



element14

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[HDSP-C2G1](#)

[HDSP-C2A3](#)

[HDSP-C2L3](#)

[HDSP-C2E1](#)

[HDSP-C2G3](#)

[HDSP-C2Y3](#)

[HDSP-C2E3](#)

[HDSP-C2L1](#)

[HDSP-C2A1](#)

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**DE**

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Hersteller bereitgestellt

**FR**

Cette fiche technique est  
présentée par le fabricant

# HDSP-C2x1/C2x3

## 2.3" Single Digit PCB Based LED Display



### Data Sheet

#### Description

This is a 2.3" height single digit display. It utilizes GaAsP/ GaP Red, Orange, Yellow, Green and AlGaAs/GaAs Red chips. This device is halogenated.

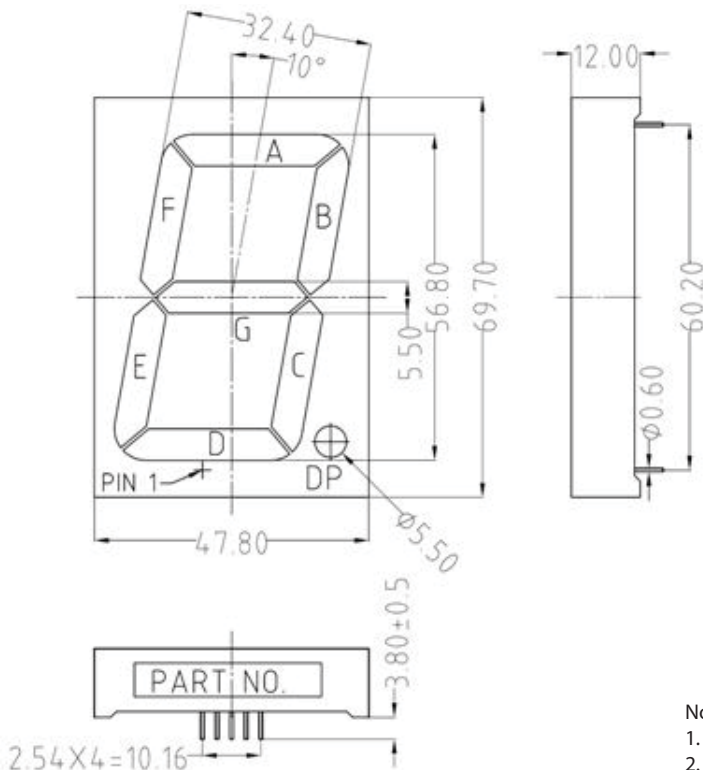
#### Features

- 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-C2E1	HDSP-C2G1	HDSP-C2Y1	HDSP-C2L1	HDSP-C2A1	Common Anode, Right Hand Decimal
HDSP-C2E3	HDSP-C2G3	HDSP-C2Y3	HDSP-C2L3	HDSP-C2A3	Common Cathode, Right Hand Decimal

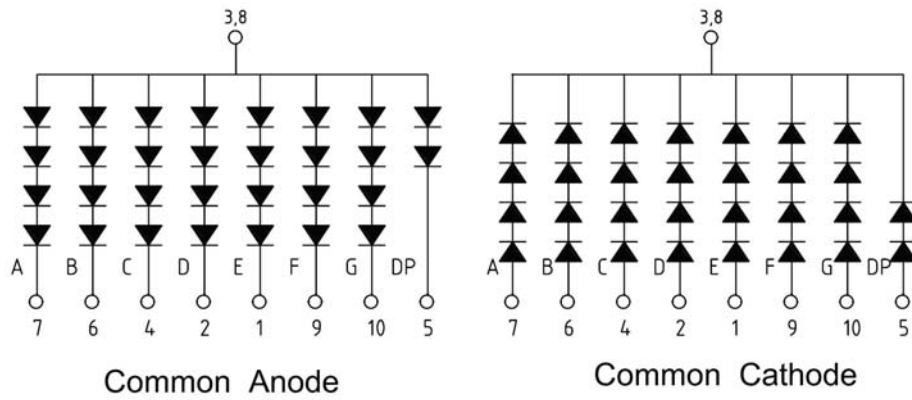
#### Package Dimensions



#### Notes:

1. All dimensions are in millimeter.
2. Unless otherwise stated, the tolerance is  $\pm 0.25$ mm.

## Circuit Diagram



### Absolute Maximum Ratings at $T_A = 25^\circ\text{C}$

Parameter	Symbol	Red/Yellow/ Orange	Green	AlGaAs Red	Units
Power Dissipation per segment/Dot Point (DP)	$P_D$	230/115	250/125	200/100	mW
Continuous Forward Current per segment or DP	$I_F$	25	25	25	mA
Derating Linearly from $25^\circ\text{C}$ per segment		0.33	0.33	0.33	mA/ $^\circ\text{C}$
Reverse Voltage per segment/DP	$V_R$		20/10		V
Operating Temperature	$T_O$		-40 to 85		$^\circ\text{C}$
Storage Temperature	$T_S$		-40 to 85		$^\circ\text{C}$
Wave solder Condition 1.6mm below body			250 $^\circ\text{C}$ peak for 3 secs max		

**Electrical / Optical Characteristic at  $T_A = 25^\circ\text{C}$** **Red**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	–	20	–	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_p$	–	640	–	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_d$	–	626	–	nm	$I_F = 20\text{mA}$
Forward Voltage per segment/DP	$V_F$	–	8.0/4.0	9.2/4.6	V	$I_F = 20\text{mA}$
Reverse Current per segment/DP	$I_R$	–	–	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V (DP)}$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

**Green**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	–	28	–	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_p$	–	565	–	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_d$	–	569	–	nm	$I_F = 20\text{mA}$
Forward Voltage per segment/DP	$V_F$	–	9.0/4.5	10/5	V	$I_F = 20\text{mA}$
Reverse Current per segment/DP	$I_R$	–	–	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V (DP)}$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

**Yellow**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	–	12	–	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_p$	–	587	–	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_d$	–	589	–	nm	$I_F = 20\text{mA}$
Forward Voltage per segment/DP	$V_F$	–	8.6/4.3	9.2/4.6	V	$I_F = 20\text{mA}$
Reverse Current per segment/DP	$I_R$	–	–	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V (DP)}$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

## Orange

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	–	20	–	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_p$	–	610	–	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_d$	–	605	–	nm	$I_F = 20\text{mA}$
Forward Voltage per segment/DP	$V_F$	–	8.6/4.3	9.2/4.6	V	$I_F = 20\text{mA}$
Reverse Current per segment/DP	$I_R$	–	–	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V (DP)}$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

## AlGaAs Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	–	78	–	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_p$	–	660	–	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_d$	–	643	–	nm	$I_F = 20\text{mA}$
Forward Voltage for segment/DP	$V_F$	–	7.4/3.7	8.0/4.0	V	$I_F = 20\text{mA}$
Reverse Current per segment/DP	$I_R$	–	–	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V (DP)}$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

## Red

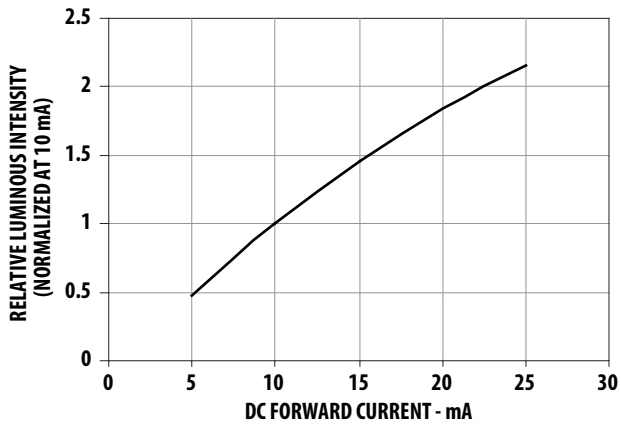


Figure 1. Relative Luminous Intensity Vs Forward Current

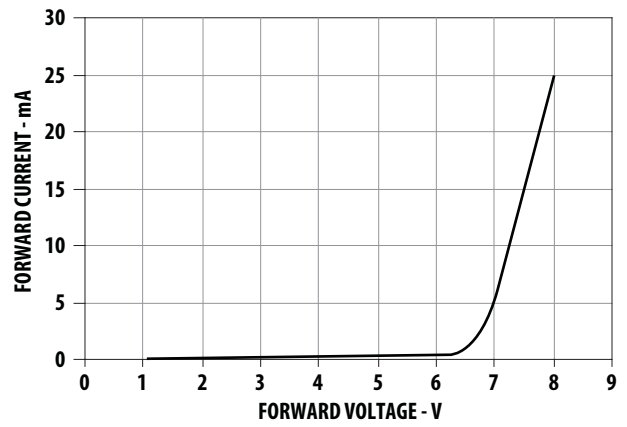


Figure 2. Forward Voltage Vs Current (Segment)

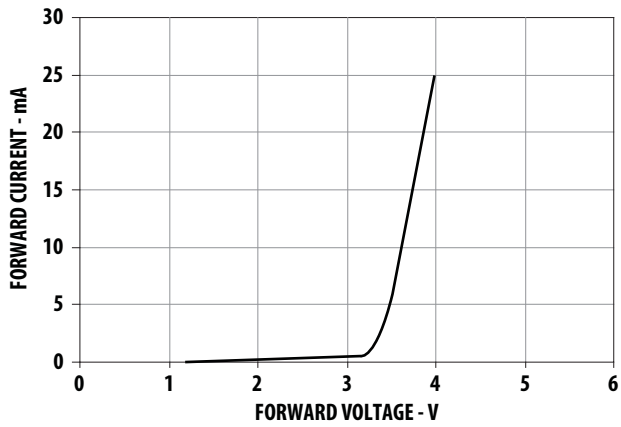


Figure 3. Forward Voltage Vs Current (DP)

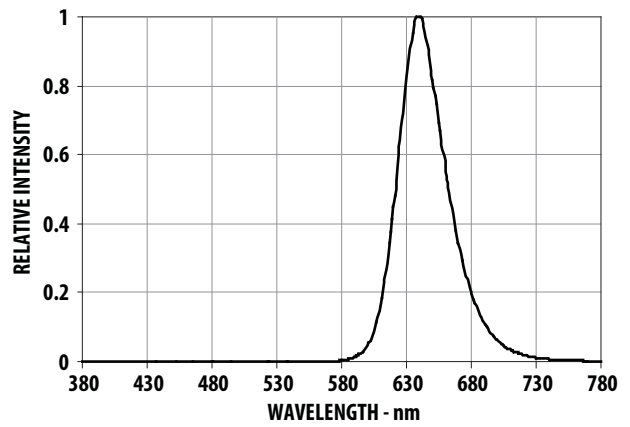


Figure 4. Relative Luminous Intensity Vs Wavelength

## Green

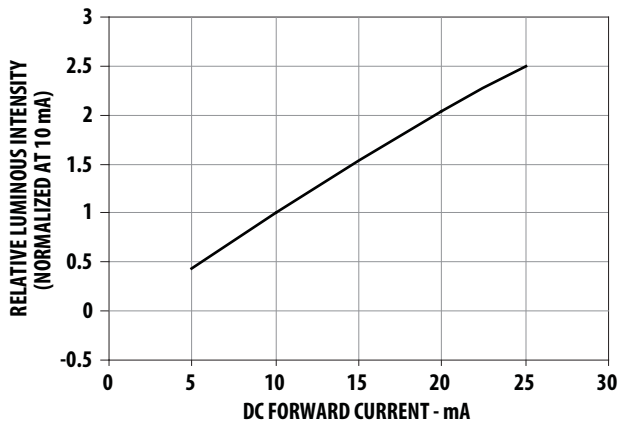


Figure 5. Relative Luminous Intensity Vs Forward Current

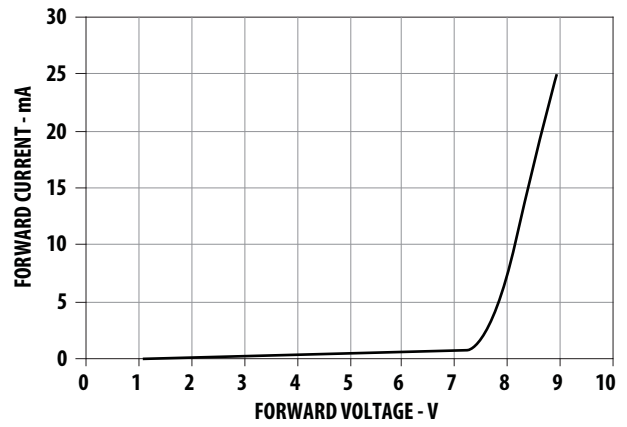


Figure 6. Forward Voltage Vs Current (Segment)

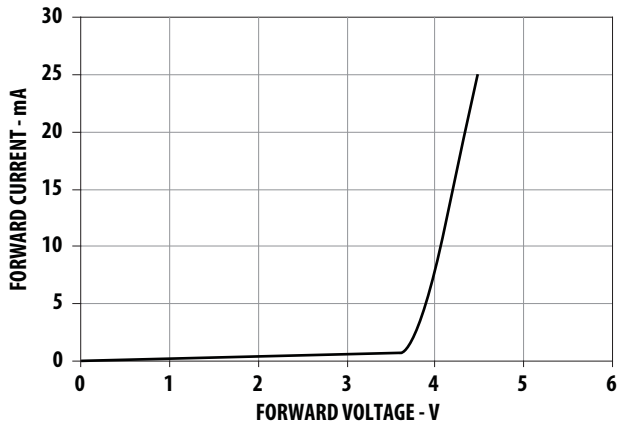


Figure 7. Forward Voltage Vs Current (DP)

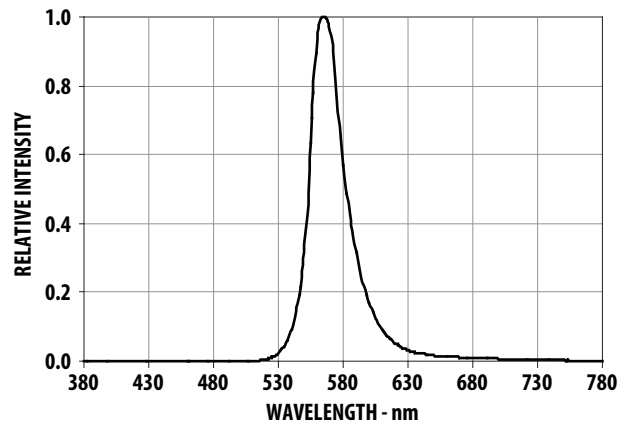


Figure 8. Relative Luminous Intensity Vs Wavelength

## Yellow

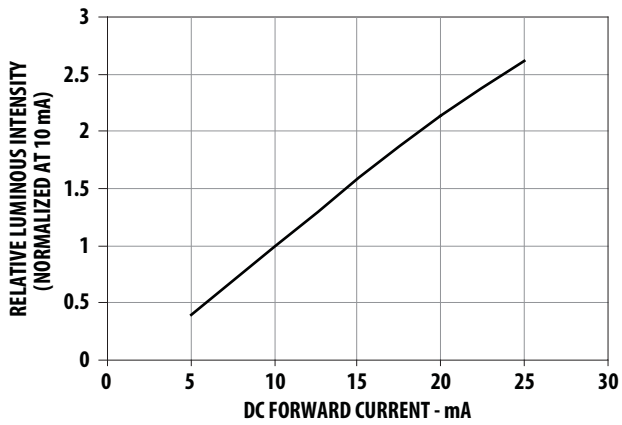


Figure 9. Relative Luminous Intensity Vs Forward Current

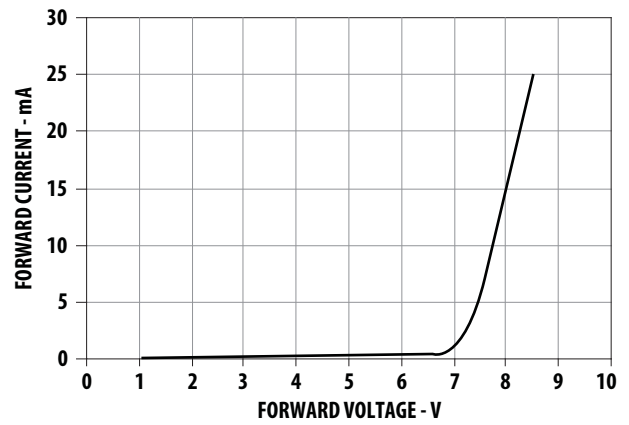


Figure 10. Forward Voltage Vs Current (Segment)

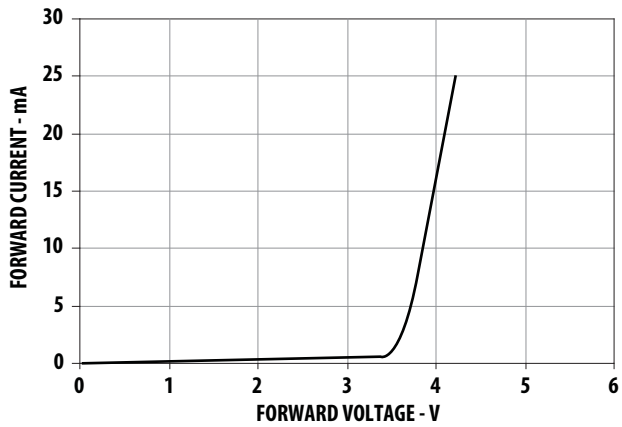


Figure 11. Forward Voltage Vs Current (DP)

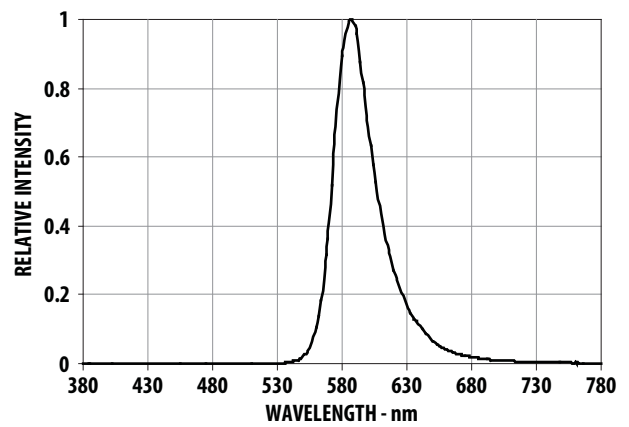


Figure 12. Relative Luminous Intensity Vs Wavelength



## Orange

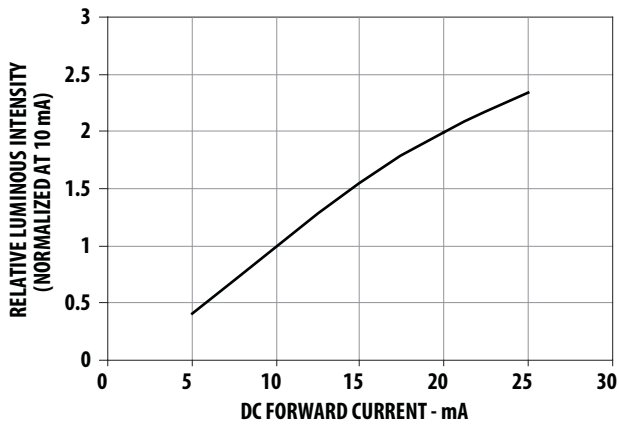


Figure 13. Relative Luminous Intensity Vs Forward Current

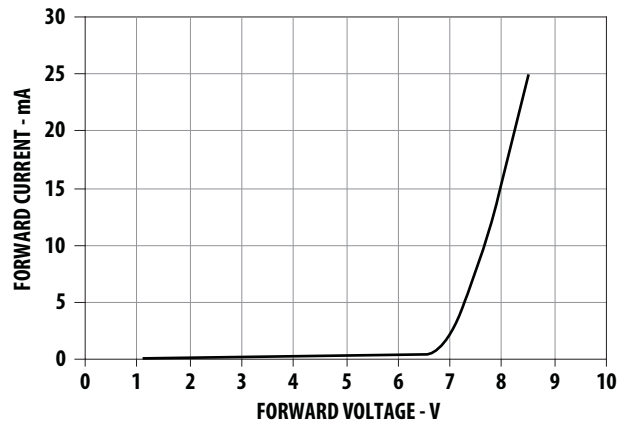


Figure 14. Forward Voltage Vs Current (Segment)

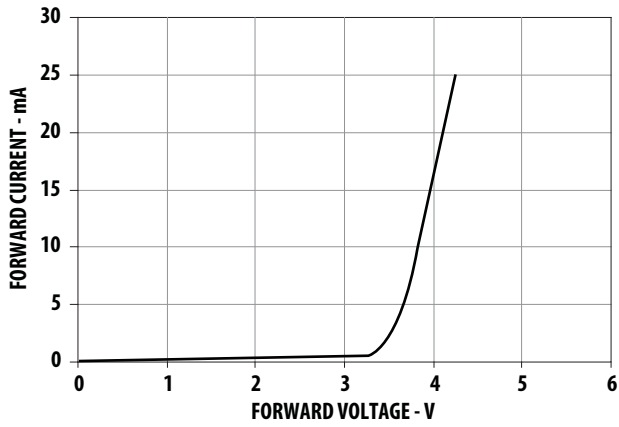


Figure 15. Forward Voltage Vs Current (DP)

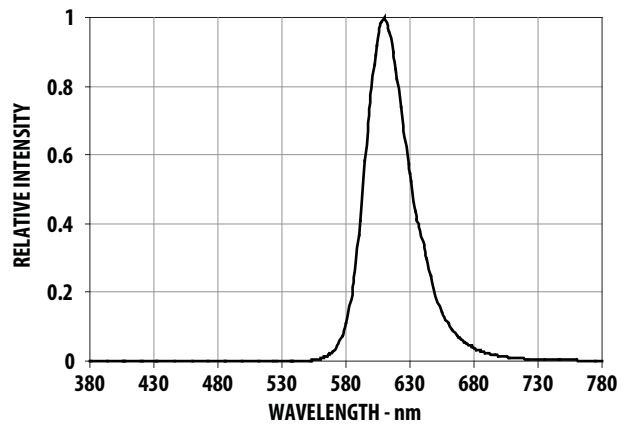


Figure 16. Relative Luminous Intensity Vs Wavelength

## AlGaAs Red

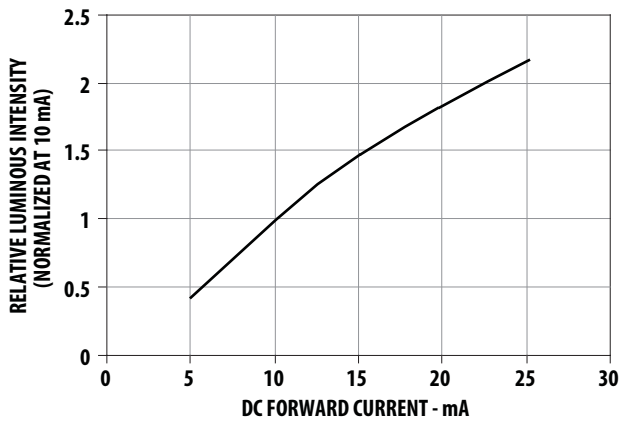


Figure 17. Relative Luminous Intensity Vs Forward Current

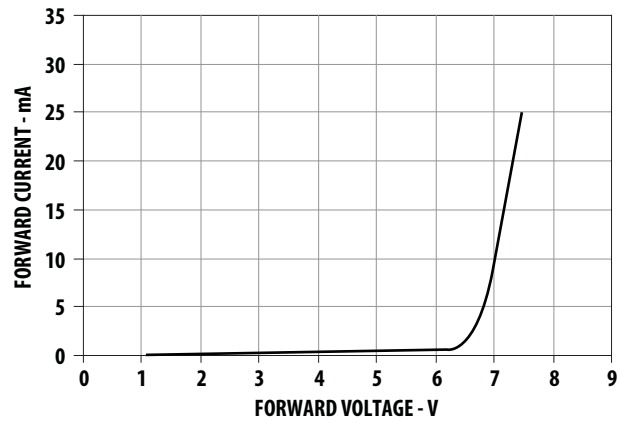


Figure 18. Forward Voltage Vs Current (Segment)

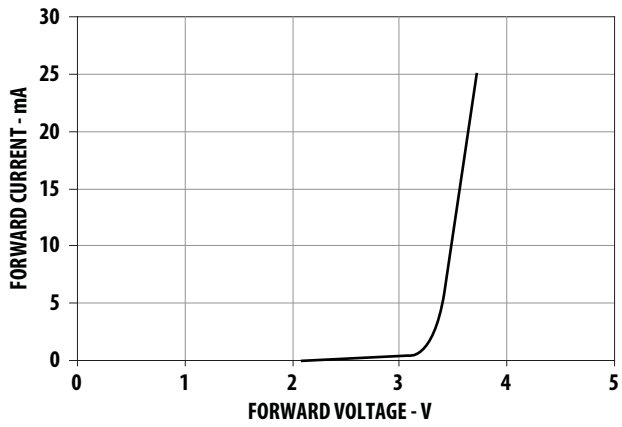


Figure 19. Forward Voltage Vs Current (DP)

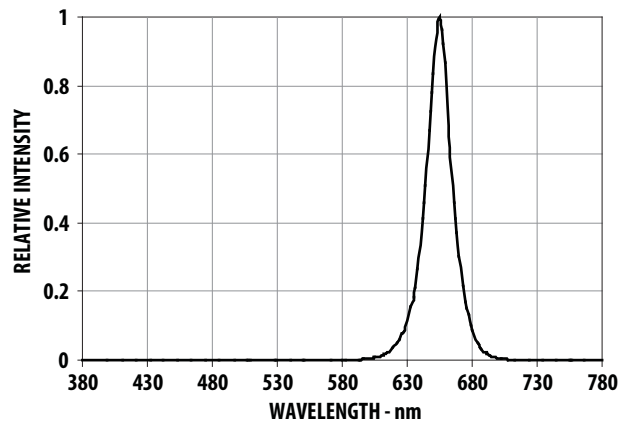
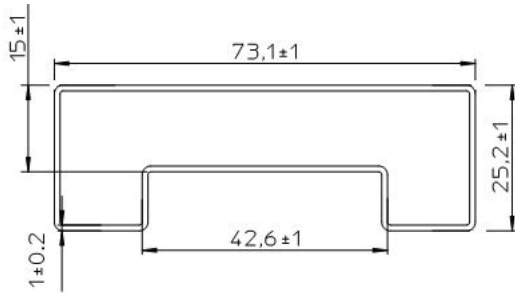
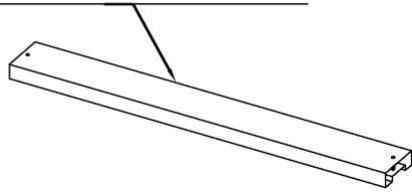


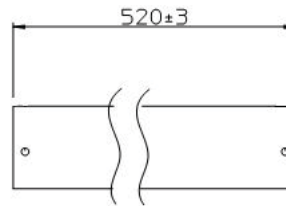
Figure 20. Relative Luminous Intensity Vs Wavelength

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**Tube Front View**



**Tube Top View**

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