



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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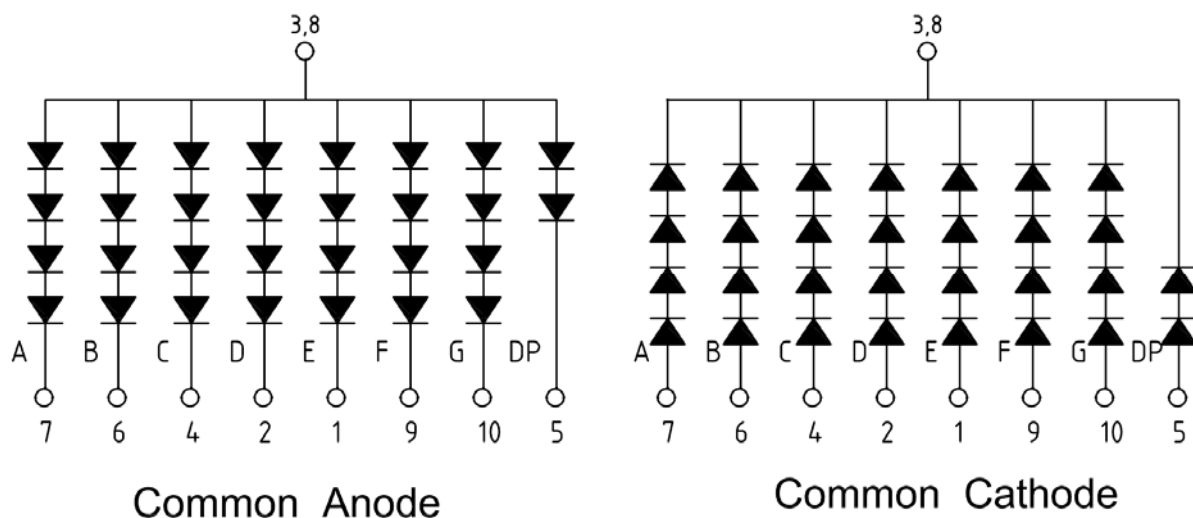
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## Circuit Diagram



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

Parameter	Symbol	Red/Yellow/ Orange/ Green/ Deep Red	Units
Power Dissipation per segment / Dot Point (DP)	$P_D$	208/104	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 $25^{\circ}\text{C}$ per segment		0.21	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		260 $^{\circ}\text{C}$ peak for 3 secs max	

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**Electrical / Optical Characteristic at T<sub>A</sub> = 25°C**
**Red**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I <sub>V</sub>	—	105	—	mcd	I <sub>F</sub> = 10mA
Peak Wavelength	λ <sub>p</sub>	—	634	—	nm	I <sub>F</sub> = 20mA
Dominant Wavelength	λ <sub>d</sub>	—	625	—	nm	I <sub>F</sub> = 20mA
Forward Voltage per segment / DP	V <sub>F</sub>	—	8.0/4.0	10.4/5.2	V	I <sub>F</sub> = 20mA
Reverse Current per segment / DP	I <sub>R</sub>	—	—	100	μA	V <sub>R</sub> = 20V/10V(DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I <sub>V-M</sub>		2:1			I <sub>F</sub> = 10mA

**Green**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I <sub>V</sub>	—	38	—	mcd	I <sub>F</sub> = 10mA
Peak Wavelength	λ <sub>p</sub>	—	570	—	nm	I <sub>F</sub> = 20mA
Dominant Wavelength	λ <sub>d</sub>	—	571	—	nm	I <sub>F</sub> = 20mA
Forward Voltage per segment / DP	V <sub>F</sub>	—	8.0/4.0	10.4/5.2	V	I <sub>F</sub> = 20mA
Reverse Current per segment / DP	I <sub>R</sub>	—	—	100	μA	V <sub>R</sub> = 20V/10V(DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I <sub>V-M</sub>		2:1			I <sub>F</sub> = 10mA

**Yellow**

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	I <sub>V</sub>	—	88	—	mcd	I <sub>F</sub> = 10mA
Peak Wavelength	λ <sub>p</sub>	—	592	—	nm	I <sub>F</sub> = 20mA
Dominant Wavelength	λ <sub>d</sub>	—	587	—	nm	I <sub>F</sub> = 20mA
Forward Voltage per segment / DP	V <sub>F</sub>	—	8.0/4.0	10.4/5.2	V	I <sub>F</sub> = 20mA
Reverse Current per segment / DP	I <sub>R</sub>	—	—	100	μA	V <sub>R</sub> = 20V/10V(DP)
Luminous Intensity Matching Ratio (Segment to Segment)	I <sub>V-M</sub>		2:1			I <sub>F</sub> = 10mA

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## Orange

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	—	103	—	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	$V_F$	—	8.0/4.0	10.4/5.2	V	$I_F = 20\text{mA}$
Reverse Current per segment / DP	$I_R$	—	—	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V}(\text{DP})$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

## Deep Red

Parameter	Symbol	Min	Typ	Max	Units	Test Conditions
Average Luminous Intensity (Digit Average)	$I_V$	—	95	—	mcd	$I_F = 10\text{mA}$
Peak Wavelength	$\lambda_P$	—	644	—	nm	$I_F = 20\text{mA}$
Dominant Wavelength	$\lambda_D$	—	635	—	nm	$I_F = 20\text{mA}$
Forward Voltage per segment / DP	$V_F$	—	8.0/4.0	10.4/5.2	V	$I_F = 20\text{mA}$
Reverse Current per segment / DP	$I_R$	—	—	100	$\mu\text{A}$	$V_R = 20\text{V}/10\text{V}(\text{DP})$
Luminous Intensity Matching Ratio (Segment to Segment)	$I_{V-M}$		2:1			$I_F = 10\text{mA}$

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## Red

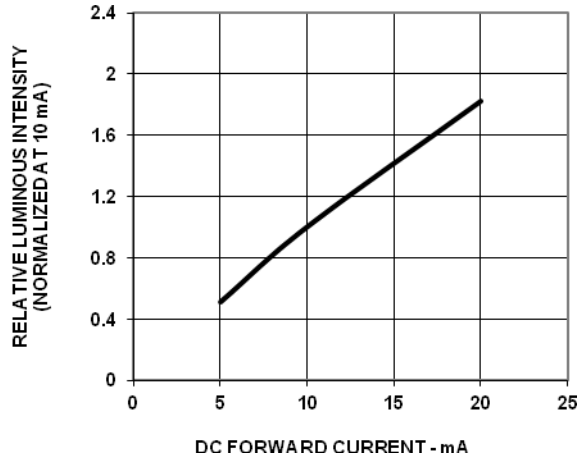


Fig 1: Relative Luminous Intensity Vs Forward Current

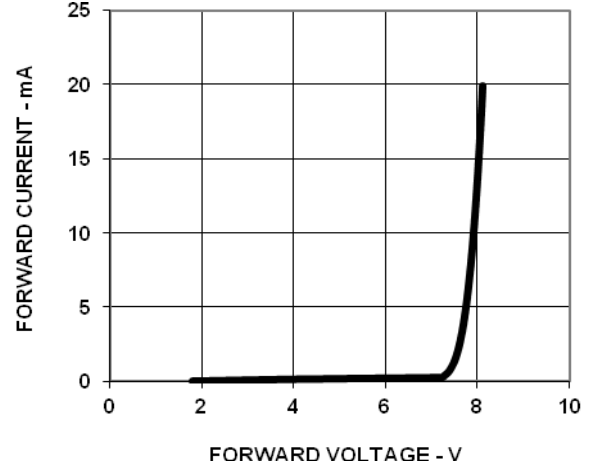


Fig 2: Forward Voltage Vs Current (Segment)

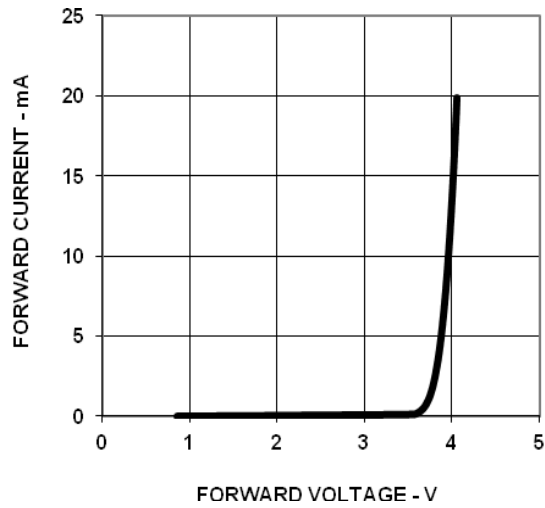


Fig 3: Forward Voltage Vs Current (DP)

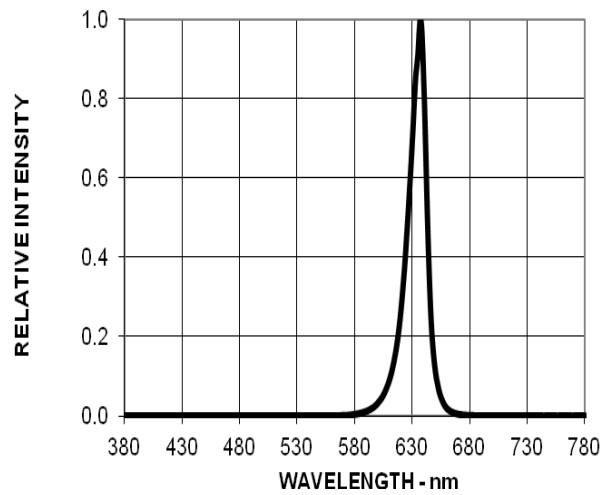


Fig 4: Relative Luminous Intensity Vs Wavelength

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## Green

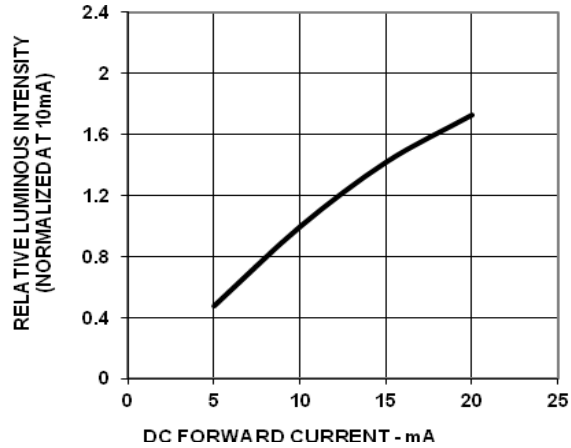


Fig 1: Relative Luminous Intensity Vs Forward Current

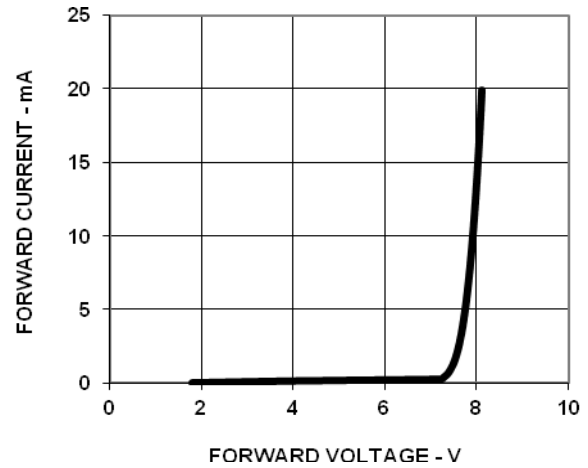


Fig 2: Forward Voltage Vs Current (Segment)

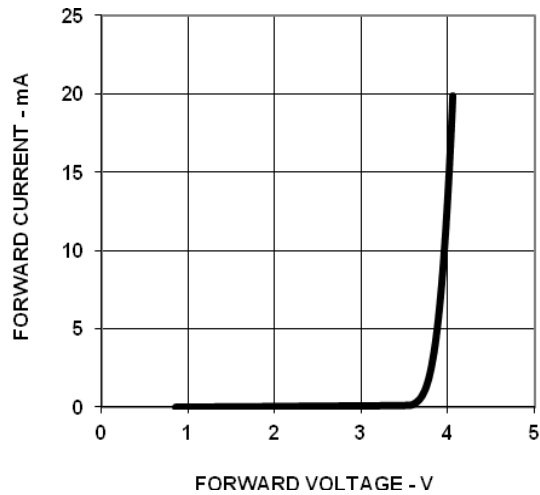


Fig 3: Forward Voltage Vs Current (DP)

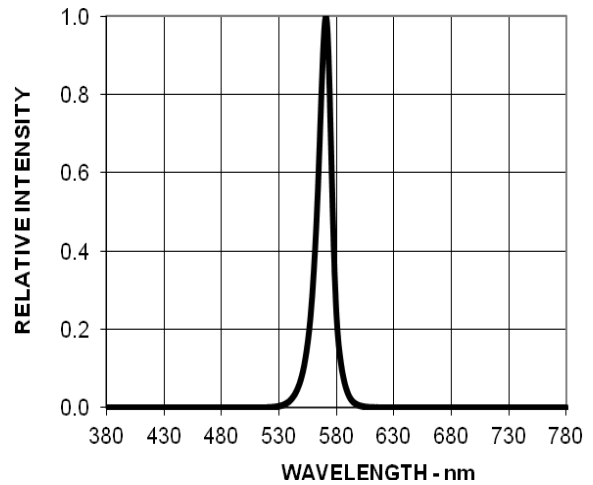


Fig 4: Relative Luminous Intensity Vs Wavelength

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## Yellow

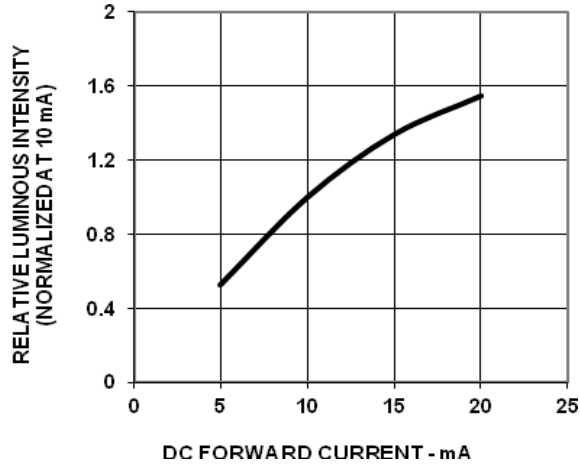


Fig 1: Relative Luminous Intensity Vs Forward Current

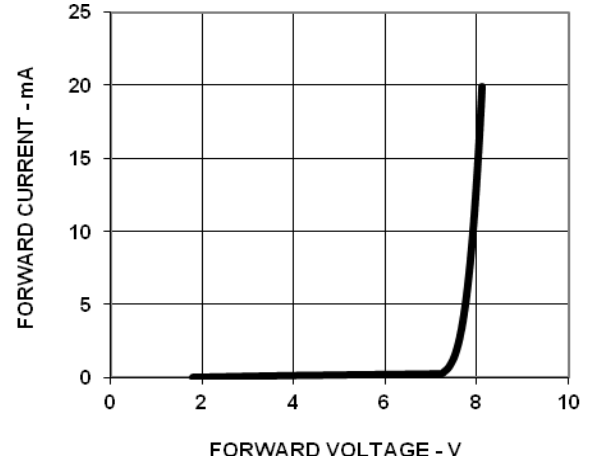


Fig 2: Forward Voltage Vs Current( Segment)

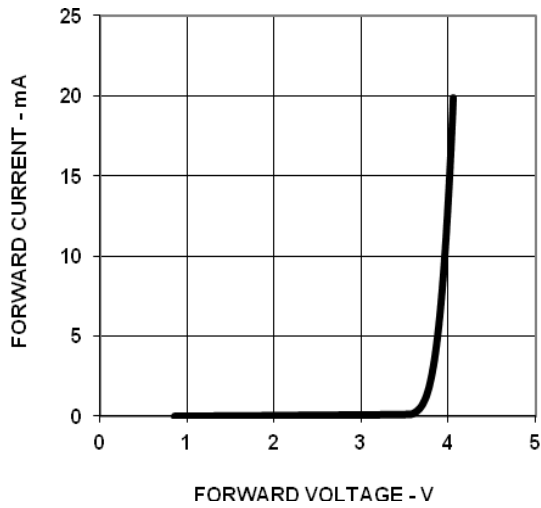


Fig 3: Forward Voltage Vs Current (DP)

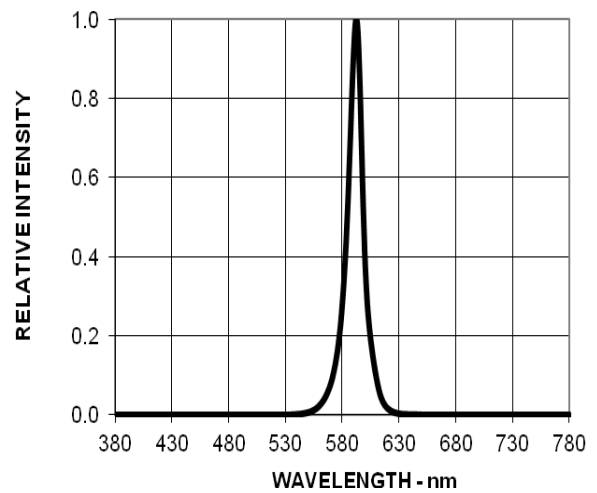


Fig 4: Relative Luminous Intensity Vs Wavelength

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## Orange

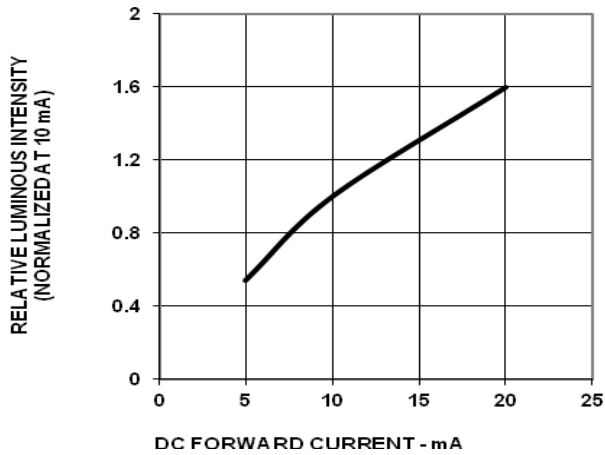


Fig 1: Relative Luminous Intensity Vs Forward Current

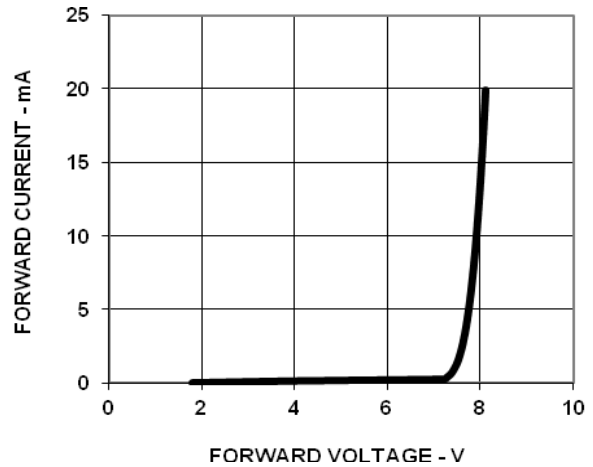


Fig 2: Forward Voltage Vs Current (Segment)

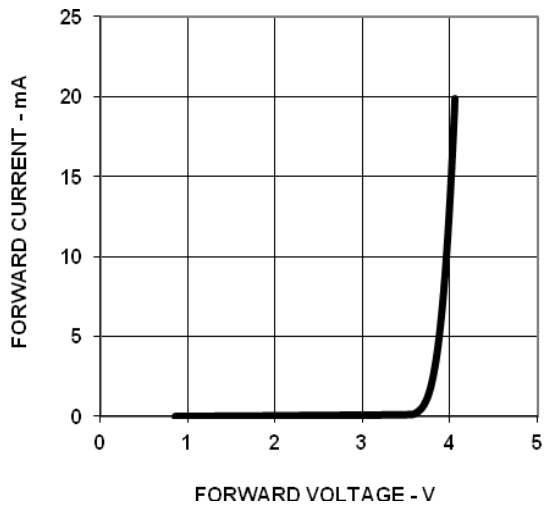


Fig 3: Forward Voltage Vs Current (DP)

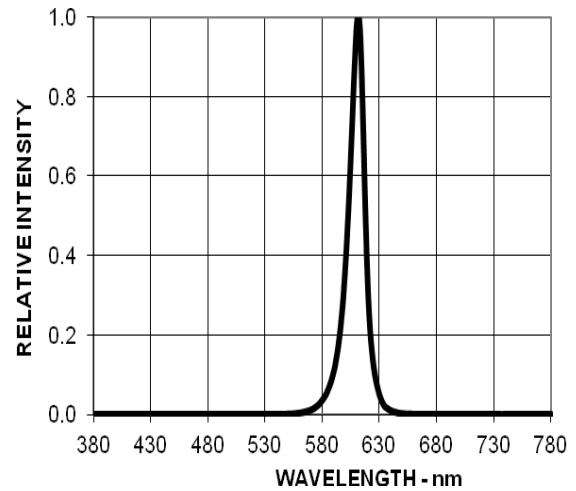


Fig 4: Relative Luminous Intensity Vs Wavelength

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## Deep Red

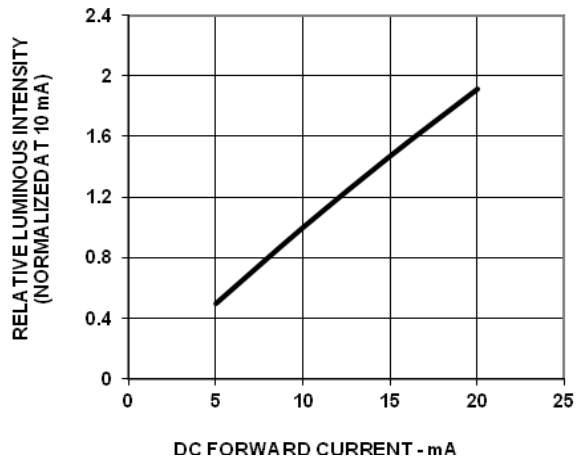


Fig 1: Relative Luminous Intensity Vs Forward Current

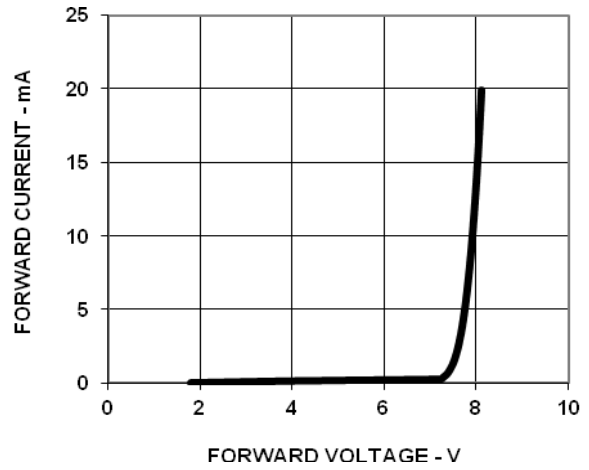


Fig 2: Forward Voltage Vs Current ( Segment)

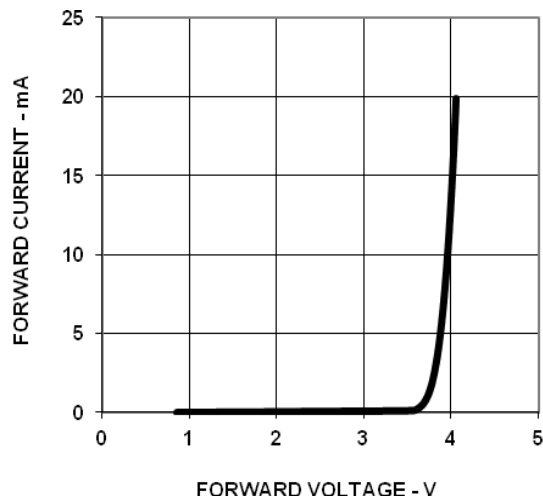


Fig 3: Forward Voltage Vs Current (DP)

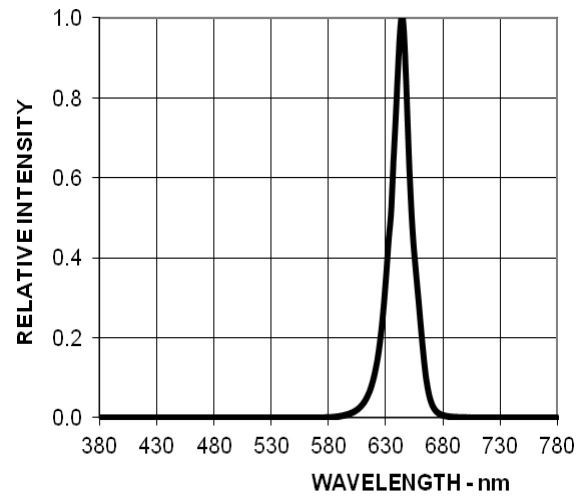


Fig 4: Relative Luminous Intensity Vs Wavelength

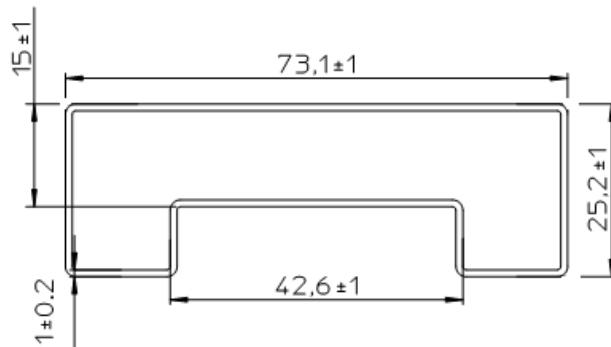
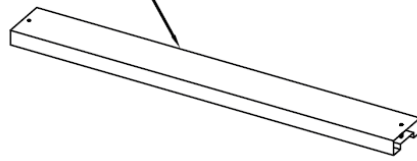
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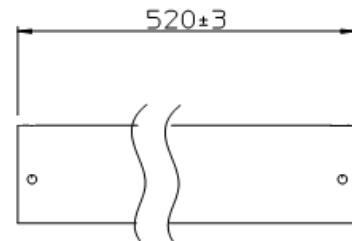
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## Packing Tube Specifications:

10 PCS PRODUCTS PER IC TUBE



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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