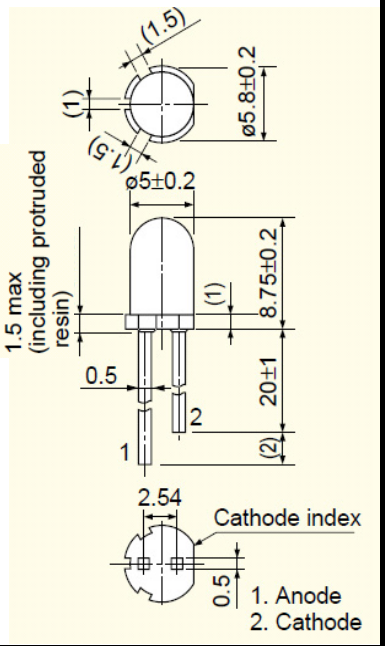
TOSHIBA LED Lamp

TLRE16TP(F),TLRME16TP(F),TLSE16TP(F), TLOE16TP(F),TLYE16TP(F)

Unit: mm



JEDEC	—
JEITA	—
TOSHIBA	4-5AH2

Weight: 0.31 g(Typ.)

Panel Circuit Indicator

- Lead(Pb)-free products (lead: Sn-Ag-Cu)
- 5mm package
- InGaAℓP technology
- All plastic mold type
- Transparent lens
- High intensity light emission
- Excellent low current light output
- Applications:
  outdoor message signboards, safety equipment, automotive use, etc

Lineup

Product Name	Color	Material
TLRE16TP(F)	Red	InGaAℓP
TLRME16TP(F)	Red	
TLSE16TP(F)	Red	
TLOE16TP(F)	Orange	
TLYE16TP(F)	Yellow	

Absolute Maximum Ratings (Ta = 25°C)

Product Name	Forward Current I_F (mA)	Reverse Voltage V_R (V)	Power Dissipation P_D (mW)	Operating Temperature T_{opr} (°C)	Storage Temperature T_{stg} (°C)
TLRE16TP(F)	50	4	120	−40~100	−40~120
TLRME16TP(F)	50	4	120		
TLSE16TP(F)	50	4	120		
TLOE16TP(F)	50	4	120		
TLYE16TP(F)	50	4	120		

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook (“Handling Precautions”/“Derating Concept and Methods”) and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Electrical and Optical Characteristics (Ta = 25°C)

Product Name	Typ. Emission Wavelength				Luminous Intensity I_V			Forward Voltage V_F			Reverse Current I_R	
	λ_d	λ_P	$\Delta\lambda$	I_F	Min	Typ.	I_F	Typ.	Max	I_F	Max	V_R
TLRE16TP(F)	630	(644)	20	20	272	800	20	1.9	2.4	20	50	4
TLRME16TP(F)	626	(636)	23	20	272	1200	20	1.9	2.4	20	50	4
TLSE16TP(F)	613	(623)	20	20	476	1500	20	1.9	2.4	20	50	4
TLOE16TP(F)	605	(612)	20	20	850	2000	20	2.0	2.4	20	50	4
TLYE16TP(F)	587	(590)	17	20	476	1500	20	2.0	2.4	20	50	4
Unit	nm			mA	mcd		mA	V		mA	μA	V

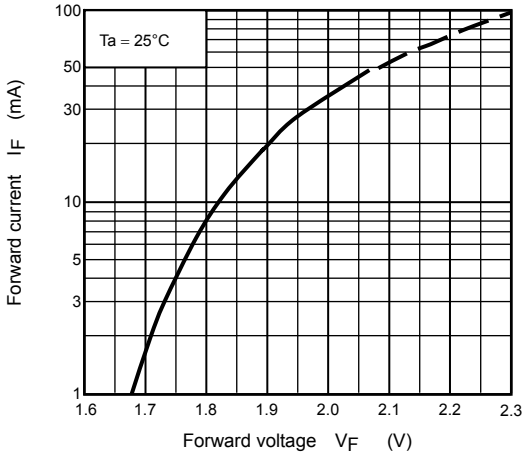
Precautions

Please be careful of the following:

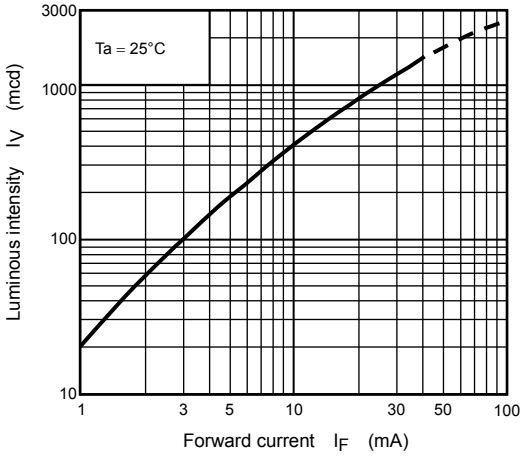
- Soldering temperature: 260°C max, soldering time: 3 s max
  (soldering portion of lead: up to 1.6 mm from the body of the device)
- If the lead is formed, the lead should be formed up to 1.6 mm from the body of the device without forming stress to the resin. Soldering should be performed after lead 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.

TLRE16TP(F)

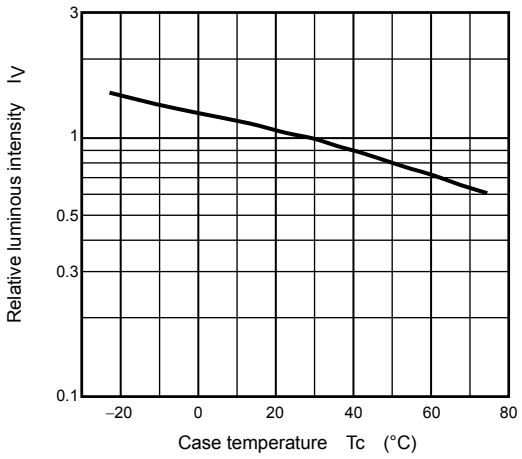
$I_F - V_F$



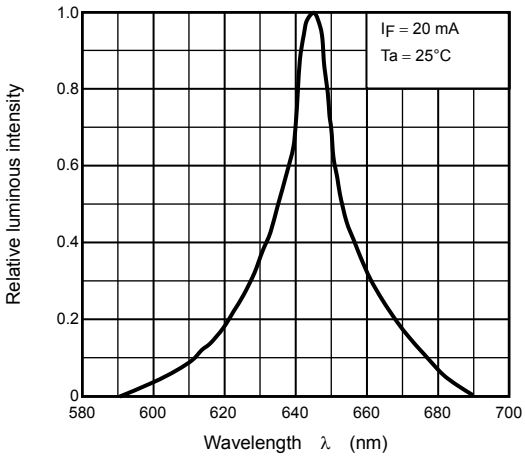
$I_V - I_F$



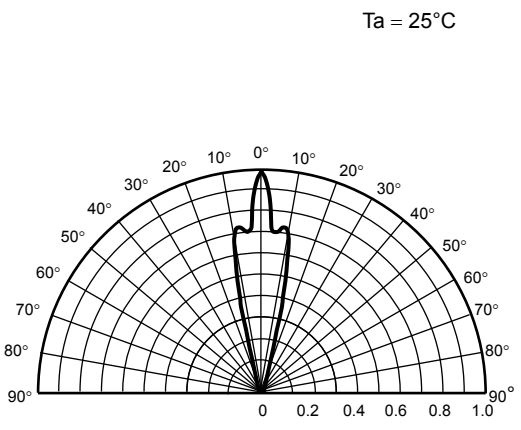
$I_V - Tc$



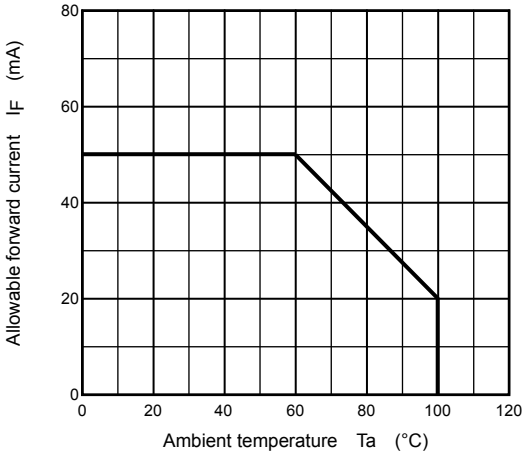
Relative luminous intensity – Wavelength



Radiation pattern

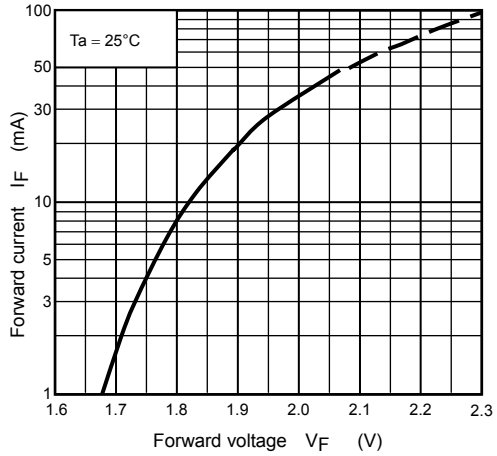


$I_F - Ta$

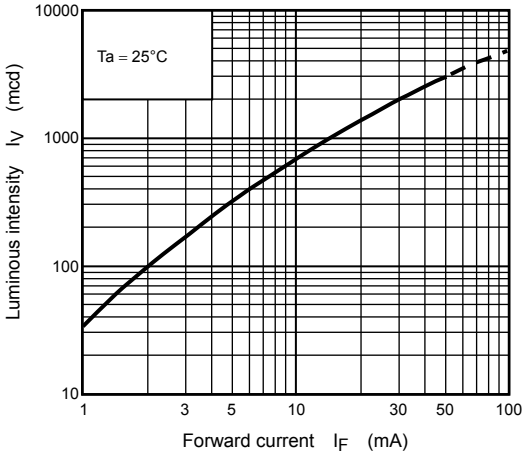


TLRME16TP(F)

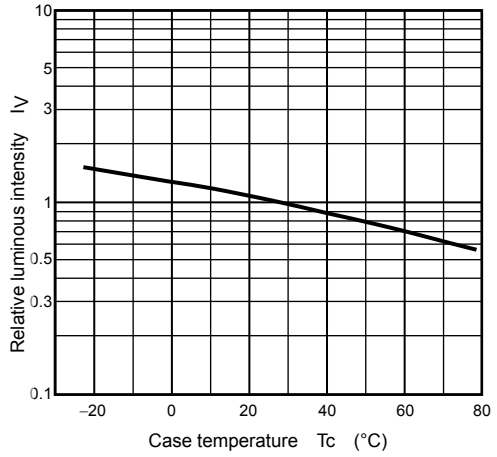
$I_F - V_F$



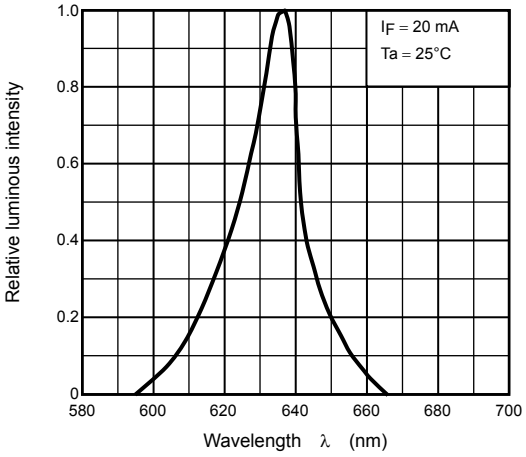
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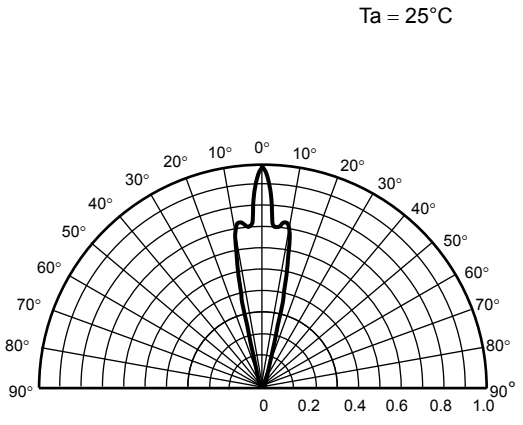
$I_V - Tc$



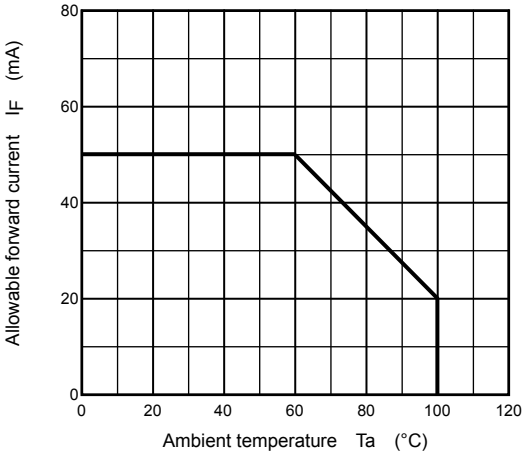
Relative luminous intensity – Wavelength



Radiation pattern

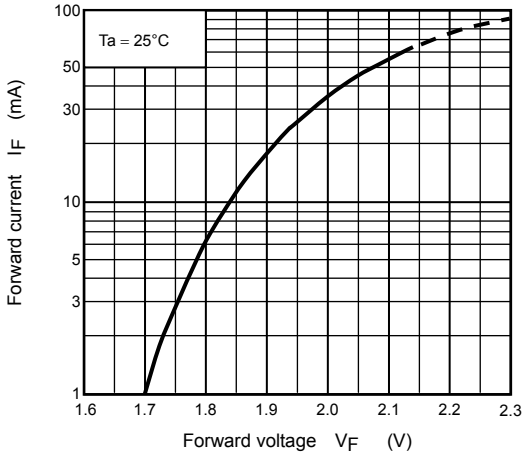


$I_F - Ta$

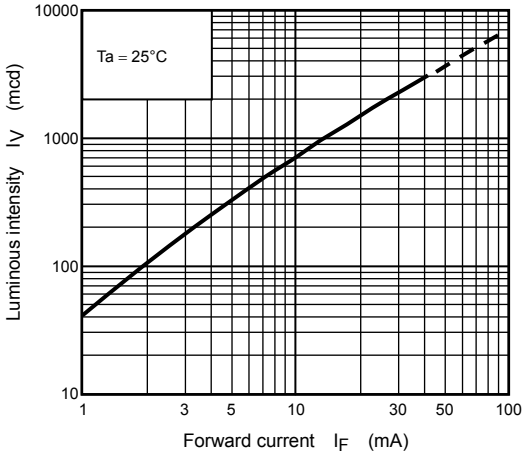


TLSE16TP(F)

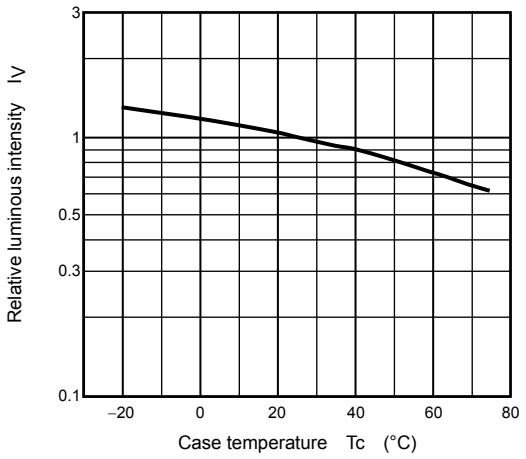
$I_F - V_F$



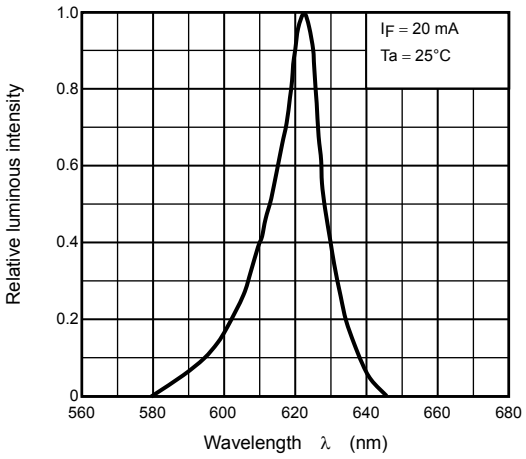
$I_V - I_F$



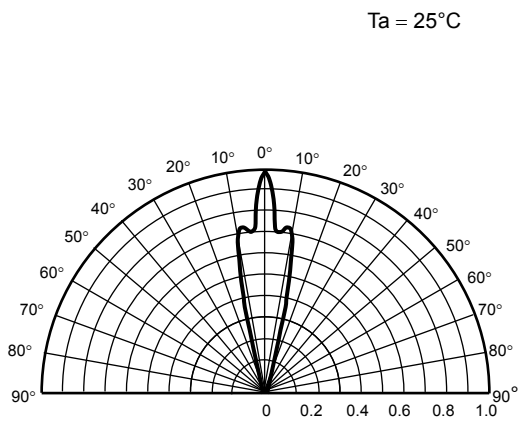
$I_V - Tc$



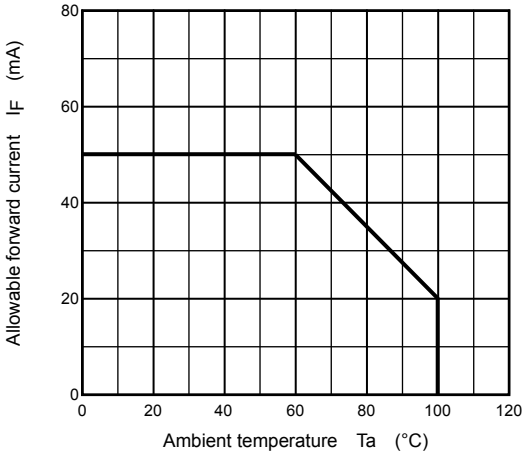
Relative luminous intensity – Wavelength



Radiation pattern

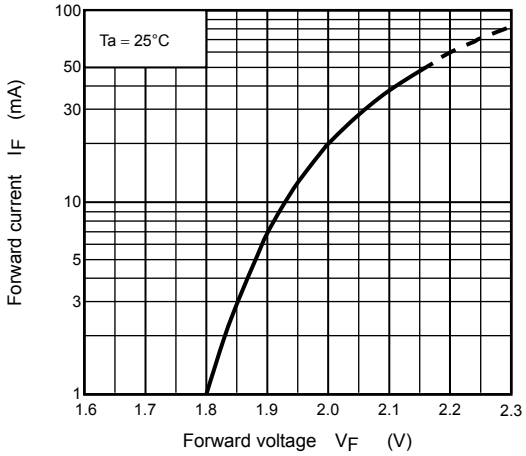


$I_F - Ta$

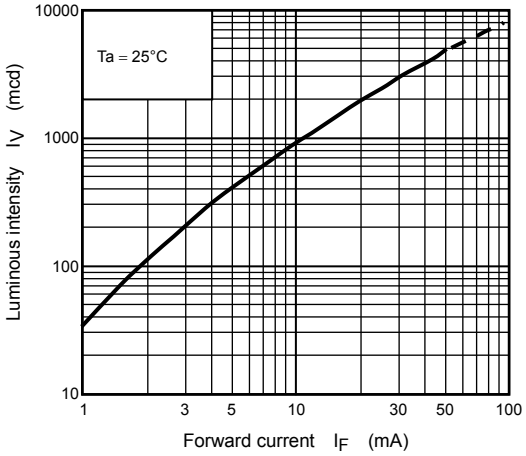


TLOE16TP(F)

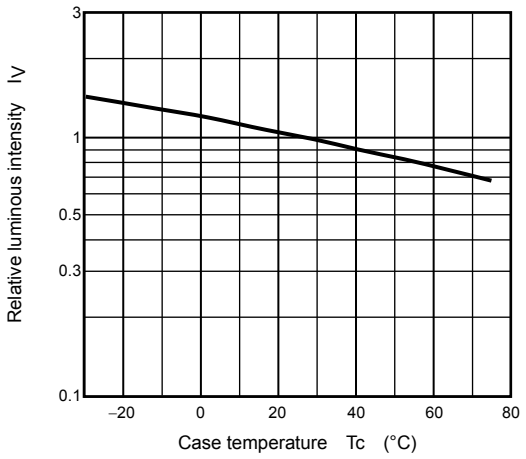
$I_F - V_F$



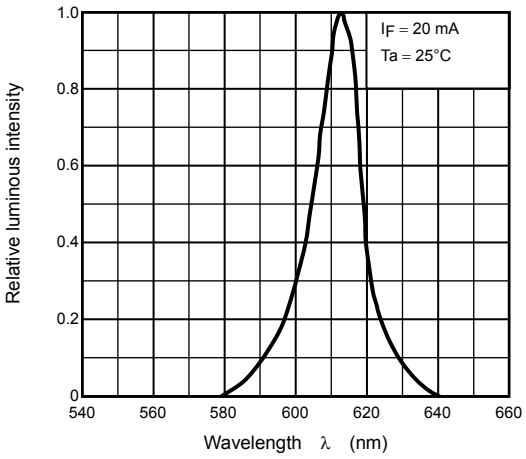
$I_V - I_F$



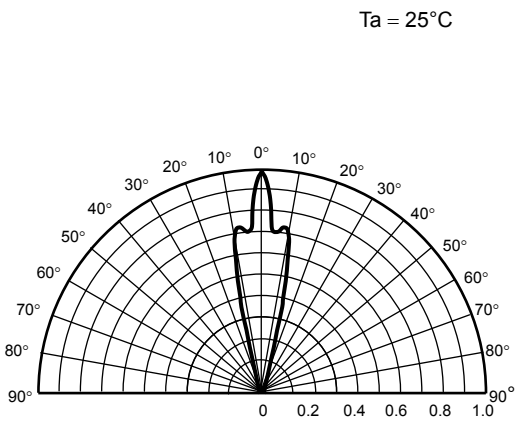
$I_V - Tc$



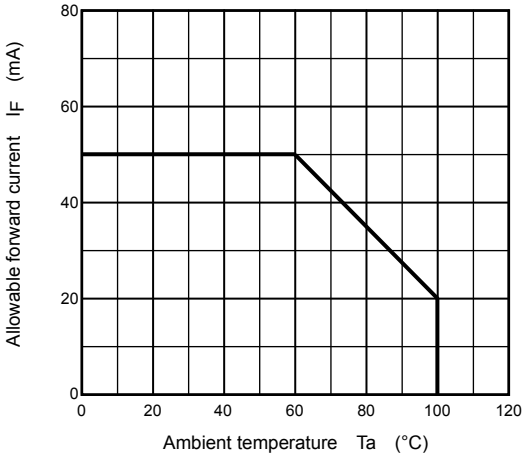
Relative luminous intensity – Wavelength



Radiation pattern

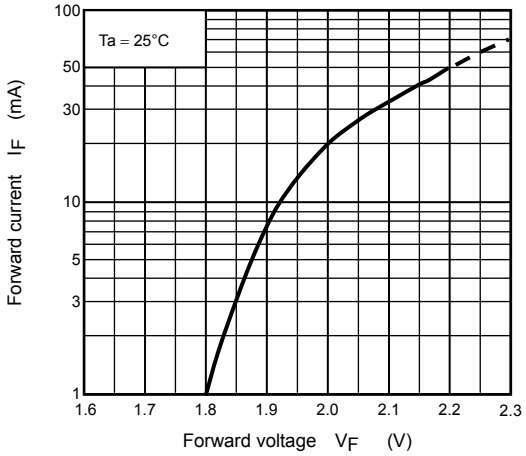


$I_F - Ta$

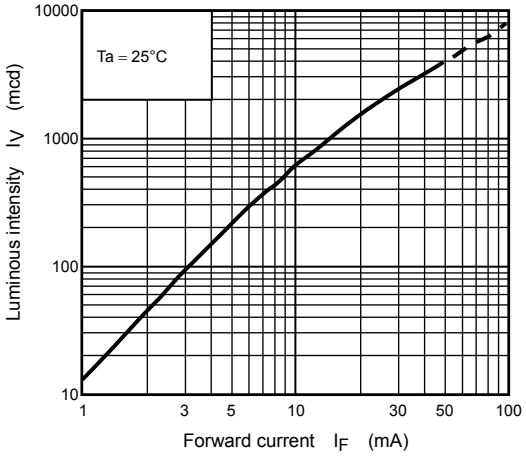


TLYE16TP(F)

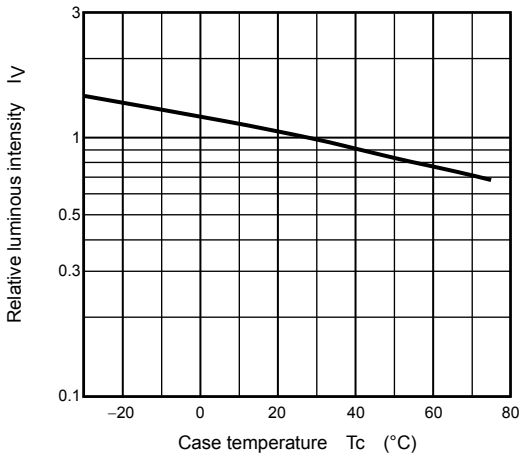
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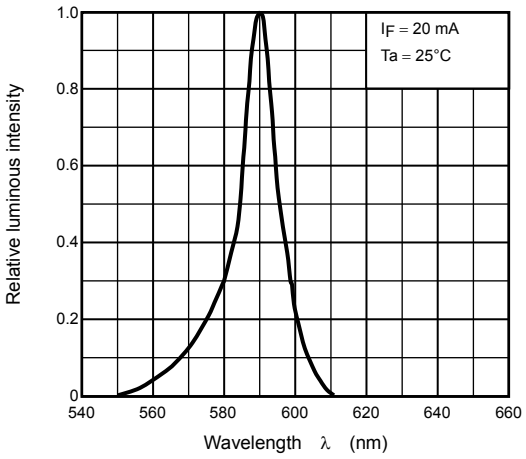
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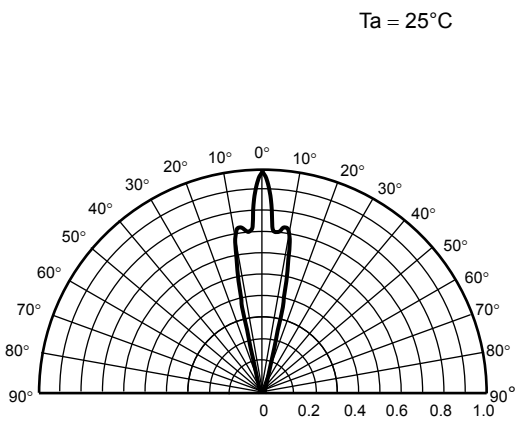
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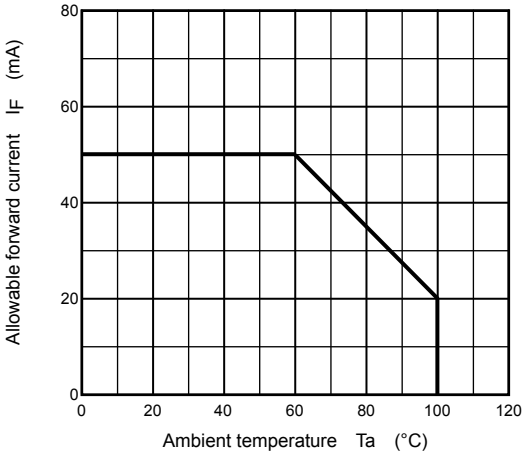
Relative luminous intensity – Wavelength



Radiation pattern



$I_F - Ta$



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20070701-EN

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- 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.
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