

14.2 mm (0.56 inch) Seven Segment Displays

Technical Data

HDSP-5301, 5303, 5307, 5308,
5321, 5323
HDSP-H151, H153, H157, H158
HDSP-5501, 5503, 5507, 5508,
5521, 5527
HDSP-5701, 5703, 5707, 5708,
5721, 5723
HDSP-5601, 5603, 5607, 5608,
5621, 5623

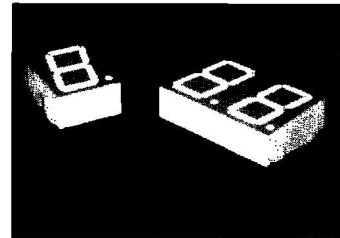
Features

- **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.

SOLID STATE DISPLAYS

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

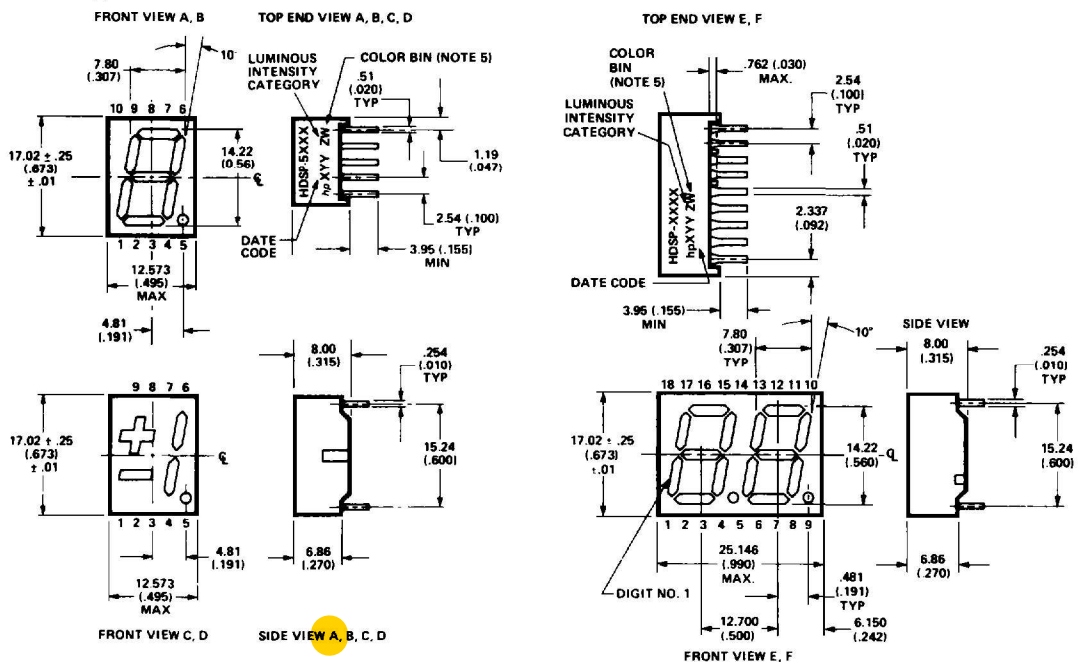
Note:

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 a	ANODE a	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 ¹	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 ¹	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. 2 CATHODE
15					B CATHODE NO. 2	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:

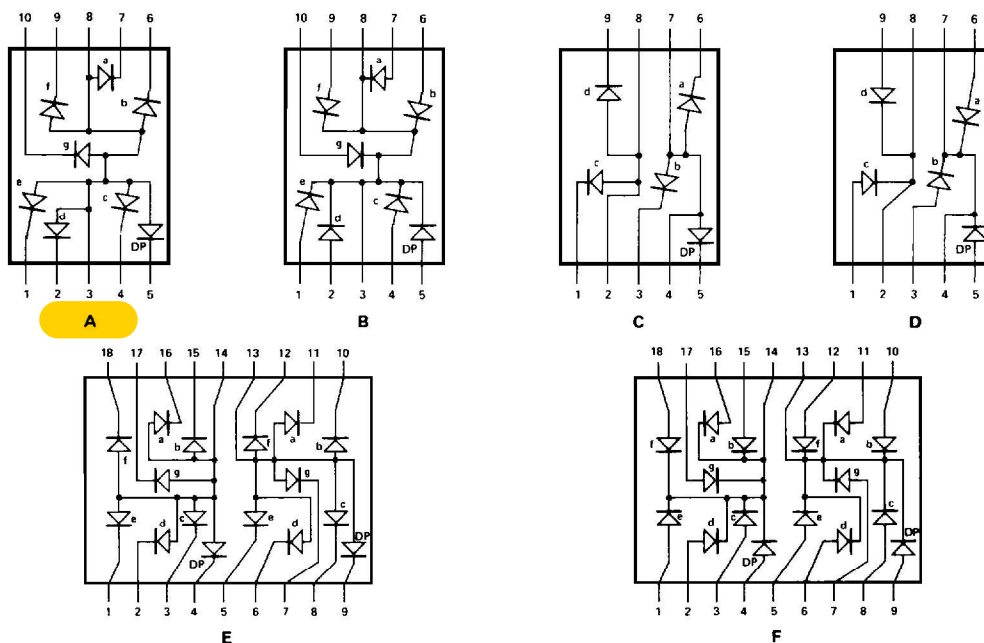
1. ALL DIMENSIONS IN MILLIMETRES (INCHES).
2. ALL UNTOLERANCED DIMENSIONS ARE FOR REFERENCE ONLY.

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 ⁽⁸⁾	90 ⁽⁶⁾	60 ⁽⁷⁾	90 ⁽⁹⁾	mA
DC Forward Current per Segment or DP	25 ⁽²⁾	40 ⁽⁴⁾	30 ⁽⁵⁾	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 (1.59 mm [0.63 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.

High Efficiency Red

Device Series HDSP-	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
5500	Luminous Intensity/Segment ^(1,2,6) (Digit Average)	I_v	900	2800		μcd	$I_F = 10 \text{ mA}$
				3700			$I_F = 60 \text{ mA Peak: 1 of 6 df}$
	Forward Voltage/Segment or DP	V_F		2.1	2.5	V	$I_F = 20 \text{ mA}$
	Peak Wavelength	λ_{PEAK}		635		nm	
	Dominant Wavelength ⁽³⁾	λ_d		626		nm	
	Reverse Voltage/Segment or DP ⁽⁴⁾	V_R	3.0	30		V	$I_R = 100 \mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/°C	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{J-Pin}$		345		°C/W/	

Yellow

Device Series HDSP-	Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
5700	Luminous Intensity/Segment ^(1,2) (Digit Average)	I_v	600	1800		μcd	$I_F = 10 \text{ mA}$
				2750			$I_F = 60 \text{ mA Peak: 1 of 6 df}$
	Forward Voltage/Segment or DP	V_F		2.1	2.5	V	$I_F = 20 \text{ mA}$
	Peak Wavelength	λ_{PEAK}		583		nm	
	Dominant Wavelength ^(3,7)	λ_d	581.5	586	592.5	nm	
	Reverse Voltage/Segment or DP ⁽⁴⁾	V_R	3.0	40		V	$I_R = 100 \mu\text{A}$
	Temperature Coefficient of V_F /Segment or DP	$\Delta V_F/^\circ\text{C}$		-2		mV/°C	
	Thermal Resistance LED Junction-to-Pin	$R\theta_{J-Pin}$		345		°C/W/ Seg	