ADSP-H1x1/H1x3
1.0” Single Digit PCB Based LED Display

Datasheet

Description

This is 1.0” height single digit display. It utilizes AlInGaP Red, Orange, Yellow, Green and Deep 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.

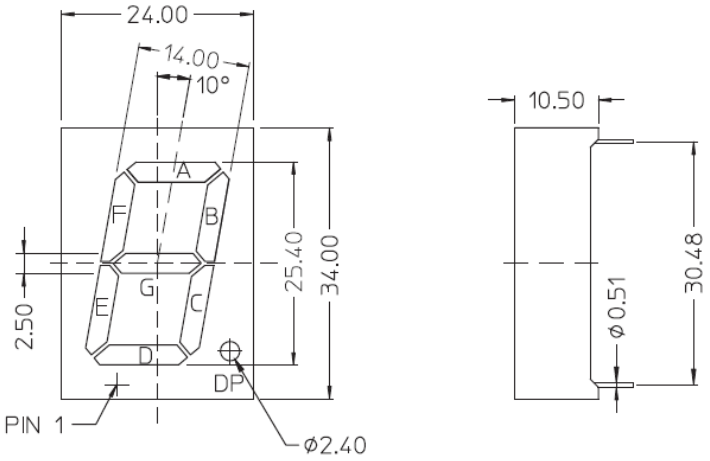
Features

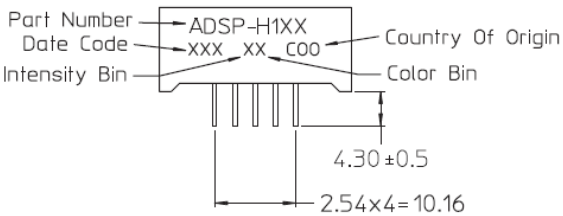
- High reliability
- Excellent characters appearance
- Available in CA and CC
- RoHS Compliant
- Gray top surface with white diffused segments.

Ordering Information

Red	Green	Yellow	Orange	Deep Red	Description
ADSP-H1E1	ADSP-H1G1	ADSP-H1Y1	ADSP-H1L1	ADSP-H1A1	Common Anode, Right Hand Decimal
ADSP-H1E3	ADSP-H1G3	ADSP-H1Y3	ADSP-H1L3	ADSP-H1A3	Common Cathode, Right Hand Decimal

Package Dimensions





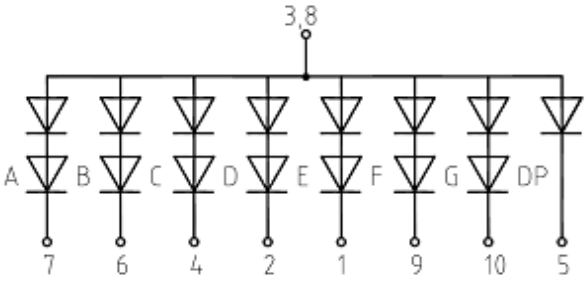
Notes:
1. All dimensions are in millimeter.
2. Unless otherwise stated, the tolerance is ± 0.25mm.

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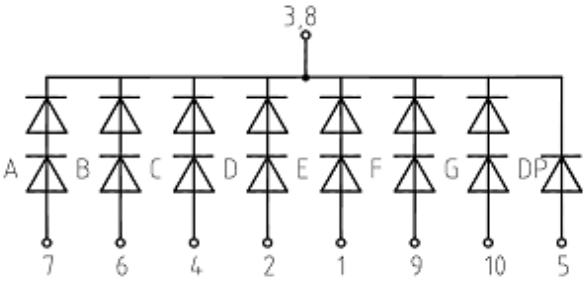
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Circuit Diagram

Common Anode



Common Cathode



Absolute Maximum Ratings at T_A = 25°C

Parameter	Symbol	Red/Yellow/ Orange/ Green/ Deep Red	Units
Power Dissipation per segment / Dot Point (DP)	P_D	104/52	mW
Continuous Forward Current per segment	I_F	20	mA
Peak Forward Current per segment (1/10 Duty Cycle, 0.1m sec pulse width)		100	mA
Derating Linearly from 25°C per segment		0.21	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 3 secs max	

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Electrical /Optical Characteristic at T_A = 25°C

Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	70	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	634	–	nm	I_F = 20mA
Dominant Wavelength	λd	–	625	–	nm	I_F = 20mA
Forward Voltage per segment / DP	V_F	–	4.0/2.0	5.2/2.6	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	–	25	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	570	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	571	–	nm	I_F = 20mA
Forward Voltage per segment / DP	V_F	–	4.0/2.0	5.2/2.6	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	–	60	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	592	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	587	–	nm	I_F = 20mA
Forward Voltage per segment / DP	V_F	–	4.0/2.0	5.2/2.6	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

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Orange

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	80	–	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	–	4.0/2.0	5.2/2.6	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

Deep Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I_v	–	70	–	mcd	I_F = 10mA
Peak Wavelength	λ_p	–	644	–	nm	I_F = 20mA
Dominant Wavelength	λ_d	–	635	–	nm	I_F = 20mA
Forward Voltage per segment / DP	V_F	–	4.0/2.0	5.2/2.6	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

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Red

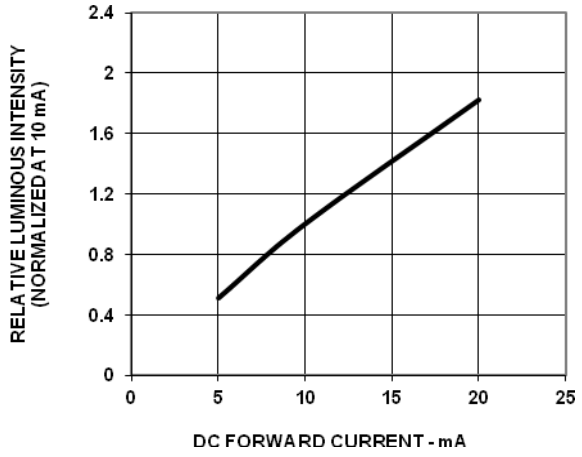


Fig 1: Relative Luminous Intensity Vs Forward Current

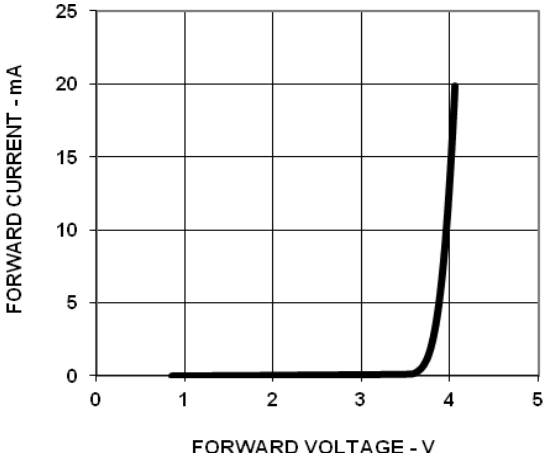


Fig 2: Forward Voltage Vs Current (Segment)

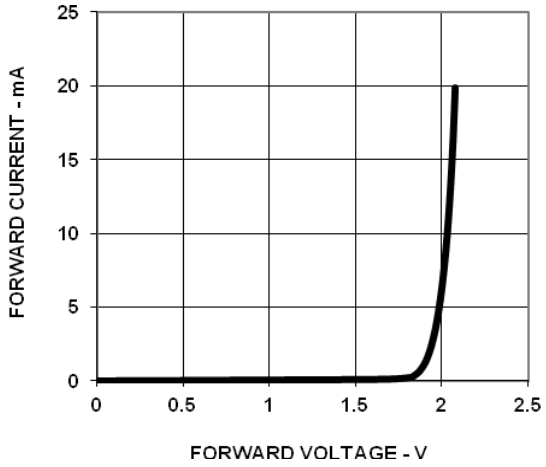


Fig 3: Forward Voltage Vs Current (DP)

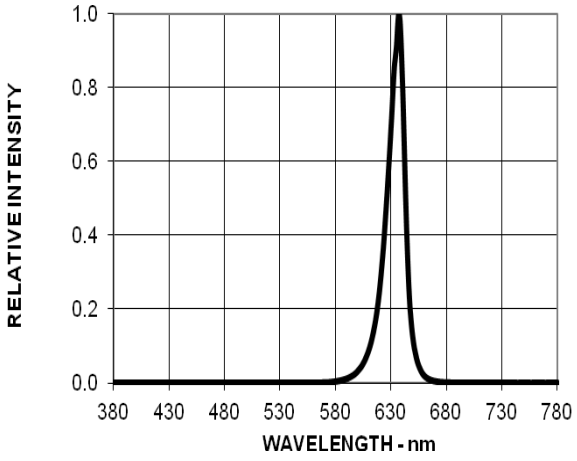


Fig 4: Relative Luminous Intensity Vs Wavelength

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Green

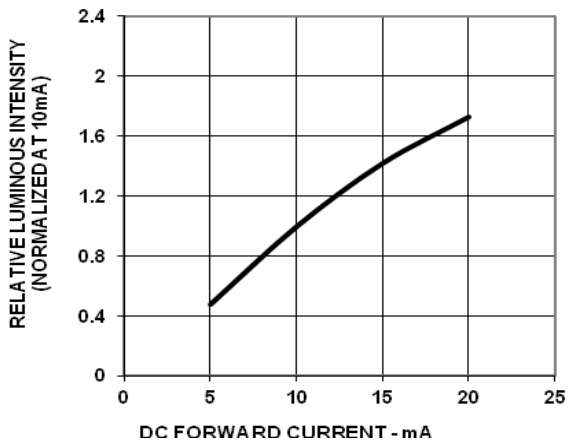


Fig 1: Relative Luminous Intensity Vs Forward Current

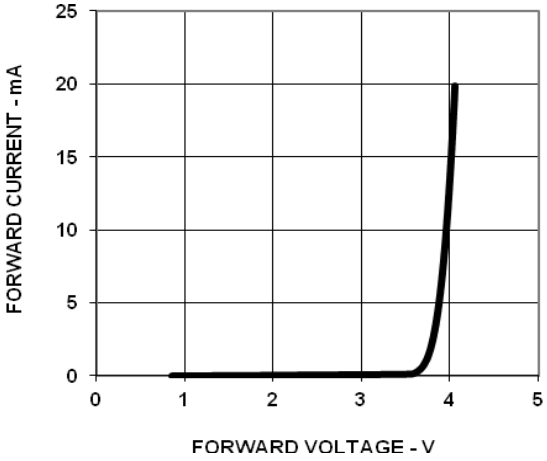


Fig 2: Forward Voltage Vs Current (Segment)

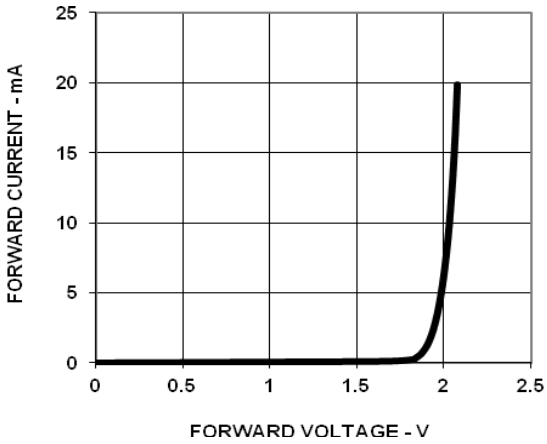


Fig 3: Forward Voltage Vs Current (DP)

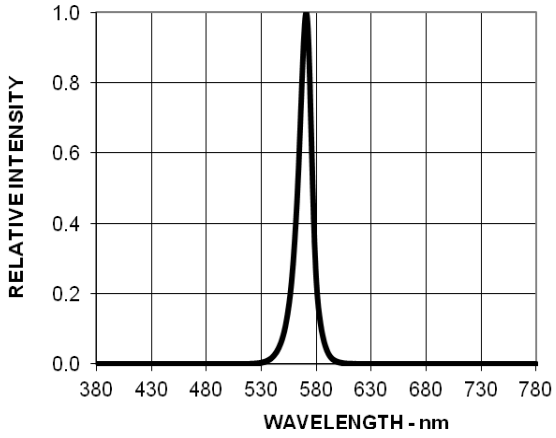


Fig 4: Relative Luminous Intensity Vs Wavelength

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Yellow

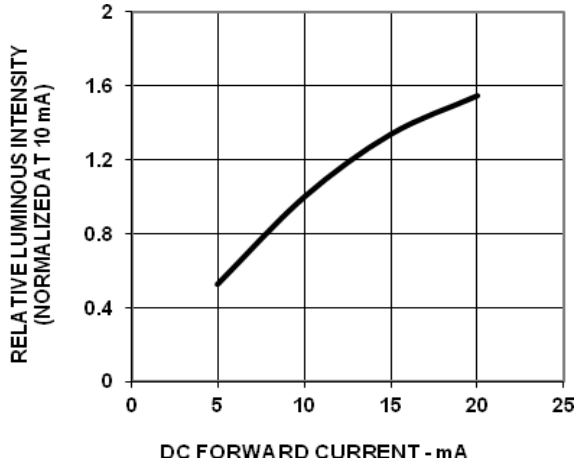


Fig 1: Relative Luminous Intensity Vs Forward Current

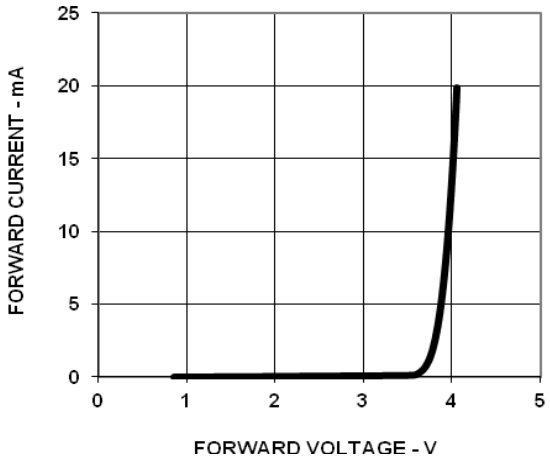


Fig 2: Forward Voltage Vs Current(Segment)

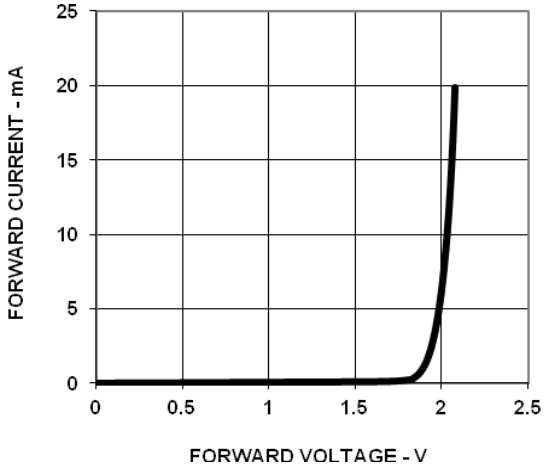


Fig 3: Forward Voltage Vs Current (DP)

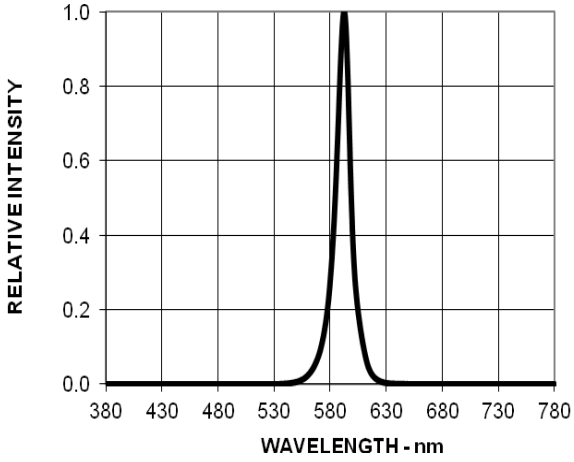


Fig 4: Relative Luminous Intensity Vs Wavelength

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Orange

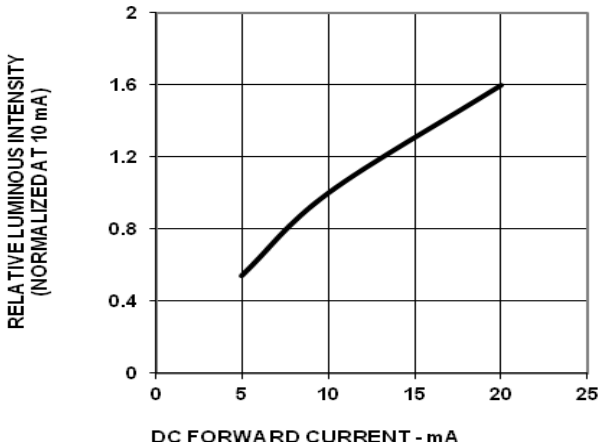


Fig 1: Relative Luminous Intensity Vs Forward Current

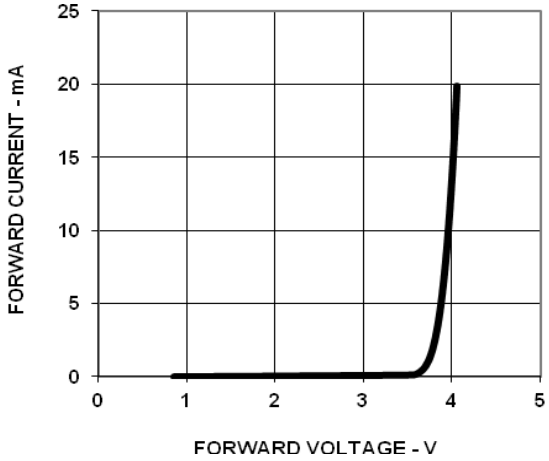


Fig 2: Forward Voltage Vs Current (Segment)

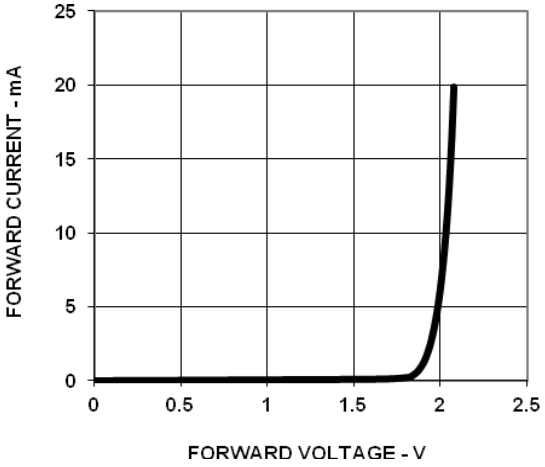


Fig 3: Forward Voltage Vs Current (DP)

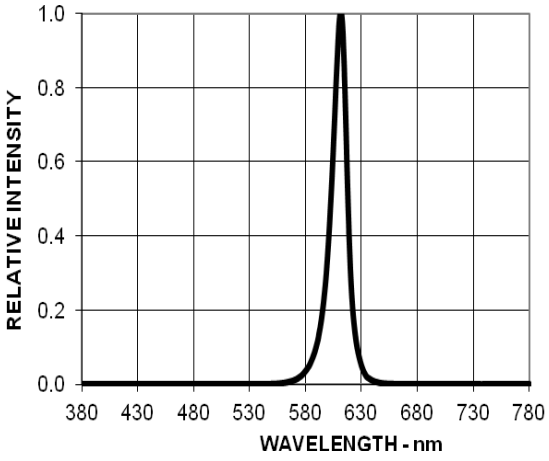


Fig 4: Relative Luminous Intensity Vs Wavelength

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Deep Red

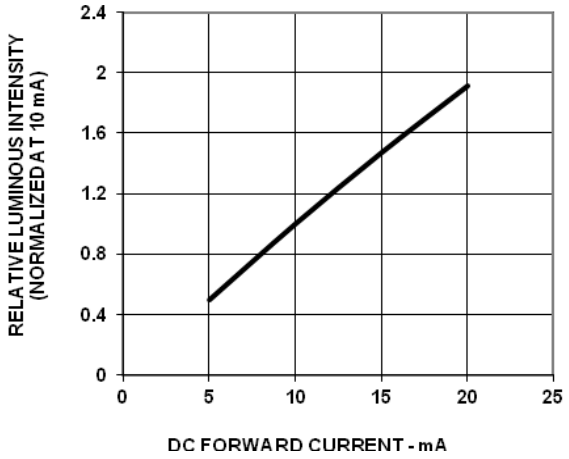


Fig 1: Relative Luminous Intensity Vs Forward Current

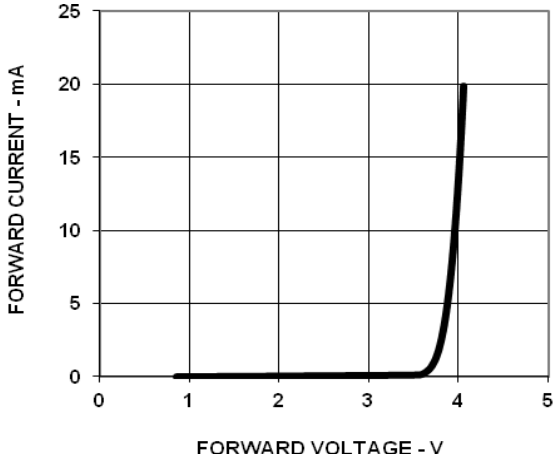


Fig 2: Forward Voltage Vs Current (Segment)

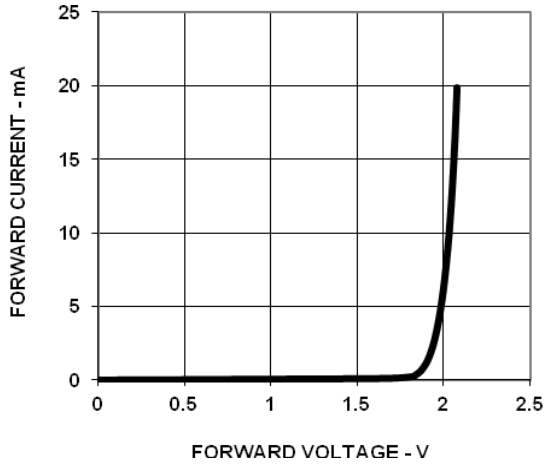


Fig 3: Forward Voltage Vs Current (DP)

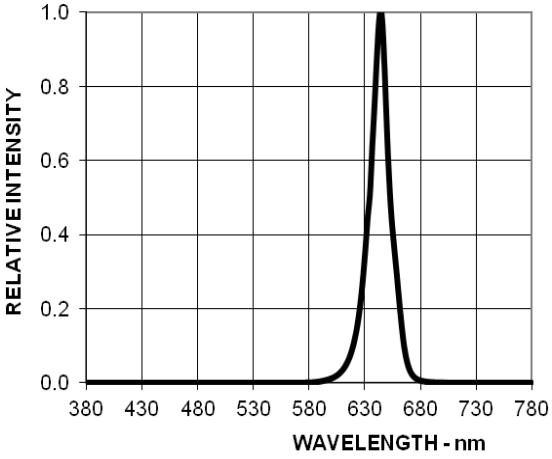
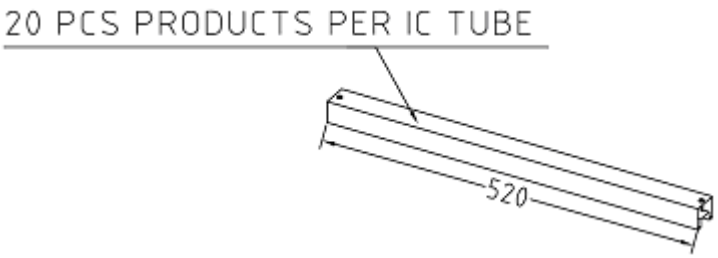


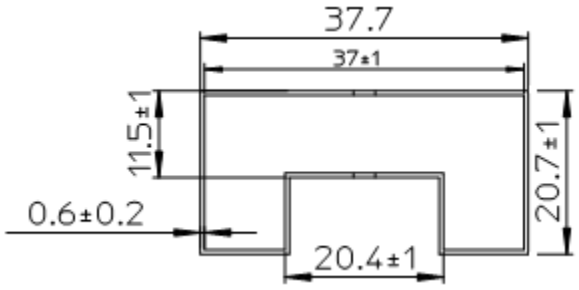
Fig 4: Relative Luminous Intensity Vs Wavelength

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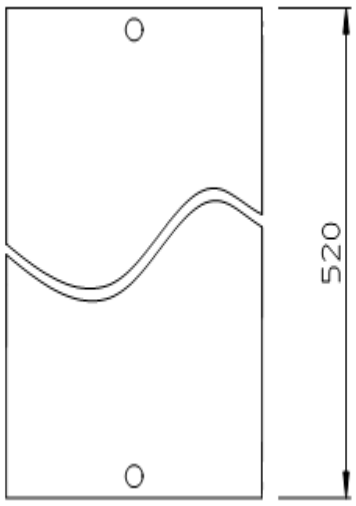
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Packing Tube Specifications:





Tube Front View



Tube Top View

Reference

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

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