

14.2 mm (0.56 inch) Seven Segment Displays

Technical Data

HDSP-530X Series
HDSP-532X Series
HDSP-550X Series
HDSP-552X Series
HDSP-560X Series
HDSP-562X Series
HDSP-570X Series
HDSP-572X Series
HDSP-H15X Series

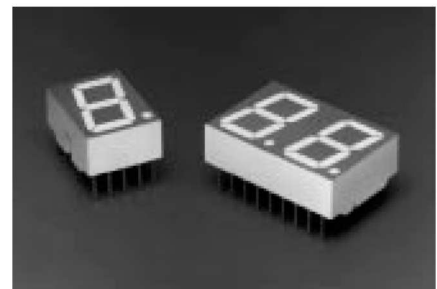
Features

- **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
Single and Dual Digits
Right Hand Decimal Point
± 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 14.2 mm (0.56 inch) LED seven segment displays are designed for viewing distances up



to 7 metres (23 feet). These devices use an industry standard size package and pinout. Both the numeric and ± 1 overflow devices feature a right hand decimal point. All devices are available as either common anode or common cathode.

Devices

Red HDSP-	AlGaAs Red HDSP-[1]	HER HDSP-[1]	Yellow HDSP-	Green HDSP-	Description	Package Drawing
5301	H151	5501	5701	5601	Common Anode Right Hand Decimal	A
5303	H153	5503	5703	5603	Common Cathode Right Hand Decimal	B
5307	H157	5507	5707	5607	Common Anode ± 1. Overflow	C
5308	H158	5508	5708	5608	Common Cathode ± 1. Overflow	D
5321		5521	5721	5621	Two Digit Common Anode Right Hand Decimal	E
5323		5523	5723	5623	Two Digit Common Cathode Right Hand Decimal	F

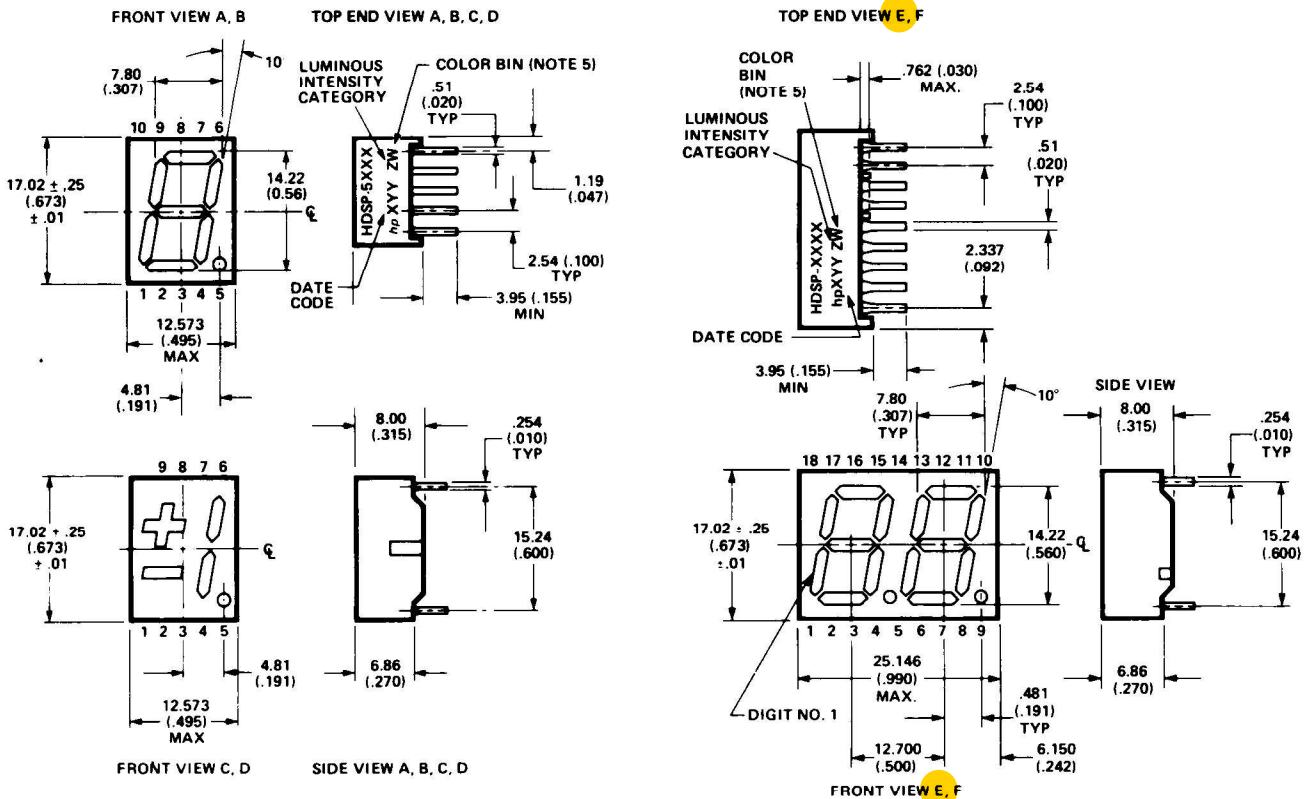
Note:

1. These displays are recommended for high ambient light operation. Please refer to the HDSP-H10X/K12X AlGaAs and HDSP-555X HER data sheet for low current operation.

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.

Package Dimensions



PIN	FUNCTION					
	A	B	C	D	E	F
1	CATHODE e	ANODE e	CATHODE c	ANODE c	E CATHODE NO. 1	E ANODE NO. 1
2	CATHODE d	ANODE d	ANODE c, d	CATHODE c, d	D CATHODE NO. 1	D ANODE NO. 1
3	ANODE ^[2]	CATHODE ^[4]	CATHODE b	ANODE b	C CATHODE NO. 1	C ANODE NO. 1
4	CATHODE c	ANODE c	ANODE a, b, DP	CATHODE a, b, DP	DP CATHODE NO. 1	DP ANODE NO. 1
5	CATHODE DP	ANODE DP	CATHODE DP	ANODE DE	E CATHODE NO. 1	E ANODE NO. 2
6	CATHODE b	ANODE b	CATHODE a	ANODE a	D CATHODE NO. 2	D ANODE NO. 2
7	CATHODE a	ANODE a	ANODE a, b, DP	CATHODE a, b, DP	G CATHODE NO. 2	G ANODE NO. 2
8	ANODE ^[3]	CATHODE ^[4]	ANODE c, d	CATHODE c, d	C CATHODE NO. 2	C ANODE NO. 2
9	CATHODE f	ANODE f	CATHODE d	ANODE d	DP CATHODE NO. 2	DP ANODE NO. 2
10	CATHODE g	ANODE g	NO PIN	NO PIN	B CATHODE NO. 2	B ANODE NO. 2
11					A CATHODE NO. 2	A ANODE NO. 2
12					F CATHODE NO. 2	F ANODE NO. 2
13					DIGIT NO. 2 ANODE	DIGIT NO. 2 CATHODE
14					DIGIT NO. 1 ANODE	DIGIT NO. 1 CATHODE
15					B CATHODE NO. 1	B ANODE NO. 1
16					A CATHODE NO. 1	A ANODE NO. 1
17					G CATHODE NO. 1	G ANODE NO. 1
18					F CATHODE NO. 1	F ANODE NO. 1

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES (INCHES).

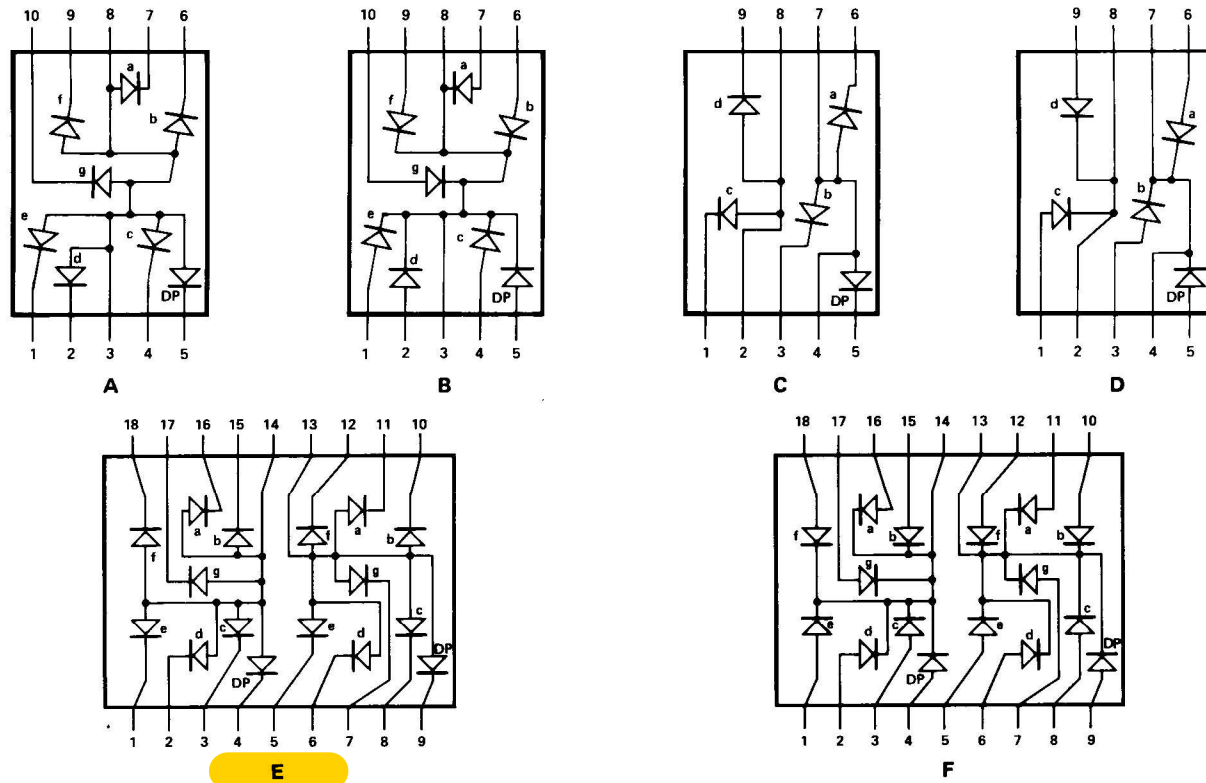
2. ALL UNTOLERANCED DIMENSIONS ARE FOR REFERENCE ONLY.

3. REDUNDANT ANODES.

4. REDUNDANT CATHODES.

5. FOR HDSP-5600/-5700 SERIES PRODUCT ONLY.

Internal Circuit Diagram



Absolute Maximum Ratings

Description	Red HDSP-5300 Series	AlGaAs Red HDSP-H150 Series	HER HDSP-5500 Series	Yellow HDSP-5700 Series	Green HDSP-5600 Series	Units
Average Power per Segment or DP	82	96	105	80	105	mW
Peak Forward Current per Segment or DP	150 ^[1]	160 ^[3]	90 ^[5]	60 ^[7]	90 ^[9]	mA
DC Forward Current per Segment or DP	25 ^[2]	40 ^[4]	30 ^[6]	20 ^[8]	30 ^[10]	mA
Operating Temperature Range	-40 to +100	-20 to +100 ^[11]	-40 to +100			°C
Storage Temperature Range	-55 to +100					°C
Reverse Voltage per Segment or DP	3.0					V
Lead Solder Temperature for 3 Seconds (1.60 mm [0.063 in.] below seating plane)	260					°C

Notes:

- See Figure 1 to establish pulsed conditions.
- Derate above 80°C at 0.63 mA/°C.
- See Figure 2 to establish pulsed conditions.
- Derate above 46°C at 0.54 mA/°C.
- See Figure 7 to establish pulsed conditions.
- Derate above 53°C at 0.45 mA/°C.
- See Figure 8 to establish pulsed conditions.
- Derate above 81°C at 0.52 mA/°C.
- See Figure 9 to establish pulsed conditions.
- Derate above 39°C at 0.37 mA/°C.
- For operation below -20°C, contact your local HP components sales office or an authorized distributor.

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

Red

Device Series HDSP-	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
53XX	Luminous Intensity/Segment ^[1,2] (Digit Average)	I_V	600	1300		μcd	$I_F = 20\text{ mA}$
				1400			$I_F = 100\text{ mA Peak: 1 of 5 df}$
	Forward Voltage/Segment or DP	V_F		1.6	2.0	V	$I_F = 20\text{ mA}$
	Peak Wavelength	λ_{PEAK}		655		nm	
	Dominant Wavelength ^[3]	λ_d		640		nm	
	Reverse Voltage/Segment or DP ^[4]	V_R	3.0	12		V	$I_R = 100\text{ }\mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/°C	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{\text{J-Pin}}$		345		°C/W/ Seg	

AlGaAs Red

Device Series HDSP-	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
H15X	Luminous Intensity/Segment ^[1,2,5] (Digit Average)	I_V	9.1	16.0		mcd	$I_F = 20\text{ mA}$
	Forward Voltage/Segment or DP	V_F		1.8		V	$I_F = 20\text{ mA}$
				2.0	3.0		$I_F = 100\text{ mA}$
	Peak Wavelength	λ_{PEAK}		645		nm	
	Dominant Wavelength ^[3]	λ_d		637		nm	
	Reverse Voltage/Segment or DP ^[4]	V_R	3.0	15		V	$I_R = 100\text{ }\mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/°C	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{\text{J-Pin}}$		400		°C/W/ Seg	