HDSP-C1x1/C1x3

1.0" Single Digit PCB Based LED Display

Data Sheet

Description

This is 1.0" height single digit display. It utilizes GaAsP/GaP Red, Orange, Yellow, Green and AlGaAs/GaAs Red chips. This device is halogenated.

All devices are categorized for luminous intensity. The orange, yellow and green devices are categorized for color. Use of similar device categories will yield a uniform display.

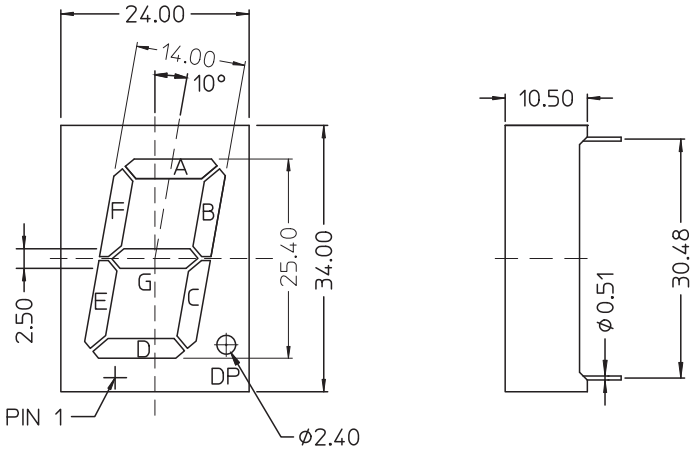
Features

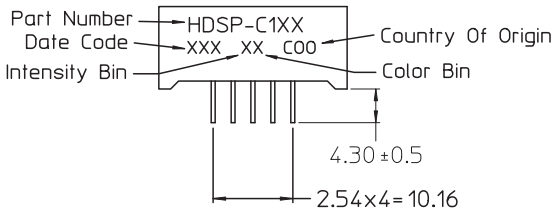
- High reliability
- Excellent characters appearance
- Available in CA and CC
- RoHS Compliant
- Gray top surface with white diffused segments.

Ordering Information

Red	Green	Yellow	Orange	AlGaAs Red	Description
HDSP-C1E1	HDSP-C1G1	HDSP-C1Y1	HDSP-C1L1	HDSP-C1A1	Common Anode, Right Hand Decimal
HDSP-C1E3	HDSP-C1G3	HDSP-C1Y3	HDSP-C1L3	HDSP-C1A3	Common Cathode, Right Hand Decimal

Package Dimensions

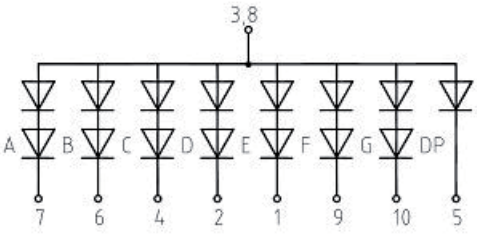




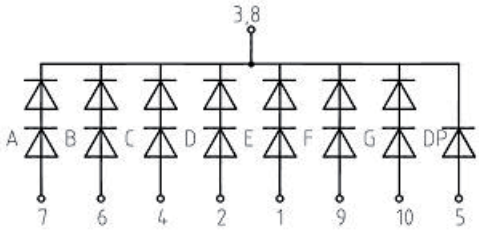
Notes:
1. All dimensions are in millimeter.
2. Unless otherwise stated, the tolerance is ± 0.25mm.

Circuit Diagram

Common Anode



Common Cathode



Absolute Maximum Ratings at $T_A = 25°C$

Parameter	Symbol	Red/Yellow/ Orange	Green	AlGaAs Red	Units
Power Dissipation per segment/Dot Point (DP)	P_D	115/57.5	125/62.5	100/50	mW
Continuous Forward Current per segment or DP	I_F	25	25	25	mA
Peak Forward Current per segment (1/10 Duty Cycle, 0.1m sec pulse width)		80	80	80	mA
Derating Linearly from 25°C per segment		0.33	0.33	0.33	mA/°C
Reverse Voltage per segment/DP	V_R		10/5		V
Operating Temperature	T_O		-40 to 85		°C
Storage Temperature	T_S		-40 to 85		°C
Wave solder Condition 1.6mm below body			260°C peak for 5 secs max		

Electrical / Optical Characteristic at $T_A = 25°C$

Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	12	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	640	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	626	–	nm	I_F = 20mA
Forward Voltage per segment/DP	V_F	–	4.0/2.0	4.6/2.3	V	I_F = 20mA
Reverse Current per segment/DP	I_R	–	–	100	µA	V_R = 10V/5V (DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I_{v-M}		2:1			I_F = 10mA

Green

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	16	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	565	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	569	–	nm	I_F = 20mA
Forward Voltage per segment/DP	V_F	–	4.5/2.25	5.0/2.5	V	I_F = 20mA
Reverse Current per segment/DP	I_R	–	–	100	µA	V_R = 10V/5V (DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I_{v-M}		2:1			I_F = 10mA

Yellow

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	6.9	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	587	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	589	–	nm	I_F = 20mA
Forward Voltage per segment/DP	V_F	–	4.3/2.15	4.6/2.3	V	I_F = 20mA
Reverse Current per segment/DP	I_R	–	–	100	µA	V_R = 10V/5V (DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I_{v-M}		2:1			I_F = 10mA

Orange

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	12.1	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	610	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	605	–	nm	I_F = 20mA
Forward Voltage per segment/DP	V_F	–	4.3/2.15	4.6/2.3	V	I_F = 20mA
Reverse Current per segment/DP	I_R	–	–	100	µA	V_R = 10V/5V (DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I_{v-M}		2:1			I_F = 10mA

AlGaAs Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	42	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	660	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	643	–	nm	I_F = 20mA
Forward Voltage per segmen/DP	V_F	–	3.7/1.85	4.0/2.0	V	I_F = 20mA
Reverse Current per segment/DP	I_R	–	–	100	µA	V_R = 10V/5V (DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I_{v-M}		2:1			I_F = 10mA

Red

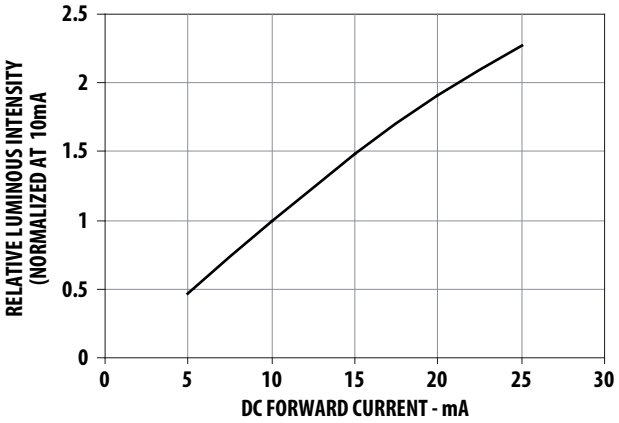


Figure 1. Relative Luminous Intensity Vs Forward Current

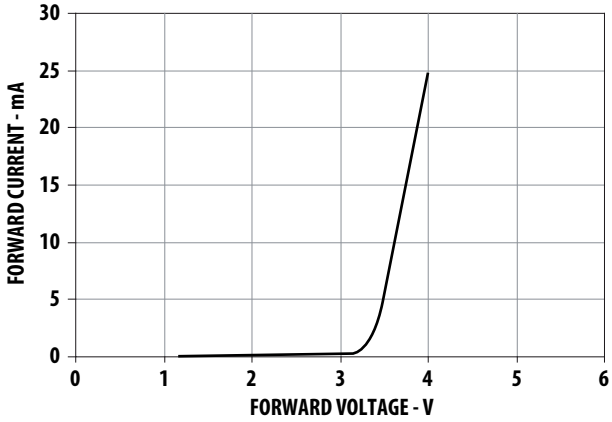


Figure 2. Forward Voltage Vs Current (Segment)

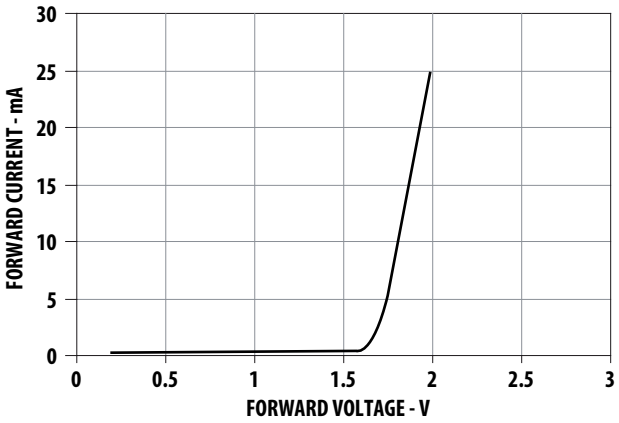


Figure 3. Forward Voltage Vs Current (DP)

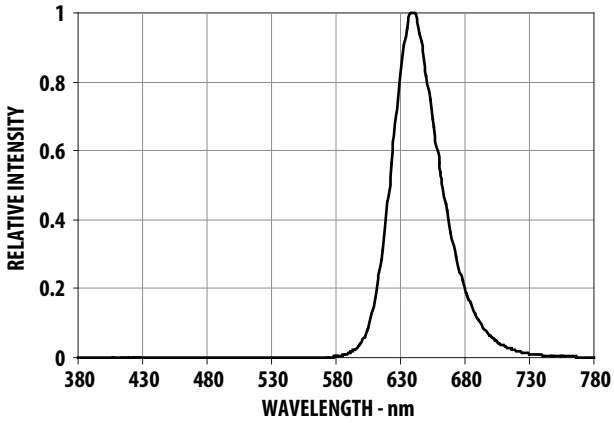


Figure 4. Relative Luminous Intensity Vs Wavelength

Green

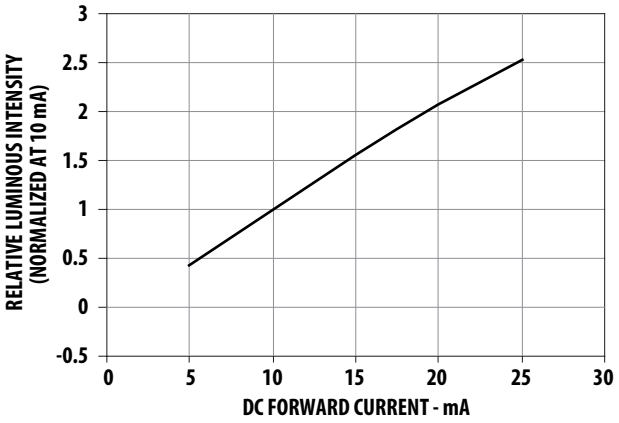


Figure 5. Relative Luminous Intensity Vs Forward Current

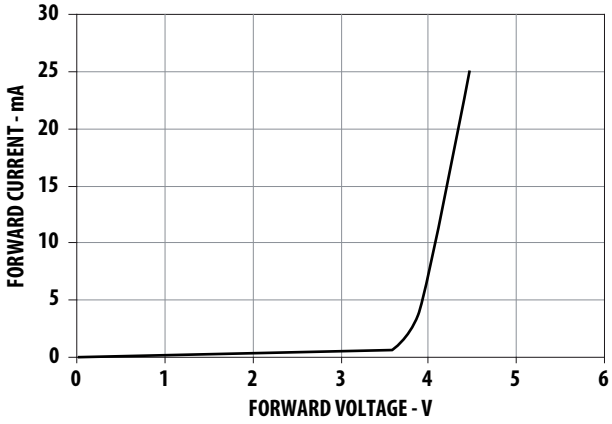


Figure 6. Forward Voltage Vs Current (Segment)

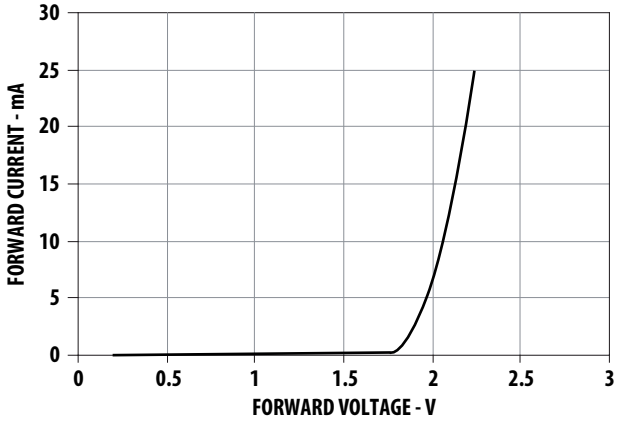


Figure 7. Forward Voltage Vs Current (DP)

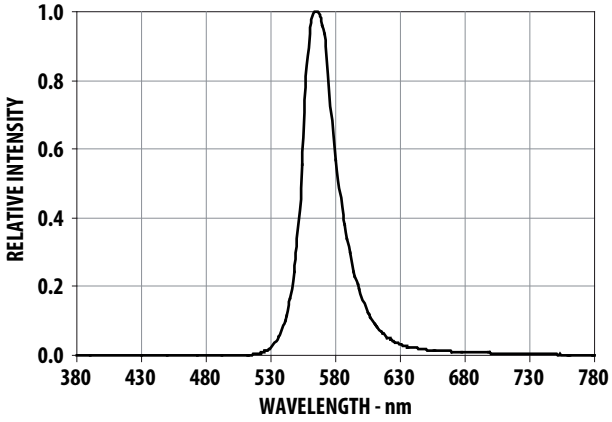


Figure 8. Relative Luminous Intensity Vs Wavelength

Yellow

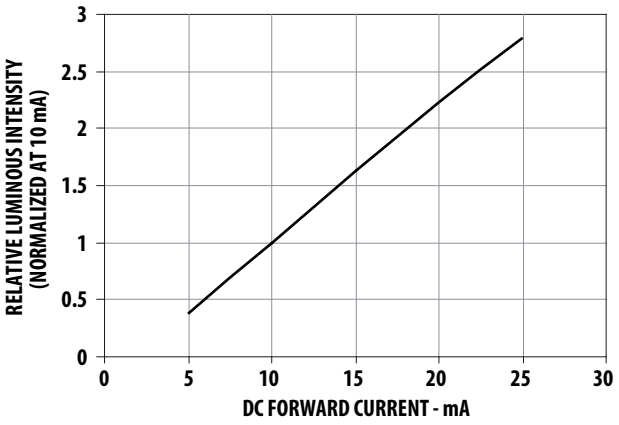


Figure 9. Relative Luminous Intensity Vs Forward Current

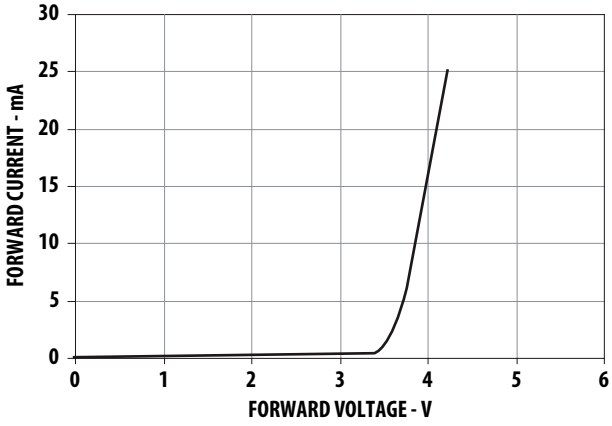


Figure 10. Forward Voltage Vs Current (Segment)

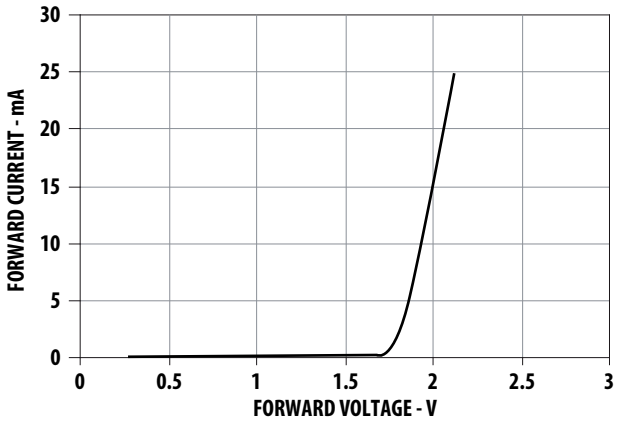


Figure 11. Forward Voltage Vs Current (DP)

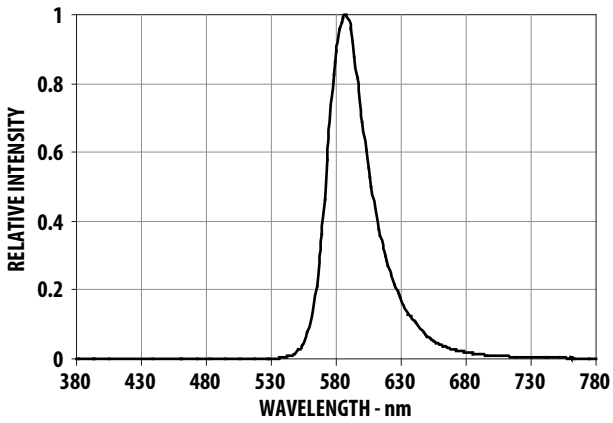


Figure 12. Relative Luminous Intensity Vs Wavelength

Orange

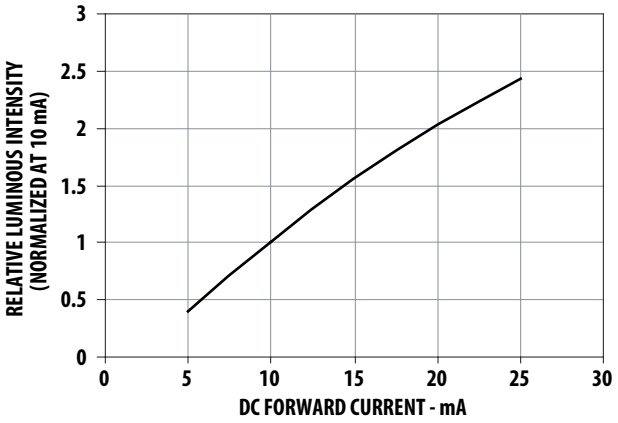


Figure 13. Relative Luminous Intensity Vs Forward Current

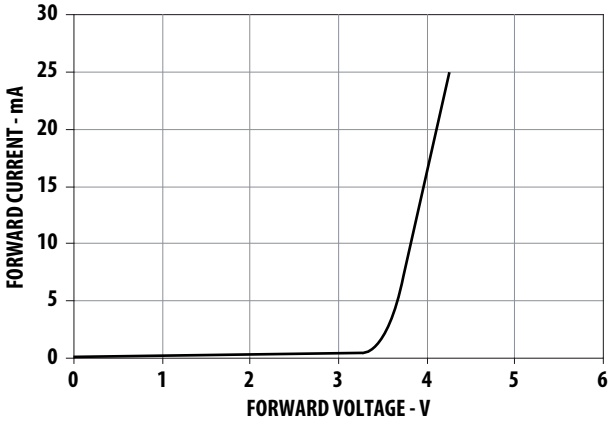


Figure 14. Forward Voltage Vs Current (Segment)

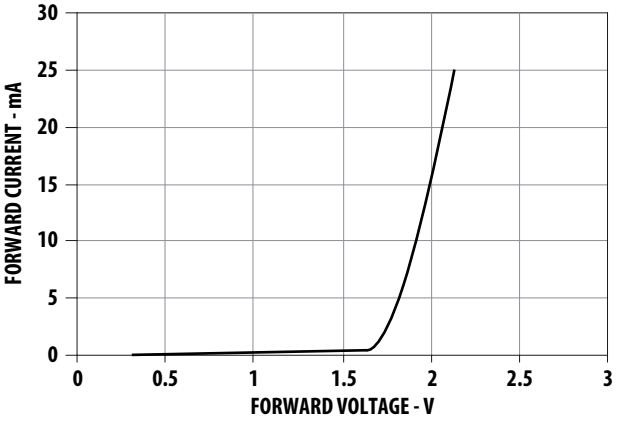


Figure 15. Forward Voltage Vs Current (DP)

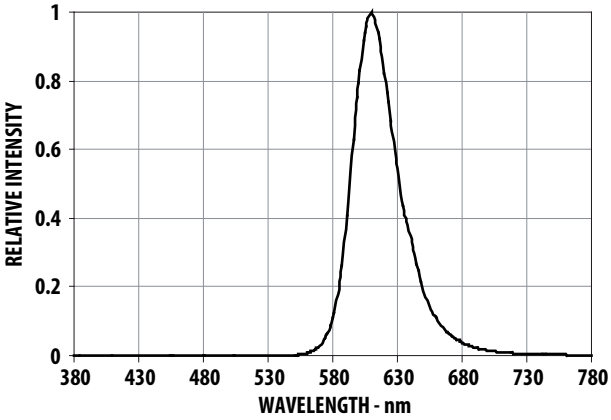


Figure 16. Relative Luminous Intensity Vs Wavelength

AlGaAs Red

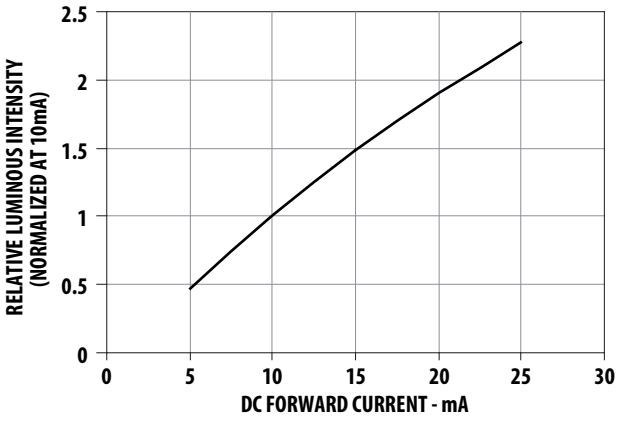


Figure 17. Relative Luminous Intensity Vs Forward Current

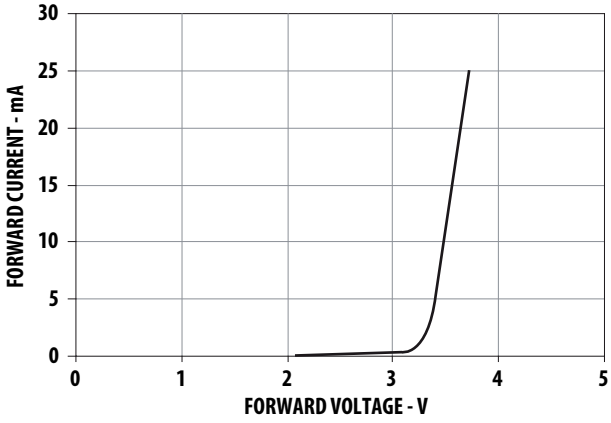


Figure 18. Forward Voltage Vs Current (Segment)

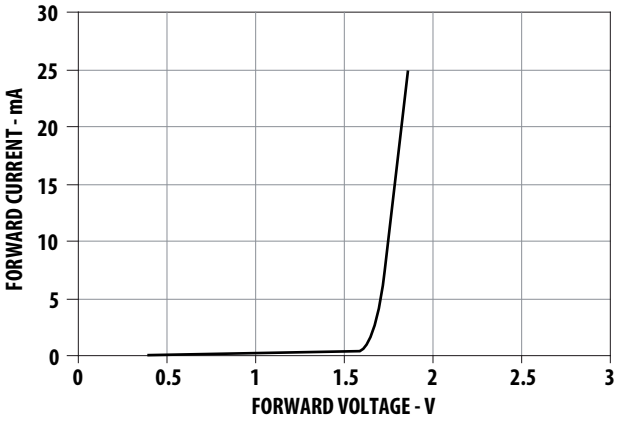


Figure 19. Forward Voltage Vs Current (DP)

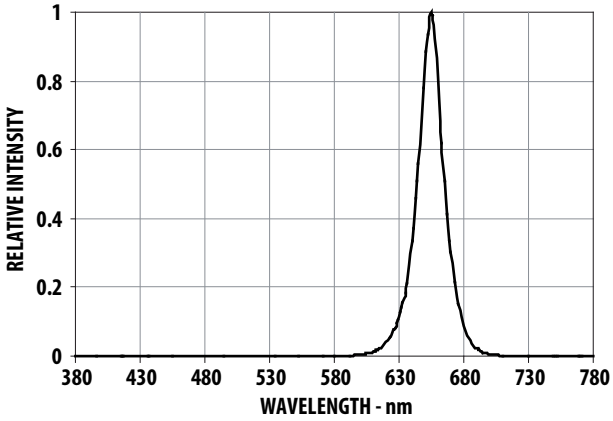
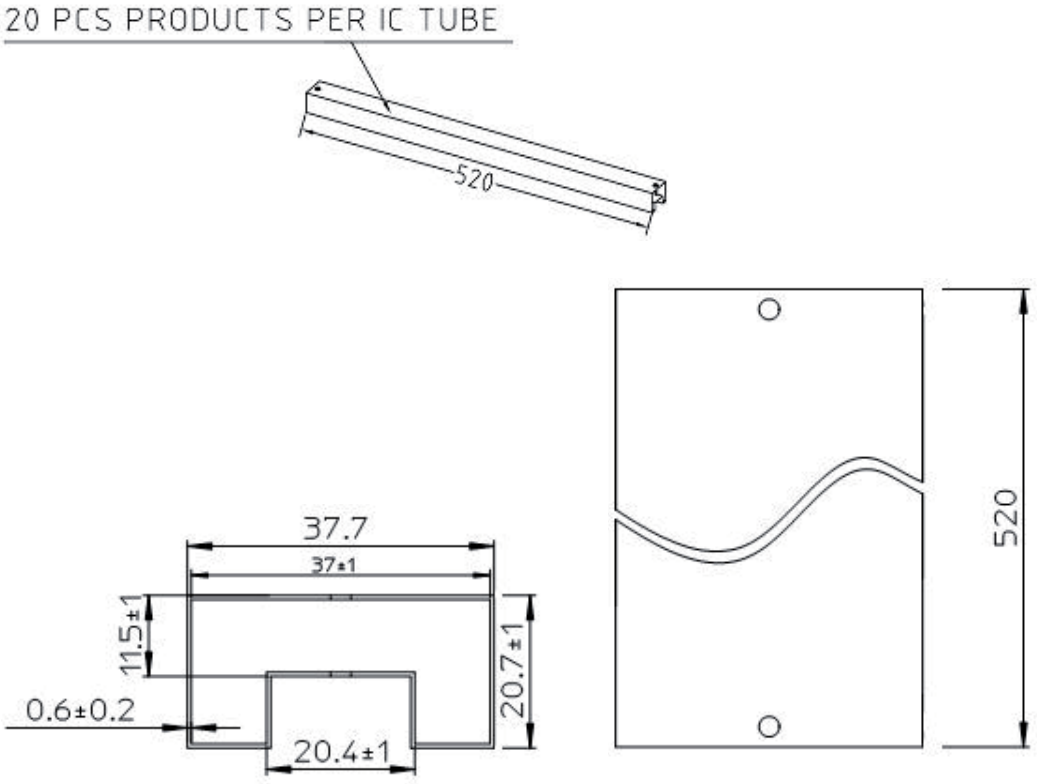


Figure 20. Relative Luminous Intensity Vs Wavelength

Packing Tube Specifications:



Tube Front View **Tube Top View**

Reference

For further information on soldering LEDs, please refer to Avago Technologies Application Note 1027.

For product information and a complete list of distributors, please go to our web site: **www.avagotech.com**

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