

# TOSHIBA

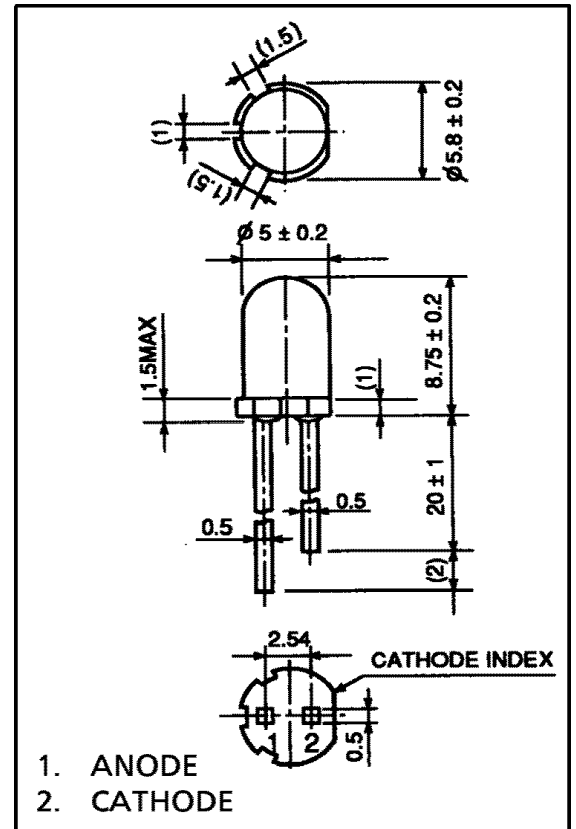
## Toshiba TLxH156 Series LEDs

### Features

5 mm Package  
InGaAlP Technology  
All Plastic Mold Type  
Fast Response Time, Capable of Pulse Operation  
High Power Luminous Intensity

### Applications

Outdoor Message Signboard  
Safety equipment  
Automotive



### Series Line-Up

Part Number	Color	Material
TLOH156P	Ultra Bright Orange	InGaAlP
TLRH156P	Ultra Bright Red	InGaAlP
TLRMH156P	Ultra High Efficiency Red	InGaAlP
TLSH156P	Ultra Bright High Efficiency Red	InGaAlP
TLYH156P	Ultra Bright Yellow	InGaAlP

### Maximum Ratings (Ta=25°C)

Part Number	Forward Current I <sub>F</sub>	Reverse Voltage V <sub>R</sub>	Power Dissipation P <sub>D</sub>	Operating Temperature T <sub>opr</sub>	Storage Temperature T <sub>stg</sub>
TLOH156P	50	4	125.00	-30 ~ 85	-40 ~ 120
TLRH156P	50	4	125.00	-30 ~ 85	-40 ~ 120
TLRMH156P	50	4	125.00	-40 ~ 100	-40 ~ 120
TLSH156P	50	4	125.00	-30 ~ 85	-40 ~ 120
TLYH156P	50	4	125.00	-30 ~ 85	-40 ~ 120
Unit	mA	V	mW	°C	°C

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**TOSHIBA****Toshiba TLxH156 Series LEDs****Electrical and Optical Characteristics (Ta=25°C)**

Part Number	PWL nm $\lambda_P$	Material	View Angle $2\theta_{1/2}$	Luminous Intensity $I_v$				Forward Voltage $V_F$				Rev Current $I_R$	
				min.	typ.	max.	IF@	min.	typ.	max.	IF@	max.	VR@
TLOH156P	612	InGaAlP	30°	476.00	1500.00	–	20mA	–	2.10	2.50	20mA	50	4V
TLRH156P	644	InGaAlP	30°	272.00	800.00	–	20mA	–	1.90	2.50	20mA	50	4V
TLRMH156P	636	InGaAlP	25°	476.00	900.00	–	20mA	–	2.05	2.50	20mA	50	4V
TLSH156P	623	InGaAlP	30°	476.00	1400.00	–	20mA	–	2.10	2.50	20mA	50	4V
TLYH156P	590	InGaAlP	30°	476.00	1400.00	–	20mA	–	2.10	2.50	20mA	50	4V
–	nm	–	deg	mcd				V				$\mu A$	–

**Precautions**

- Soldering temperature: 260°C max, soldering time: 3 s max (soldering portion of lead: up to 2 mm from the body of the device).
- If the lead is formed, the lead should be formed up to 5 mm from the body of the device without forming stress to the resin. Soldering should be performed after lead forming.
- This visible LED lamp also emits some IR light. If a photodetector is located near the LED lamp, please ensure that it will not be affected by this IR light.

**NOTICE:**

- TOSHIBA is continually working to improve the quality and reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to comply with the standards of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such TOSHIBA products could cause loss of human life, bodily injury or damage to property.
- In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent TOSHIBA products specifications. Also, please keep in mind the precautions and conditions set forth in the "Handling Guide for Semiconductor Devices," or "TOSHIBA Semiconductor Reliability Handbook" etc..
- The TOSHIBA products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These TOSHIBA products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of TOSHIBA products listed in this document shall be made at the customer's own risk.
- Gallium arsenide (GaAs) is a substance used in the products described in this document. GaAs dust and fumes are toxic. Do not break, cut or pulverize the product, or use chemicals to dissolve them. When disposing of the products, follow the appropriate regulations. Do not dispose of the products with other industrial waste or with domestic garbage.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.

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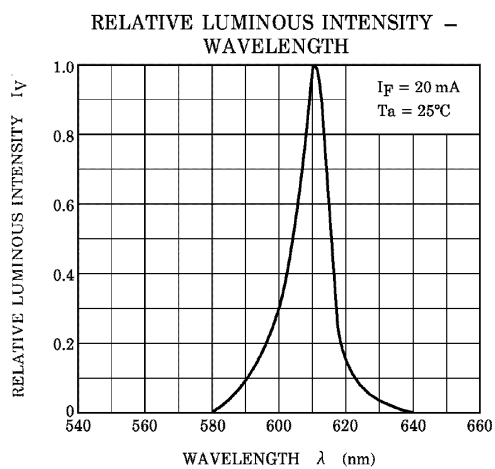
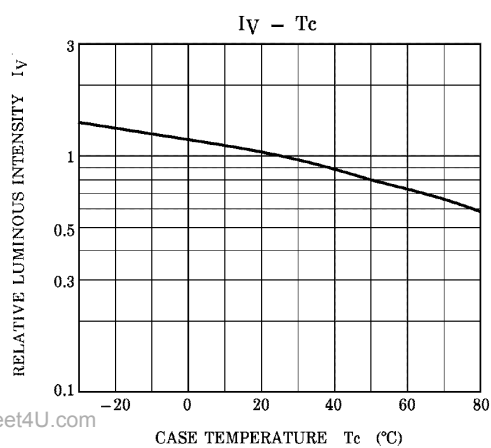
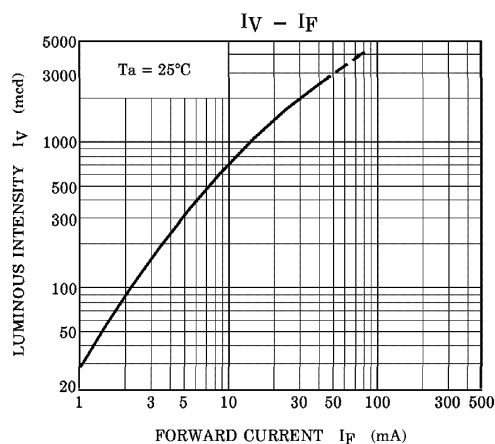
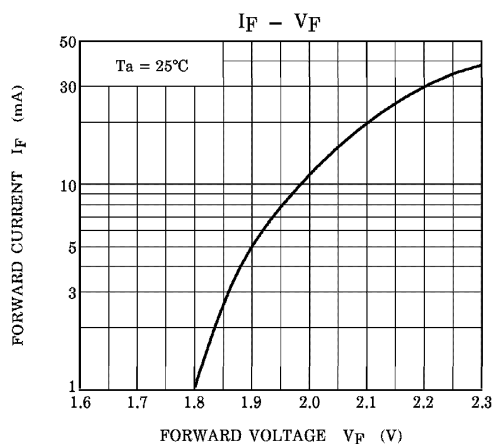
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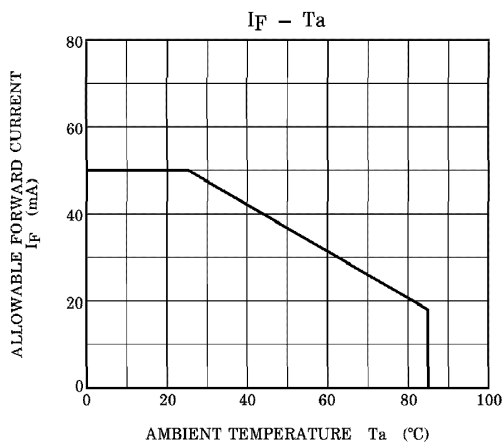
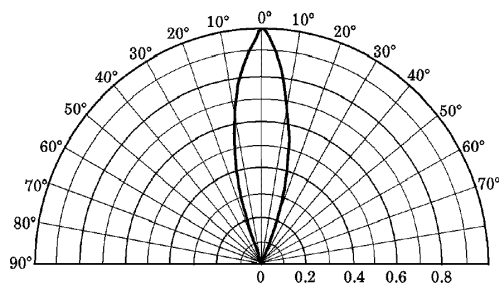
## Toshiba TLxH156 Series LEDs

### TLOH156P Graphs



### RADIATION PATTERN

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



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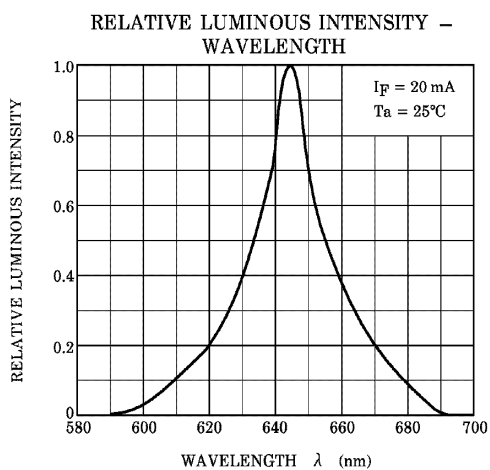
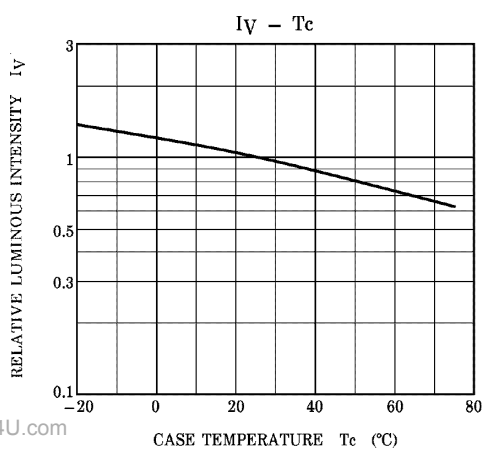
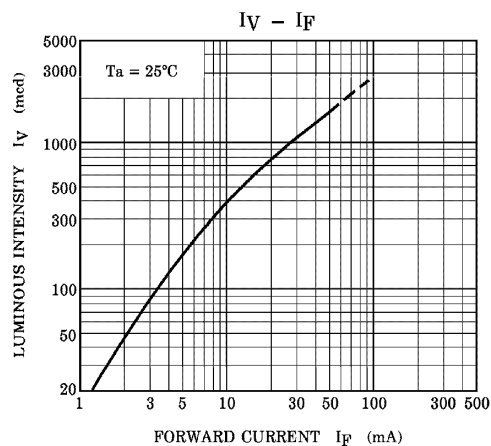
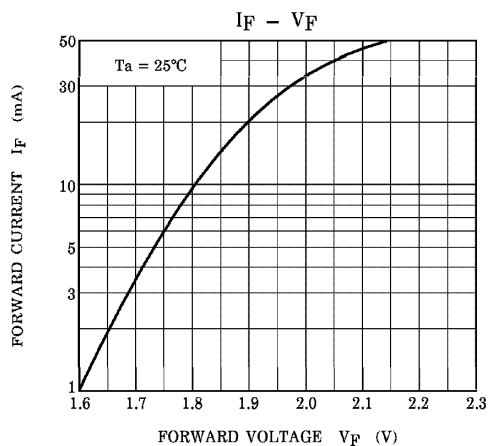
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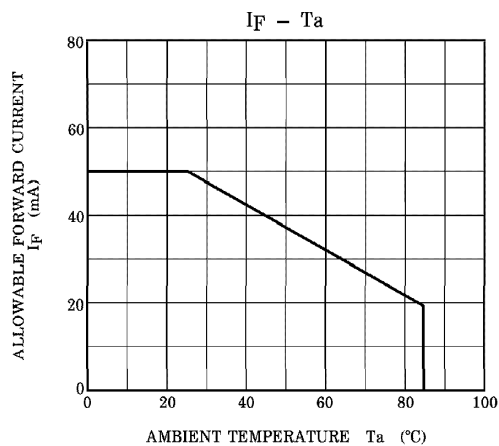
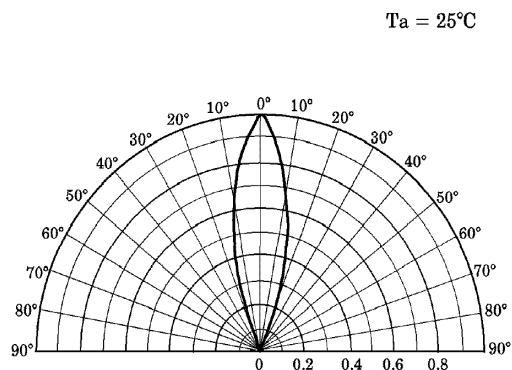
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### TLRH156P Graphs



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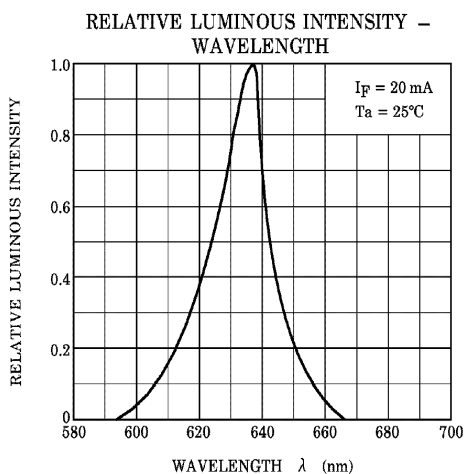
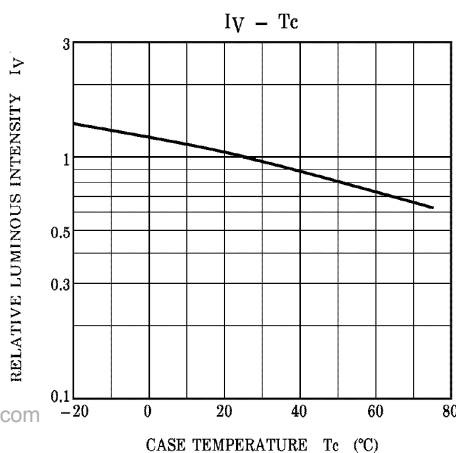
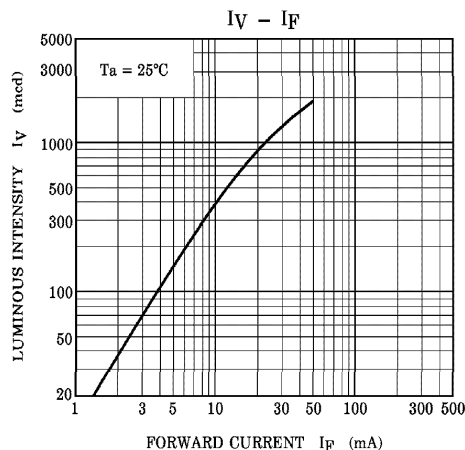
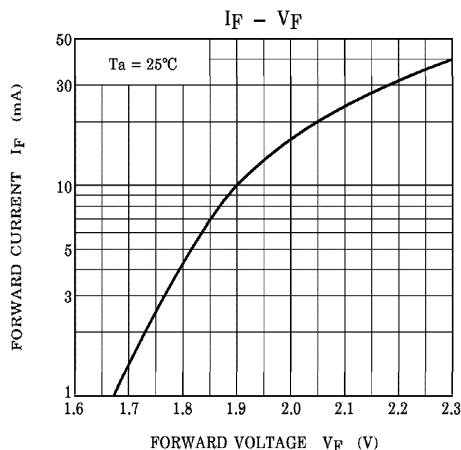
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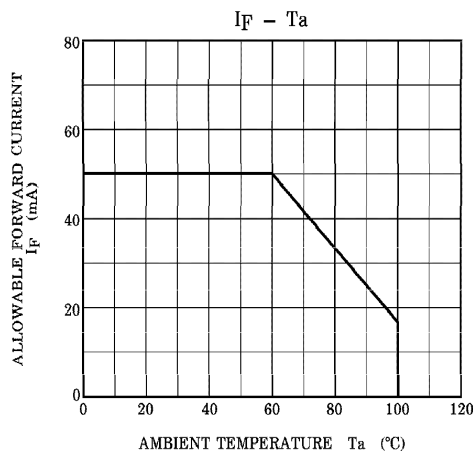
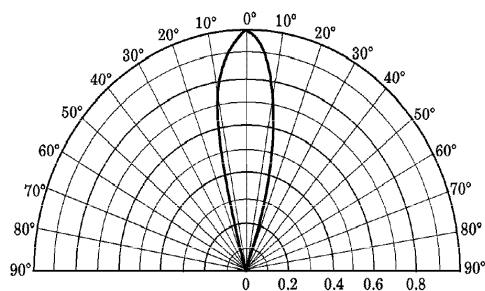
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### TLRMH156P Graphs



### RADIATION PATTERN

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



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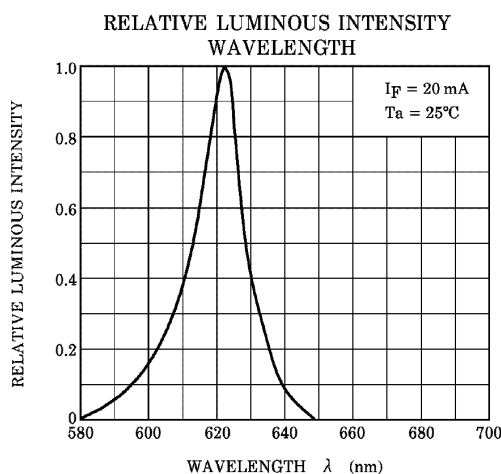
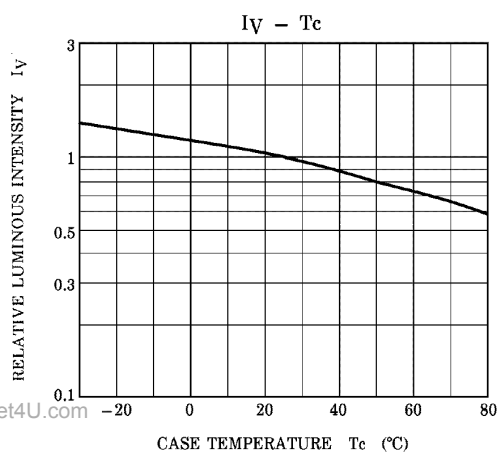
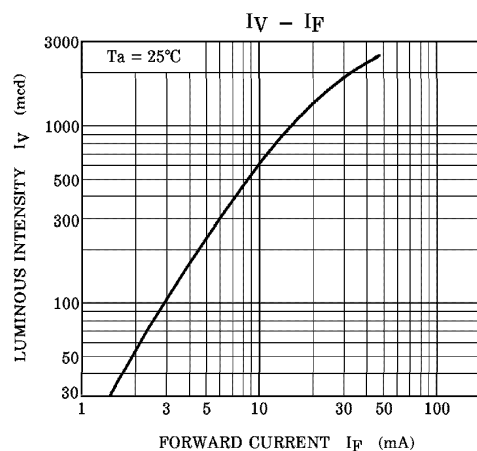
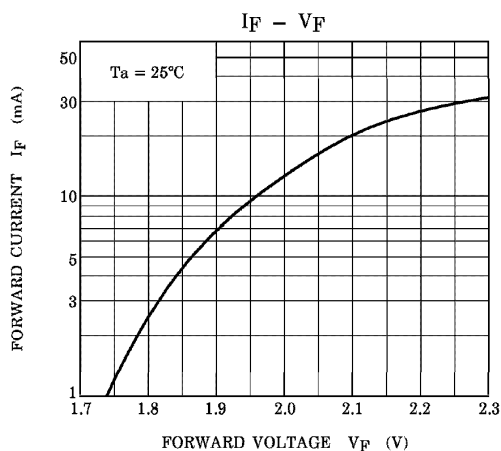
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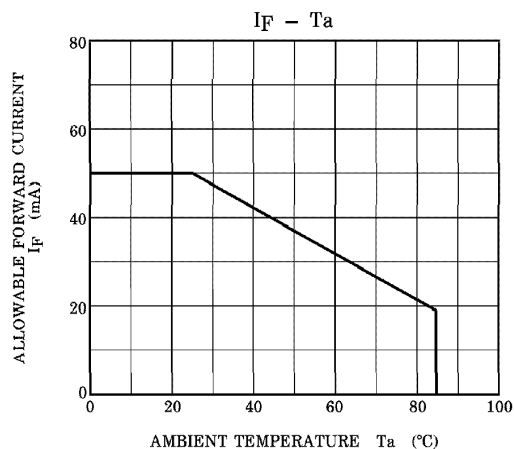
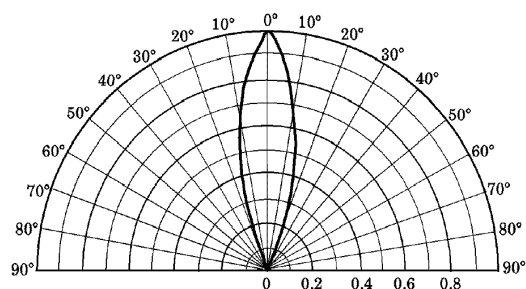
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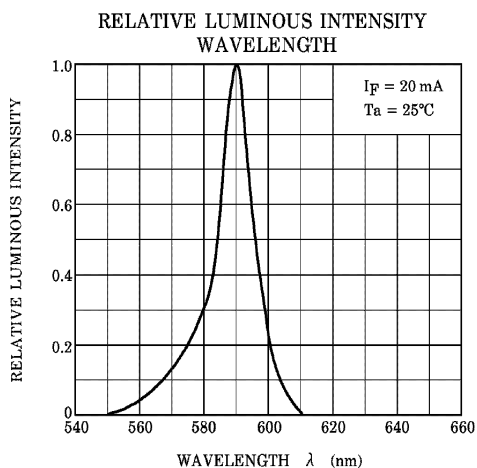
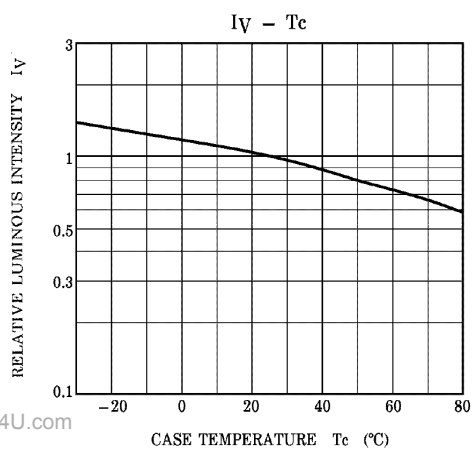
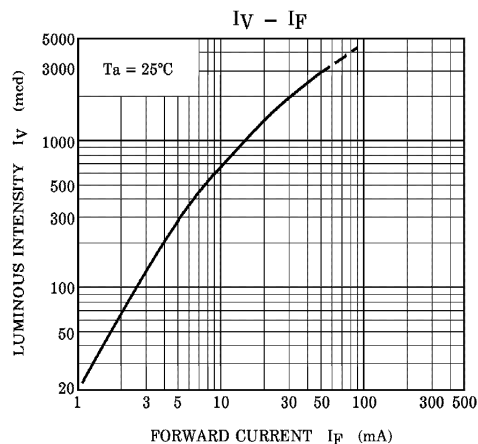
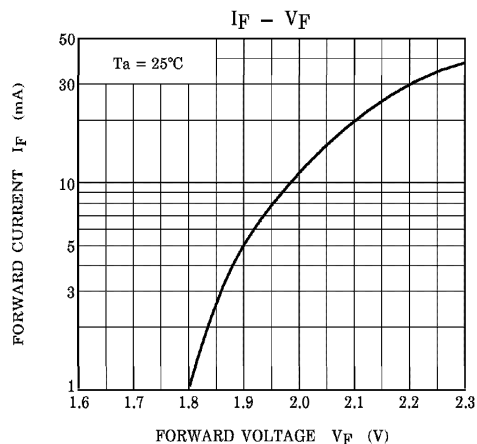
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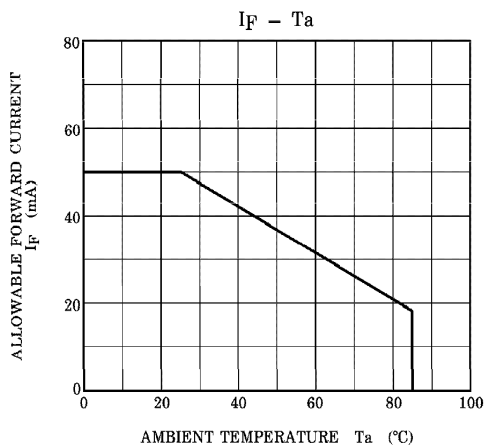
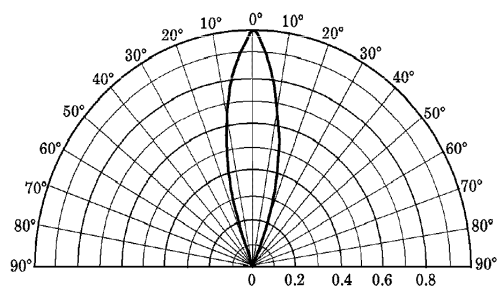
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