



- ## 5 x 7 Bi-Color General Purpose Dot Matrix Displays 53.2 mm (2.09 inch) Package

This display comprises 7 rows by 5 columns of 5.0 mm diameter dots on a pitch of 7.62 mm. The device is available in common

row cathode and common row anode configurations. The displays come in black face paint. Each dot has high efficiency red (HER) and green colors.

**Dimensions**

30.48 (1.200)

7.62 (0.300)

53.2 (2.094)

45.72 (1.800)

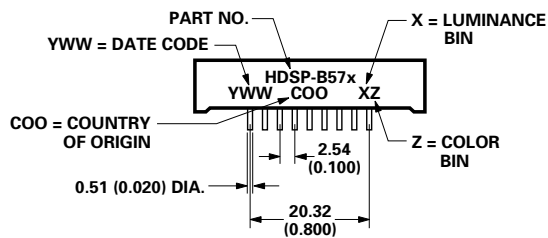
7.62 (0.300)

Ø 5.0 (0.197) x 35

PIN 1

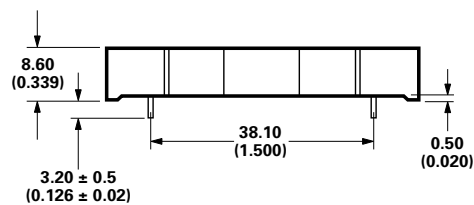
38.40 (1.516)

	COL 1	2	3	4	5
ROW 1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



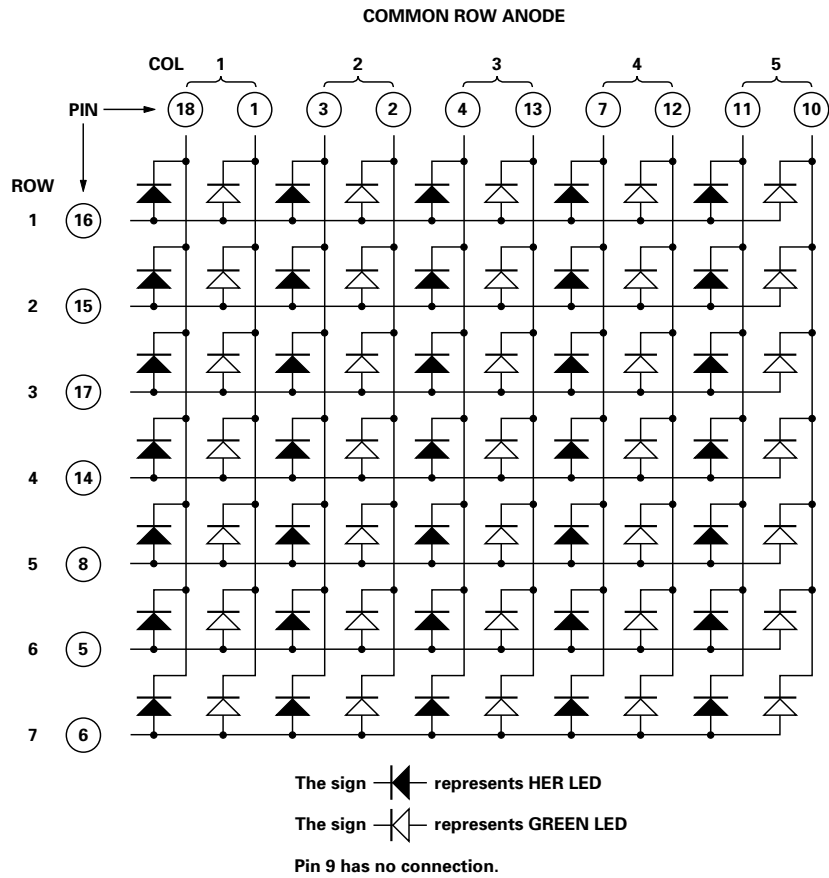
**NOTES:**

1. UNLESS OTHERWISE STATED, TOLERANCE IS  $\pm 0.25$  mm.  
2. DIMENSIONS IN MILLIMETERS (INCHES).

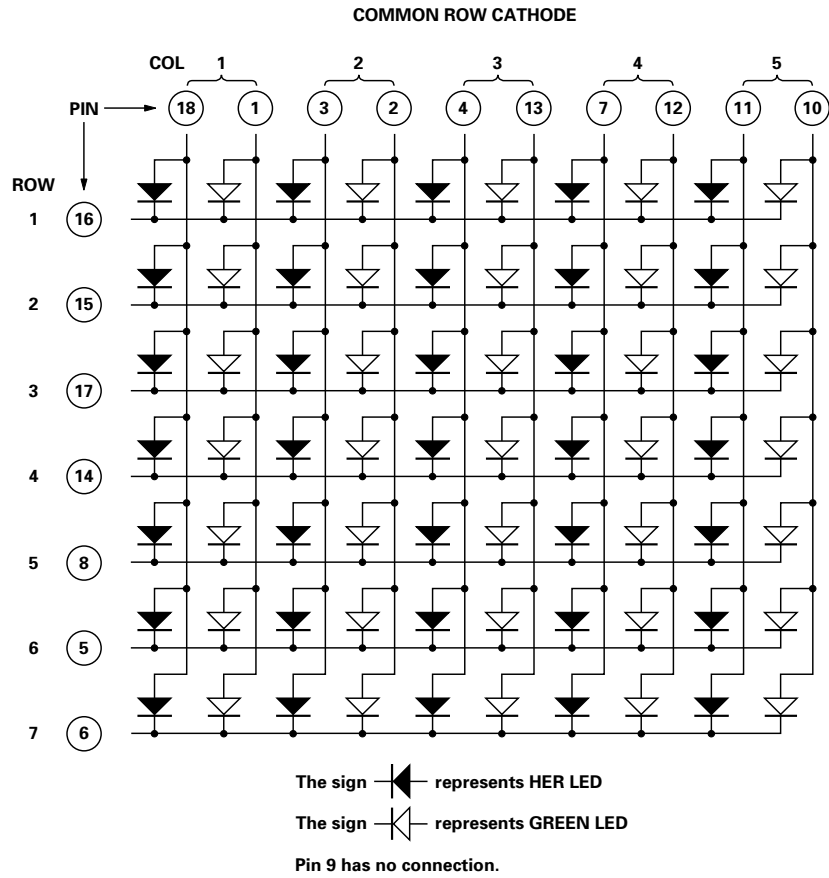


Device Selection Guide

	Description
HDSP-B571	Common Row Anode
HDSP-B573	Common Row Cathode



PIN	FUNCTION	PIN	FUNCTION
1	COLUMN 1 GREEN CATHODE	10	COLUMN 5 GREEN CATHODE
2	COLUMN 2 GREEN CATHODE	11	COLUMN 5 HER CATHODE
3	COLUMN 2 HER CATHODE	12	COLUMN 4 GREEN CATHODE
4	COLUMN 3 HER CATHODE	13	COLUMN 3 GREEN CATHODE
5	ROW 6 ANODE	14	ROW 4 ANODE
6	ROW 7 ANODE	15	ROW 2 ANODE
7	COLUMN 4 HER CATHODE	16	ROW 1 ANODE
8	ROW 5 ANODE	17	ROW 3 ANODE
9	NO CONNECTION	18	COLUMN 1 HER CATHODE



PIN	FUNCTION	PIN	FUNCTION
1	COLUMN 1 GREEN ANODE	10	COLUMN 5 GREEN ANODE
2	COLUMN 2 GREEN ANODE	11	COLUMN 5 HER ANODE
3	COLUMN 2 HER ANODE	12	COLUMN 4 GREEN ANODE
4	COLUMN 3 HER ANODE	13	COLUMN 3 GREEN ANODE
5	ROW 6 CATHODE	14	ROW 4 CATHODE
6	ROW 7 CATHODE	15	ROW 2 CATHODE
7	COLUMN 4 HER ANODE	16	ROW 1 CATHODE
8	ROW 5 CATHODE	17	ROW 3 CATHODE
9	NO CONNECTION	18	COLUMN 1 HER ANODE

## Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$

Parameter	Symbol	Green	High Efficiency Red (HER)	Units
Power Dissipation per Dot	$P_D$	65	65	mW
Peak Forward Current per Dot <sup>[1, 2]</sup>	$I_{PEAK}$	80	80	mA
Average Forward Current per Dot	$I_F \text{ AVG}$	25 <sup>[3]</sup>	25 <sup>[4]</sup>	mA
Reverse Voltage per Dot	$V_R$	5	5	V
Operating Temperature	$T_O$	-35 to +85	-35 to +85	$^\circ\text{C}$
Storage Temperature	$T_S$	-35 to +85	-35 to +85	$^\circ\text{C}$
Soldering Conditions (2 mm [0.079 in.] below seating plane)	Temperature Time	260 3	260 3	$^\circ\text{C}$ s

### Notes:

1. Do not exceed maximum average current per dot.
2. Maximum peak forward current stated at 1/8 duty factor, 10 kHz.
3. Derate above  $25^\circ\text{C}$  at 0.33 mA/ $^\circ\text{C}$  for green color.
4. Derate above  $25^\circ\text{C}$  at 0.20 mA/ $^\circ\text{C}$  for high efficiency red color.

## Optical/Electrical Characteristics

$T_A = 25^\circ\text{C}$

Parameter	Symbol	Color	Min.	Typ.	Max.	Units	Test Conditions
Forward Voltage per Dot	$V_F$	Green HER	1.8	2.25 2.05	2.6 2.6	V	$I_F = 20 \text{ mA}$
Reverse Current per Dot	$I_R$	Green HER			100 100	$\mu\text{A}$	$V_R = 5 \text{ V}$
Luminance per Dot <sup>[1]</sup>	$I_V$	Green HER		130 130		Cd/m <sup>2</sup> (nits)	$I_{FP} = 40 \text{ mA}$ 1/8 Duty Factor
Peak Wavelength per Dot	$\lambda_P$	Green HER		568 632		nm	$I_F = 20 \text{ mA}$
Dominant Wavelength per Dot <sup>[2]</sup>	$\lambda_D$	Green HER		573 622		nm	$I_F = 20 \text{ mA}$
Spectral Line Half Width per Dot	$\Delta\lambda$	Green HER		30 35		nm	$I_F = 20 \text{ mA}$

**Notes:**

1) Units to be binned into the following Luminance bins:

Both Green and High Efficiency Red (HER) are lighted Green: $I_F = 40$ mA at 1/8 Duty Factor HER: $I_F = 40$ mA at 1/8 Duty Factor		
Bin	Min. (cd/m <sup>2</sup> or nit)	Max. (cd/m <sup>2</sup> or nit)
F	86.0	104.0
G	104.0	124.0
H	124.0	149.0
I	149.0	179.0
J	179.0	215.0

2) Units to be binned into the following color coordinate bins below.  
(Based on CIE 1931 Chromaticity Coordinates.)

Color Coordinates		
Bin	X	Y
4	0.542 to 0.553	0.445 to 0.456
5	0.552 to 0.563	0.435 to 0.446
6	0.562 to 0.573	0.425 to 0.436
7	0.572 to 0.583	0.415 to 0.426
8	0.582 to 0.593	0.405 to 0.416

**Contrast Enhancement**

For information on contrast enhancement, please see Application Note 1015.

**Soldering/Cleaning**

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

**Device Reliability**

For reliability information, please see the reliability data sheet 5 x 7 Bi-Color General Purpose Dot Matrix Displays.

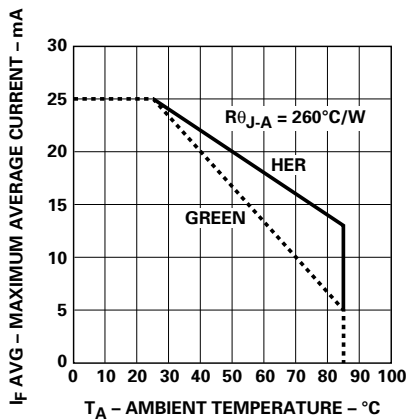


Figure 1. Maximum Allowable Average Current per Dot vs. Ambient Temperature.

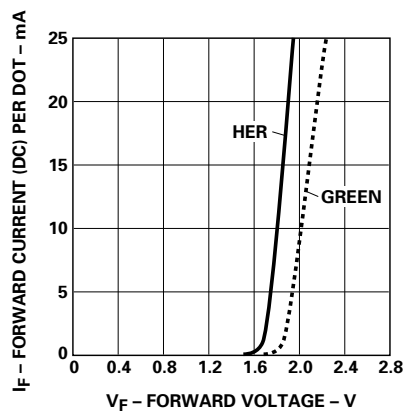


Figure 2. Forward Current (DC) vs. Forward Voltage.

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