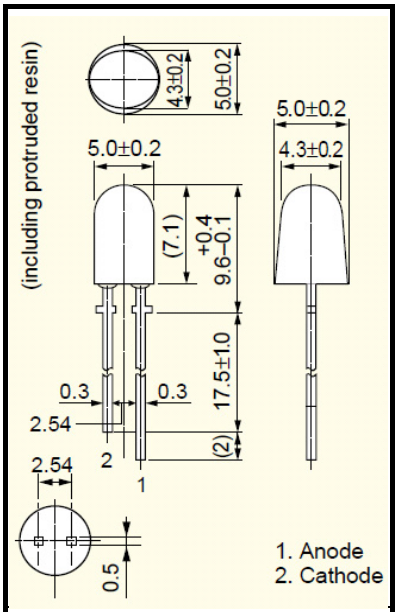
TOSHIBA InGaAℓP LED

TLRE28C(F),TLRME28C(F),TLSE28C(F),TLOE28C(F), TLYE28C(F),TLGE28C(F)

Unit: mm



JEDEC	—
EIAJ	—
TOSHIBA	4-5AQ1

Weight: 0.25 g (Typ.)

○ Panel Circuit Indicator

- Lead(Pb)-free products (lead: Sn-Ag-Cu)
- 4.3x5mm
- InGaAℓP technology
- Colored Transparent lens
- Lineup: 6 colors (red,yellow, green)
- Excellent low current light output
- High intensity light emission
- Applications: message boards, dashboard displays

Lineup

Product Name	Color	Material
TLRE28C(F)	Red	InGaAℓP
TLRME28C(F)	Red	InGaAℓP
TLSE28C(F)	Red	InGaAℓP
TLOE28C(F)	Orange	InGaAℓP
TLYE28C(F)	Yellow	InGaAℓP
TLGE28C(F)	Green	InGaAℓP

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)
TLRE28C(F)	50	4	120	−40~100	−40~120
TLRME28C(F)	50	4	120		
TLSE28C(F)	50	4	120		
TLOE28C(F)	50	4	120		
TLYE28C(F)	50	4	120		
TLGE28C(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)

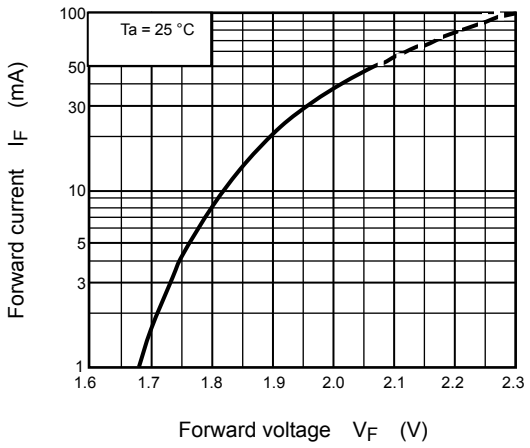
Product Name	Typ. Emission Wavelength				Luminous Intensity I_V			Forward Voltage V_F			Reverse Current I_R	
	λ_d	λ_P	$\Delta\lambda$	I_F	Min	Typ.	I_F	Typ.	Max	I_F	Max	V_R
TLRE28C(F)	630	(644)	20	20	85	200	20	1.9	2.4	20	50	4
TLRME28C(F)	626	(636)	23	20	85	200	20	1.9	2.4	20	50	4
TLSE28C(F)	613	(623)	20	20	85	300	20	1.9	2.4	20	50	4
TLOE28C(F)	605	(612)	20	20	153	500	20	2.0	2.4	20	50	4
TLYE28C(F)	587	(590)	17	20	153	350	20	2.0	2.4	20	50	4
TLGE28C(F)	571	(574)	17	20	47.6	150	20	2.0	2.4	20	50	4
Unit	nm			mA	mcd		mA	V		mA	μA	V

Please be careful of the following:

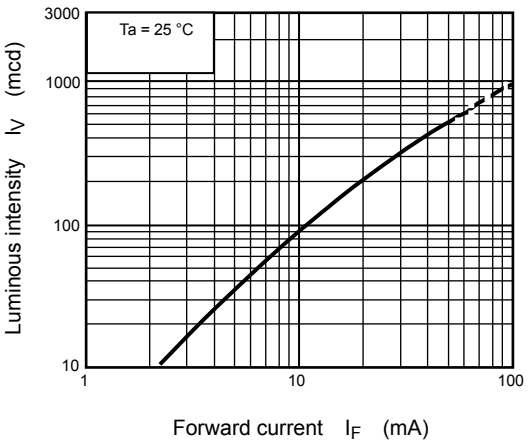
- Soldering temperature: 260°C max, soldering time: 3 s max
  (soldering portion of lead: below the lead stopper of the device)
- If the lead is formed, the lead should be formed up to below the lead stopper of the device without forming stress to the resin. Soldering should be performed after lead forming.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

TLRE28C(F)

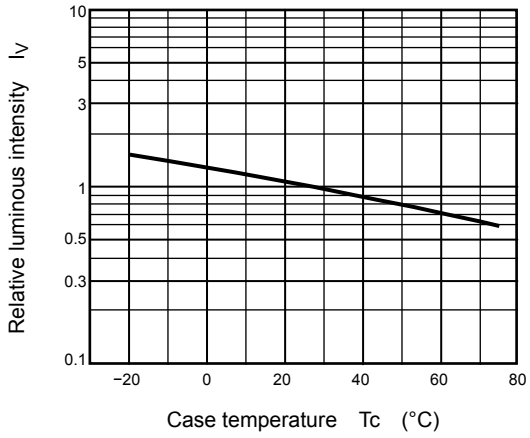
$I_F - V_F$



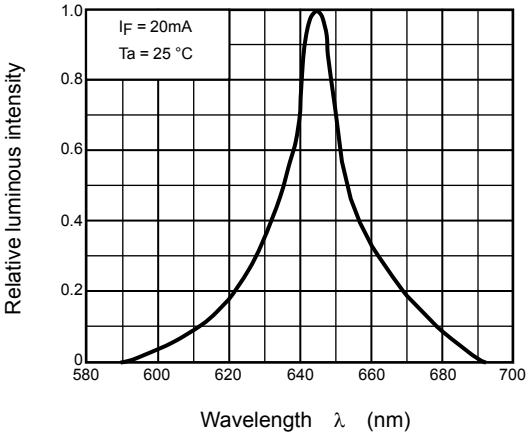
$I_V - I_F$



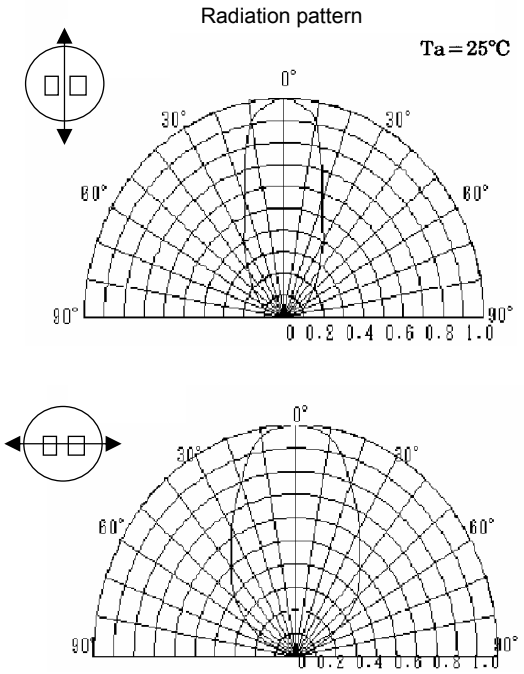
$I_V - Tc$



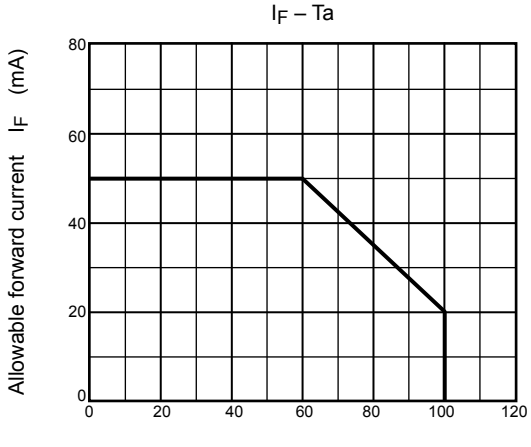
Relative luminous intensity – Wavelength



Radiation pattern

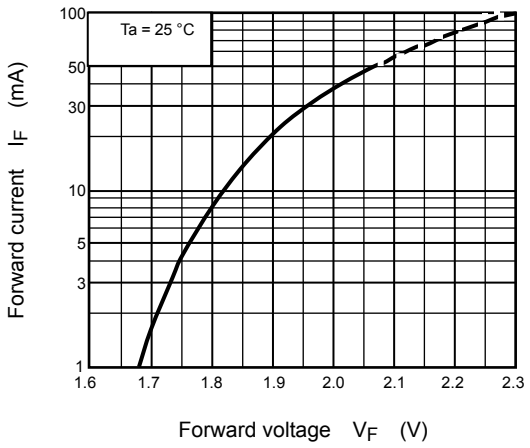


$I_F - Ta$

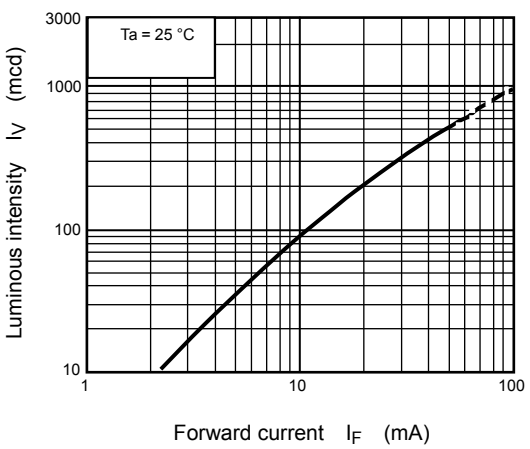


TLRME28C(F)

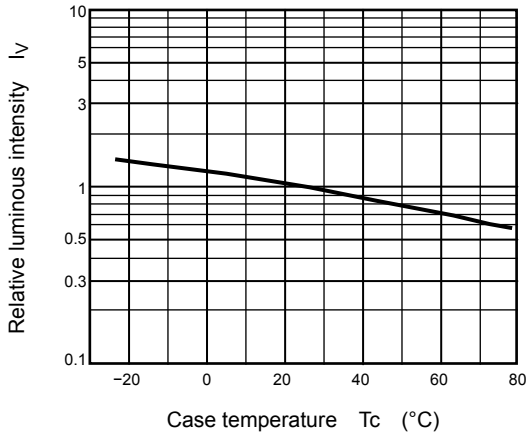
$I_F - V_F$



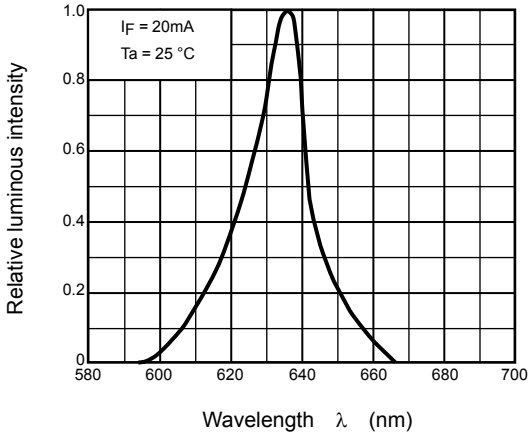
$I_V - I_F$



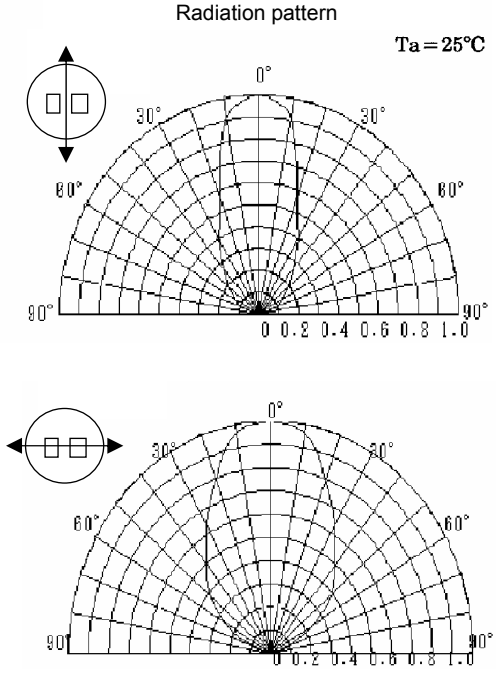
$I_V - Tc$



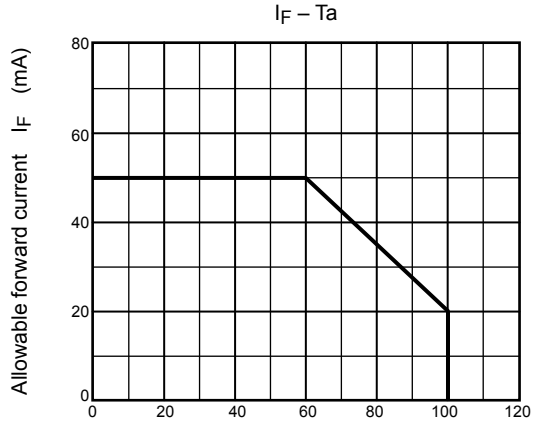
Relative luminous intensity – Wavelength



Radiation pattern

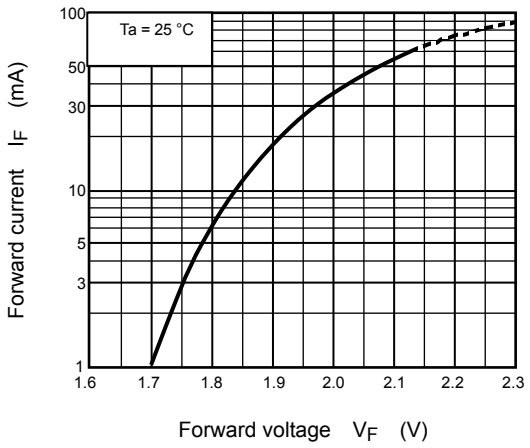


$I_F - Ta$

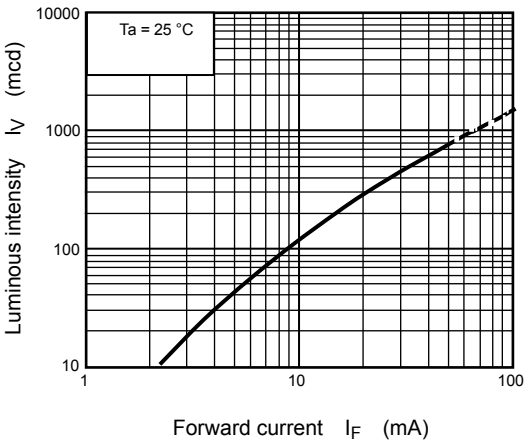


TLSE28C(F)

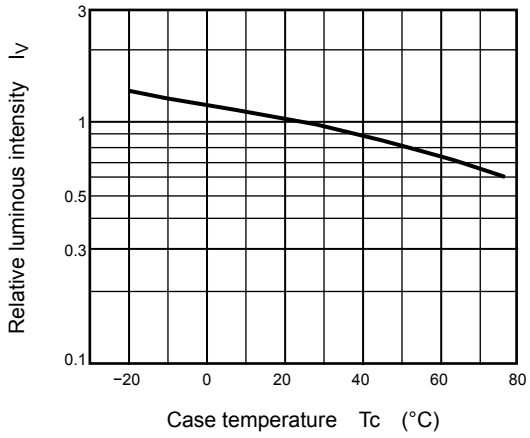
$I_F - V_F$



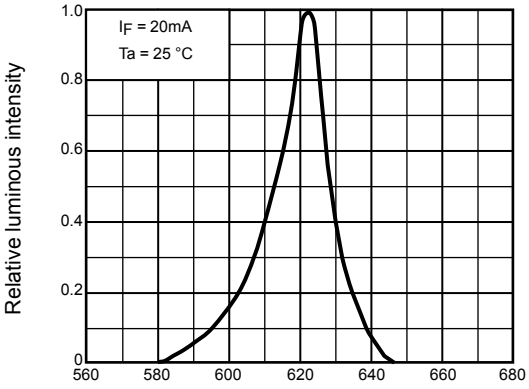
$I_V - I_F$



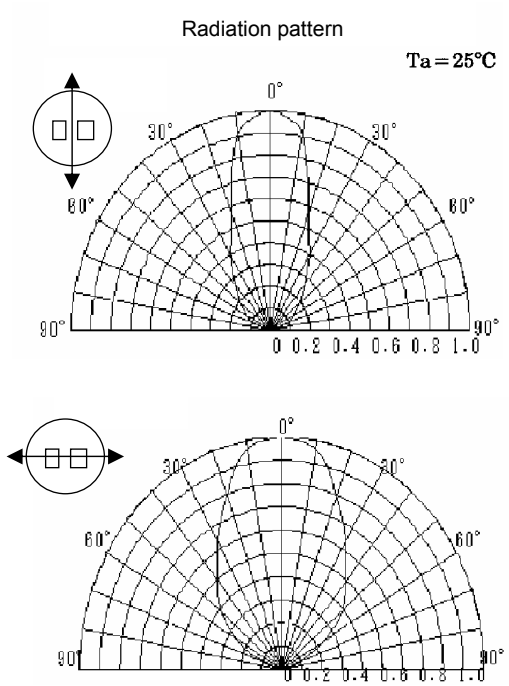
$I_V - Tc$



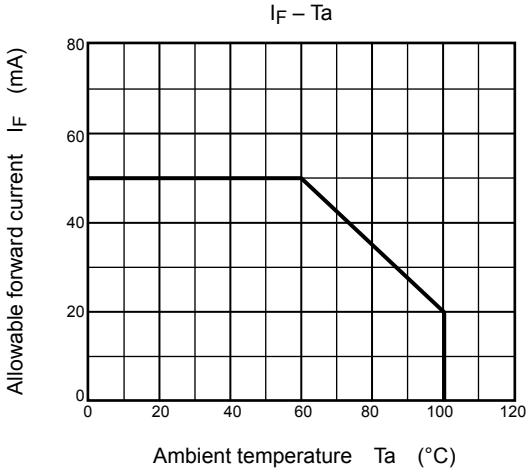
Relative luminous intensity – Wavelength



Radiation pattern

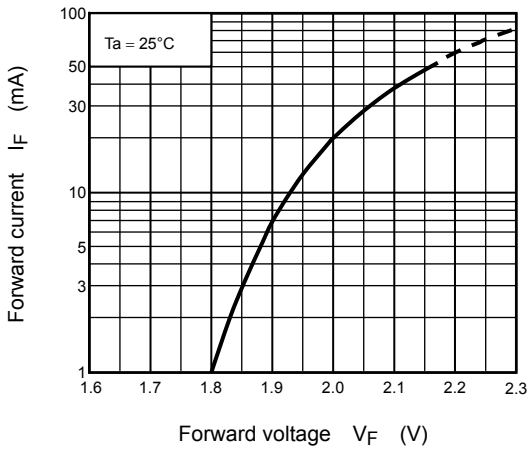


$I_F - Ta$

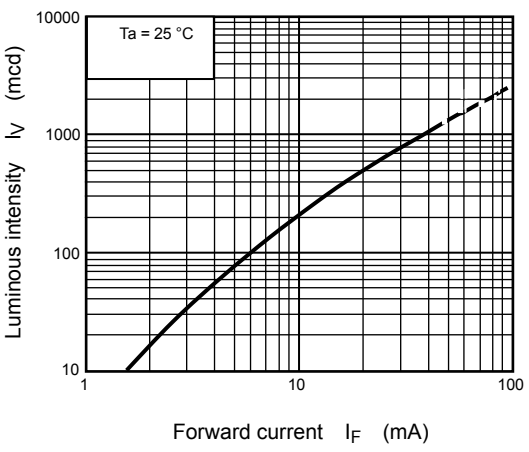


TLOE28C(F)

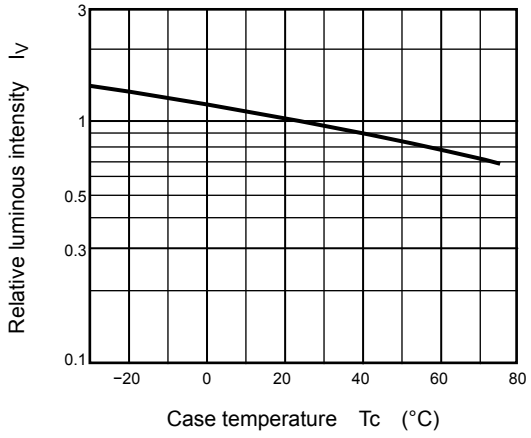
$I_F - V_F$



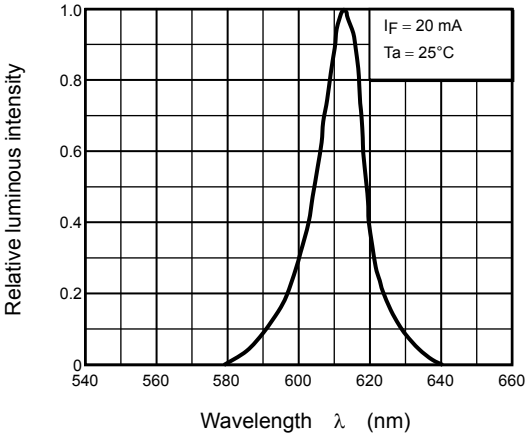
$I_V - I_F$



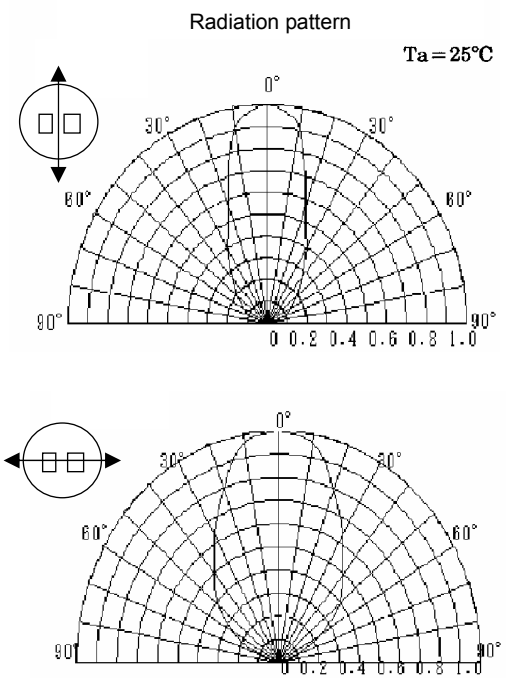
$I_V - Tc$



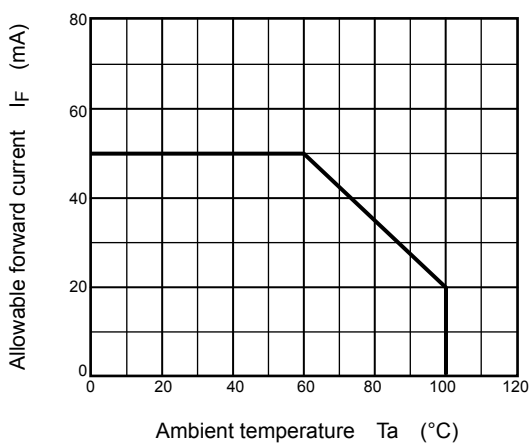
Relative luminous intensity – Wavelength



Radiation pattern

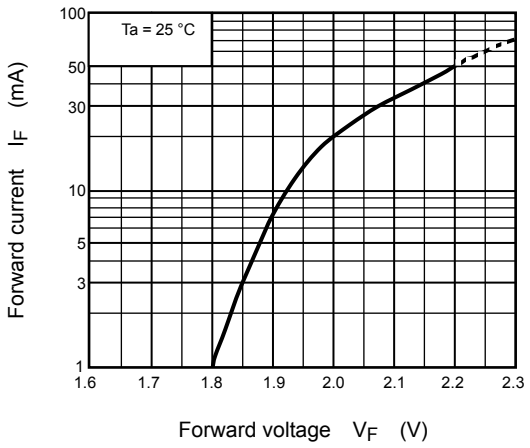


$I_F - Ta$

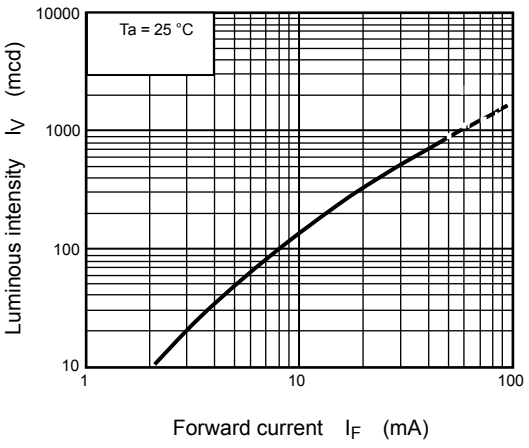


TLYE28C(F)

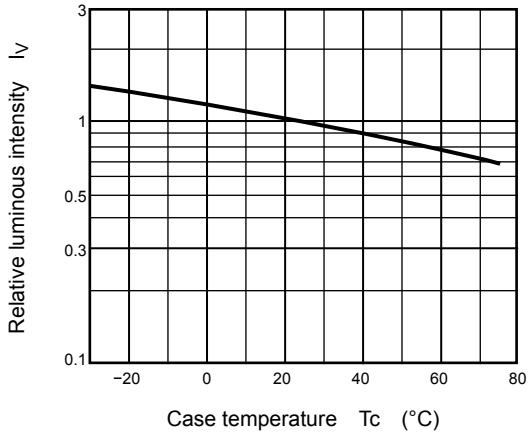
$I_F - V_F$



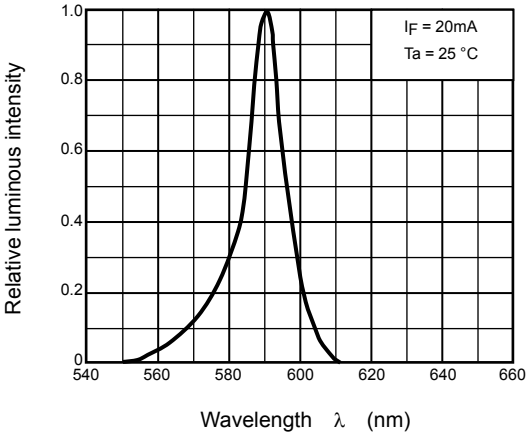
$I_V - I_F$



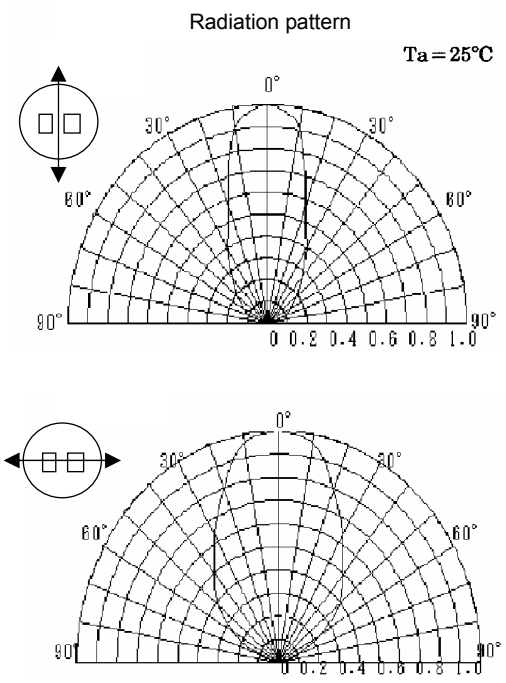
$I_V - Tc$



Relative luminous intensity – Wavelength



Radiation pattern



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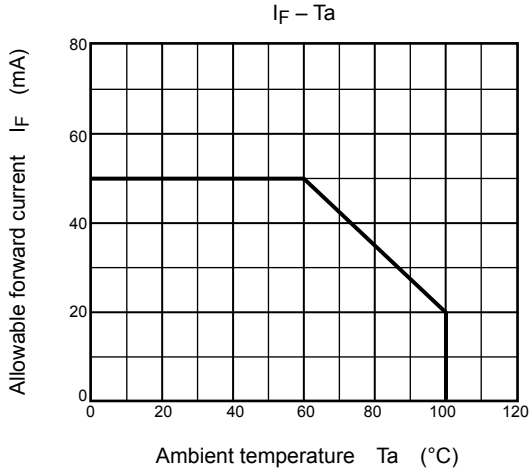
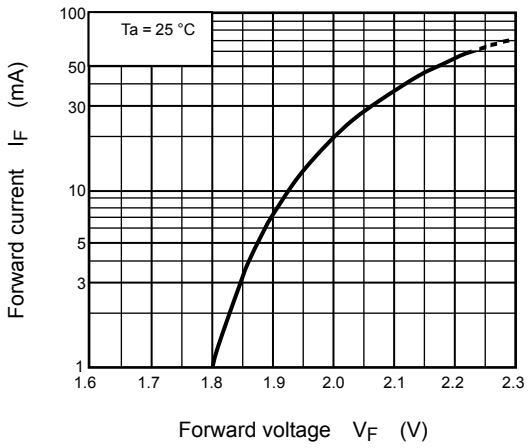
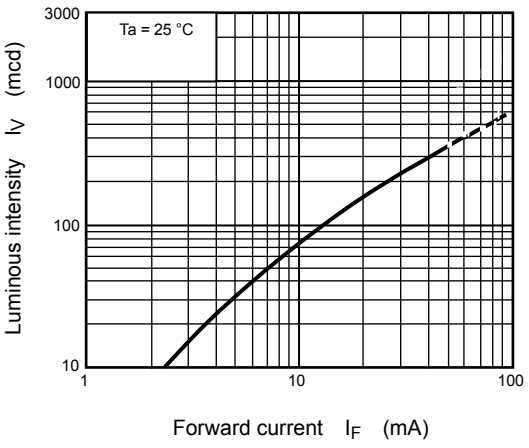


TLGE28C(F)

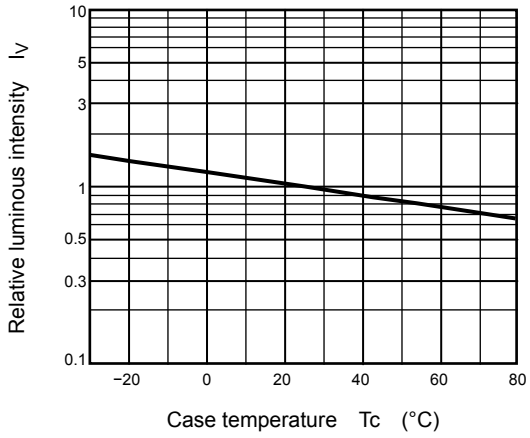
$I_F - V_F$



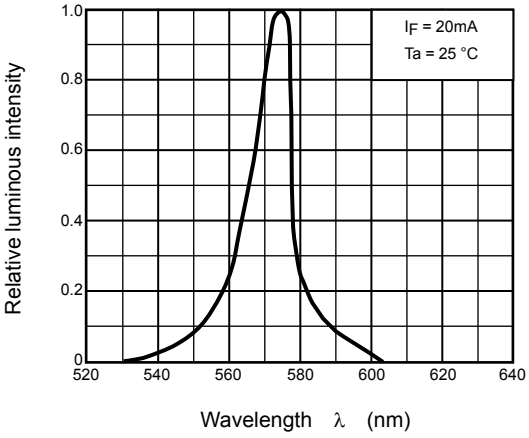
$I_V - I_F$



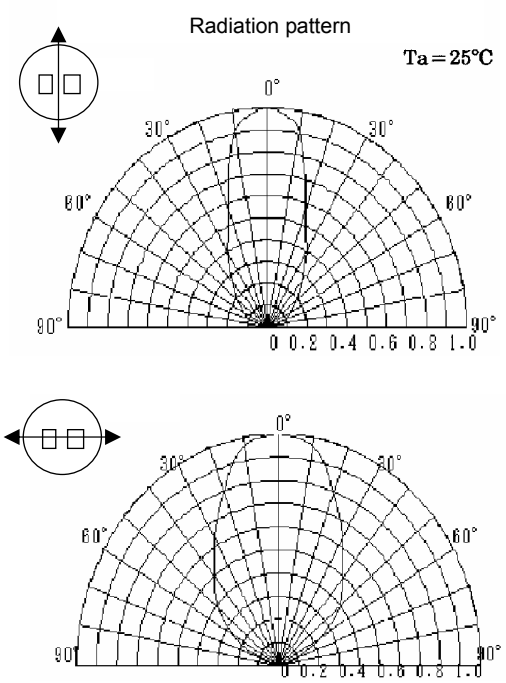
$I_V - Tc$



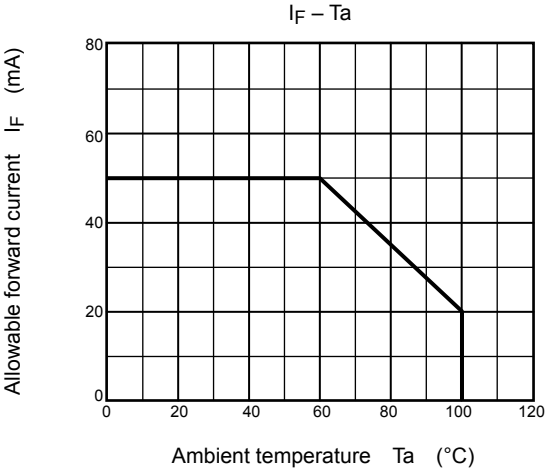
Relative luminous intensity – Wavelength



Radiation pattern



$I_F - Ta$



RESTRICTIONS ON PRODUCT USE

20070701-EN

- The information contained herein is subject to change without 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 his document shall be made at the customer’s own risk.
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