]	V_R	3.0	50.0		V	$I_R = 100\text{ }\mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/ $^\circ\text{C}$	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{J-PIN}$		375		$^\circ\text{C/W/Seg}$	

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 is that single wavelength which defines the color of the device.
4. Typical specification for reference only. Do not exceed absolute maximum ratings.
5. For low current operation, the AlGaAs Red HDSP-N100 series displays are recommended. They are tested at 1 mA dc/segment and are pin for pin compatible with the HDSP-N150 series.
6. The Yellow (HDSP-4200) and Green (HDSP-8600) displays are categorized for dominant wavelength. The category is designated by a number adjacent to the luminous intensity category letter.