Preliminary TOSHIBA Infrared LED GaAℓAs Infrared Emitter

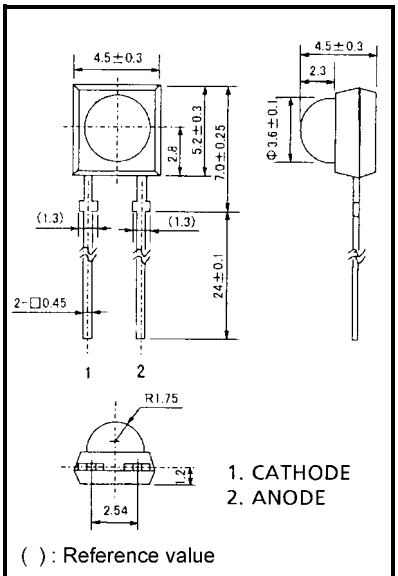
TLN217

Infrared Light-Emitting Diode for Still Camera
Light Source for Auto Focus

The TLN217 is a high output infrared LED employing a new structure of GaAℓAs current confining LED chip.

- Optical radiation of current confining LED chip is condensed by clear resin lens.
- High output and low forward voltage
- Peak emission wavelength: λp = 870 nm (typ.)
- Spectral line half width: Δλ = 35 nm (typ.)
- Effective emission diameter: 210 ×466 μm (typ.)

Unit: mm



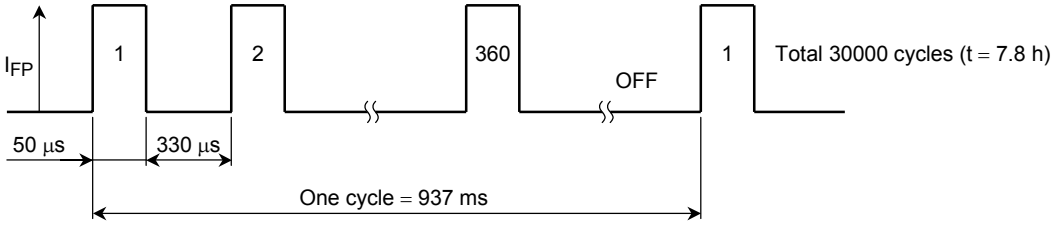
JEDEC	—
JEITA	—
TOSHIBA	—

Weight: 0.18 g (typ.)

Maximum Ratings (Ta = 25°C)

Characteristics	Symbol	Rating	Unit
Pulse forward current	I_{FP} (Note 1)	1.1	A
Reverse voltage	V_R	1	V
Operating temperature	T_{opr}	−25 to 60	°C
Storage temperature	T_{stg}	−40 to 90	°C

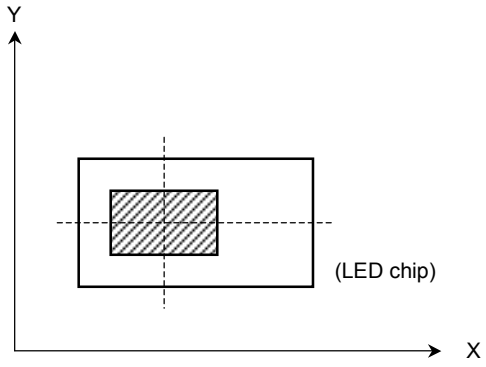
Note 1: Total 30000 cycles (total power applied time is 7.8 h). One cycle takes 137-ms power applied time and 800-ms pause time under the drive condition of 2.6 kHz frequency and 13.2% duty cycle.



Optical and Electrical Characteristics (Ta = 25°C)

Characteristics	Symbol	Test Condition	Min	Typ.	Max	Unit
Pulse forward voltage	V_{FP}	I_{FP} = 300 mA, t = 10 ms	—	1.6	1.75	V
Reverse current	I_R	V_R = 1 V	—	—	100	μA
Effective emission spot size	X	Half value of peak (Note 2)	—	466	—	μm
	Y	Half value of peak (Note 2)	—	210	—	
Radiation flux	φe	I_{FP} = 300 mA, t = 10 ms (Note 3)	12	17	—	mW
Half value angle	$\theta\frac{1}{2}$	I_F = 50 mA	—	±32.5	—	°
Peak emission wavelength	λp	I_F = 50 mA	850	870	900	nm
Spectral line half width	Δλ	I_F = 50 mA	—	35	—	nm

Note 2: The directions of X and Y are in the following diagram.
The shaded area represents the emitting surface.

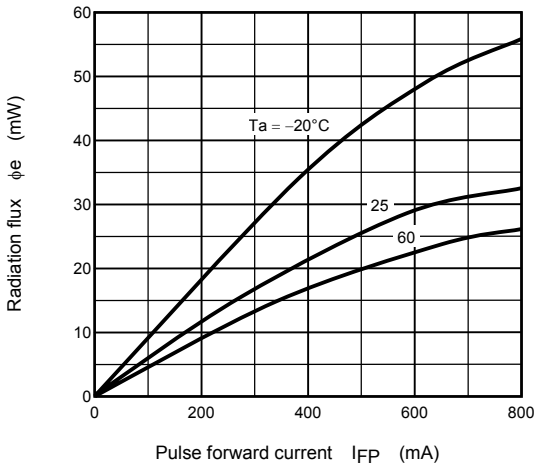


Note 3: Luminous radiation output to effective angle = ±25°

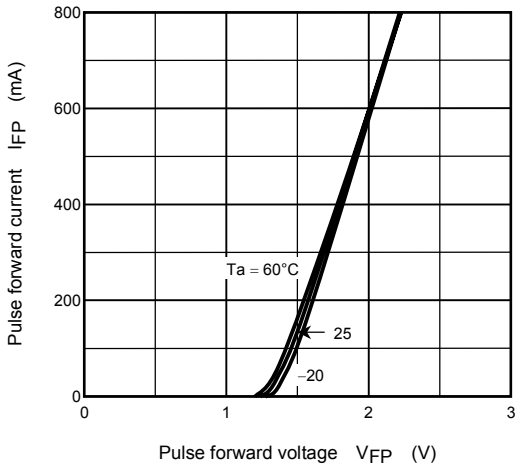
Precaution

- Soldering temperature: 260°C (max)
  Soldering time: 5 s (max)
  (Soldering must be performed 2 mm from the bottom of the package.)
- When forming the leads, bend each lead under the 2 mm from the body of the device. Soldering must be performed after the leads have been formed.
- The TLN217 is intended for a camera AF use only. Please do not use this device except for a camera.

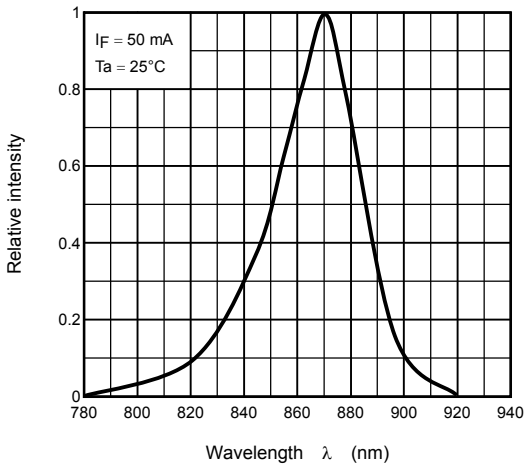
$\phi e - I_{FP}$ (typ.)



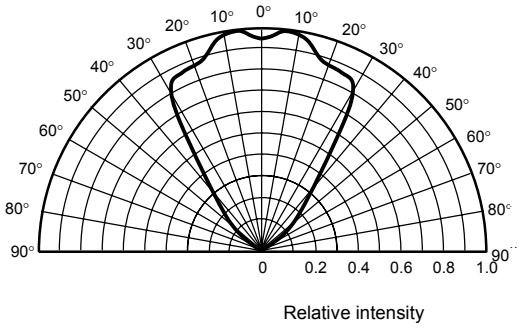
$I_{FP} - V_{FP}$ (typ.)



Wavelength characteristic



Radiation pattern (typ.)
Ta = 25°C



RESTRICTIONS ON PRODUCT USE

000707EAC

- 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.