

GaAlAs High-Output Infrared LED Lamps

TLN231 Series

TLN231 Series

The TLN231 Series is comprised of GaAlAs infrared LED lamps which incorporate a newly developed chip. The radiant incidence of these LED lamps is twice that of conventional TLN221 Series. Hence, when these new devices are used in combination with a TPS830 photo-IC in a high-speed remote control, a longer optical distance can be achieved. TLN231 Series devices are suitable for use in photo-electric switches.

Features

- High radiant incidence: twice that of conventional TLN221 Series devices
- Low V_F : V_F (max) = 2 V @ I_F = 100 mA
 V_F of 0.2 V, lower than that of TL221 Series devices
- High-speed response: t_r , t_f = 20 ns (typ.)
- Light source for TPS830 photo-ICs in high-speed optical remote control devices (carrier frequency = 455 kHz)

Applications

- Light source in remote control devices
- Light source for AV signal transmission
- Wireless keyboards and wireless mice
- High-speed data transmission
- Light source for photo-electric switches



Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
DC Forward Current	I_F	100	mA
Pulse Forward Current (Note 1)	I_{FP}	1000	mA
Power Dissipation	P_D	200	mW
DC Reverse Voltage	V_R	4	V
Operating Temperature	T_{opr}	-25~85	°C
Storage Temperature	T_{stg}	-30~100	°C
Soldering Temperature (5s) (Note 2)	T_{sol}	260	°C

Note 1: $f = 100$ kHz, duty ratio = 1%

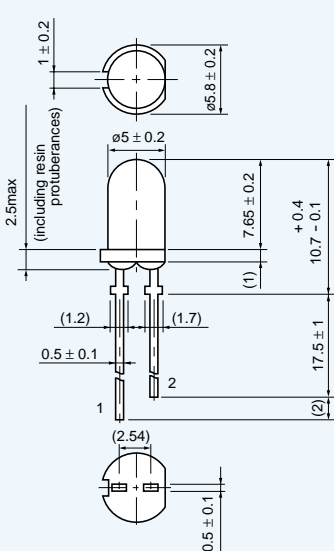
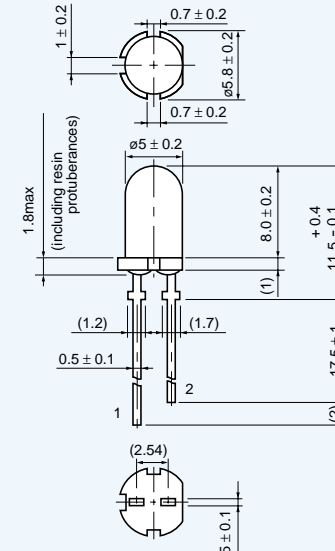
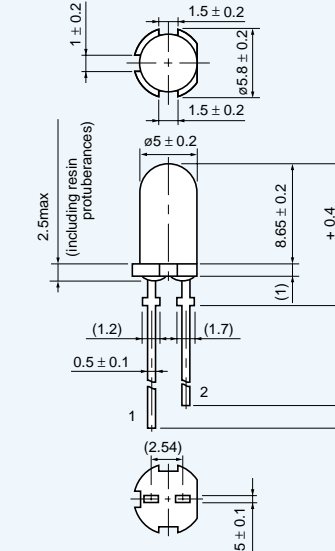
Note 2: Soldering is performed under the lead stopper.

Electrical and Optical Characteristics (Ta=25°C)

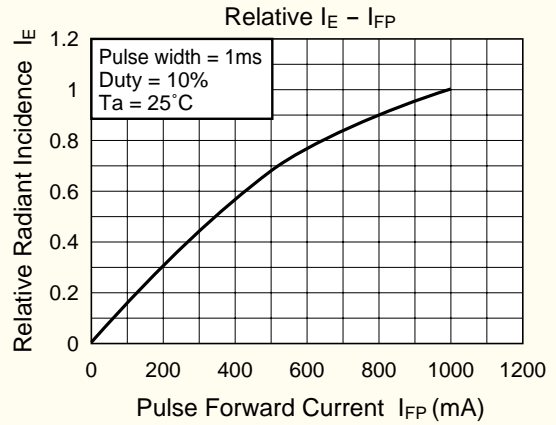
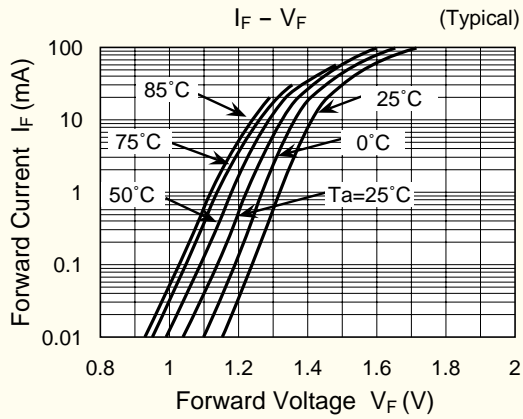
Product No.	DC Forward Voltage V_F (V)			Radiant Incidence I_E (mW/sr)			Peak Wavelength		Half-Angle Value (°)
	Typ.	Max	I_F (mA)	Min	Typ.	I_F (mA)	Typ.	I_F (mA)	
TLN231	1.6	2	100	35	60	50	870	50	± 16
* TLN233				(46)	(80)				(± 13)
* TLN237				(60)	(110)				(± 5)

*Under development

Package Dimensions

TLN231	TLN233	TLN237
		

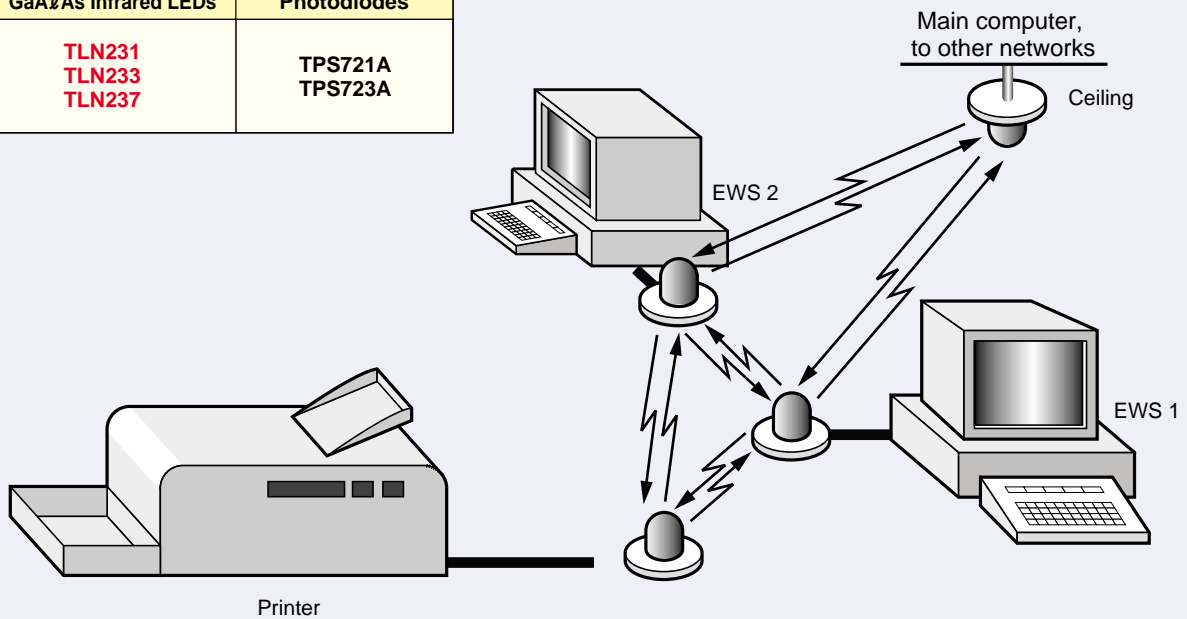
Characteristics



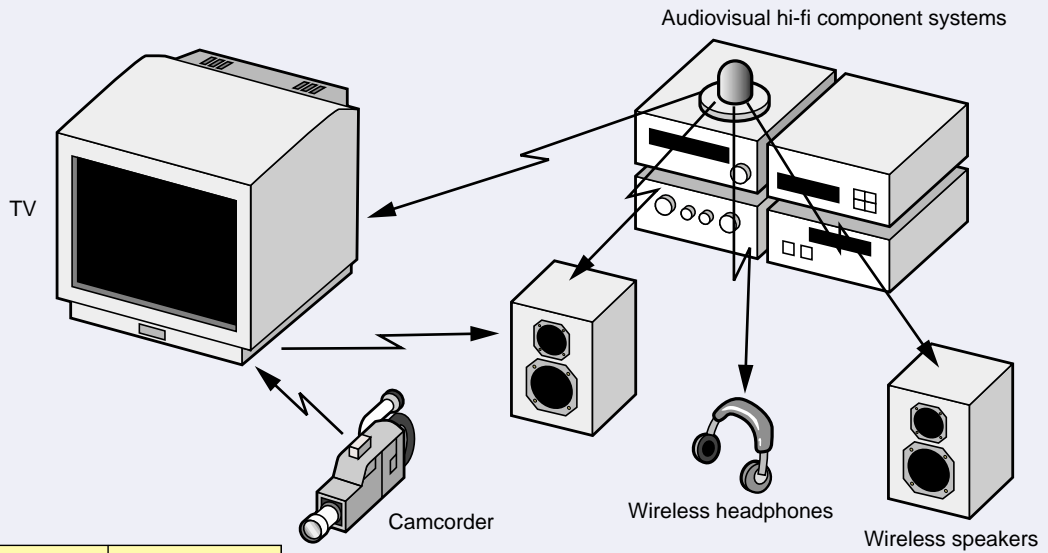
Application Examples

Office Networks

GaAs Infrared LEDs	Photodiodes
TLN231 TLN233 TLN237	TPS721A TPS723A

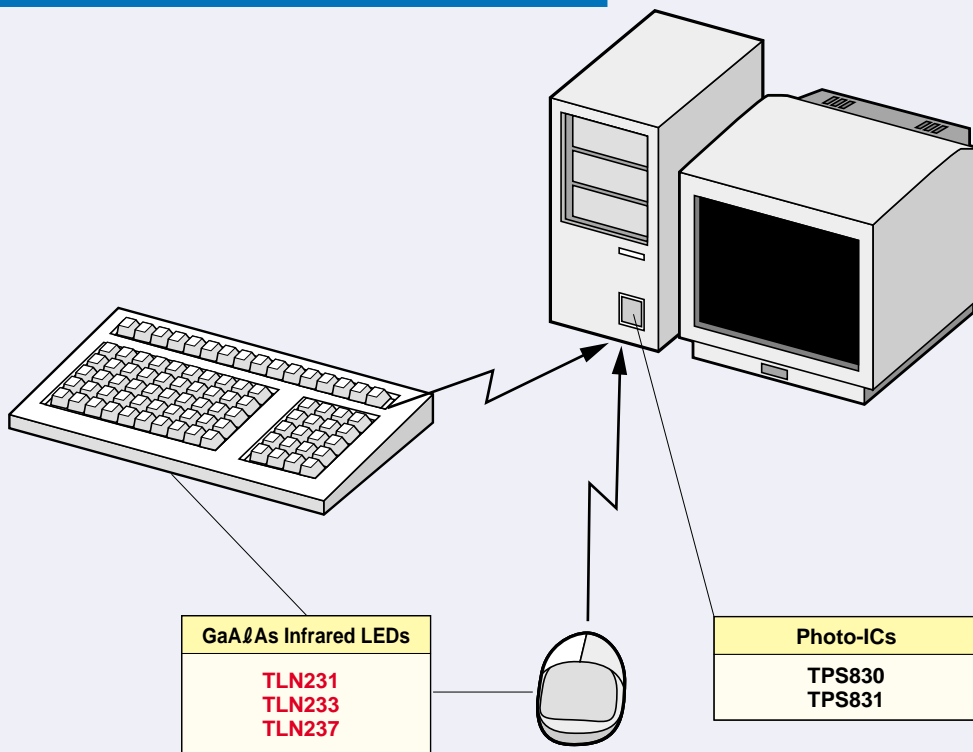


Audiovisual Hi-Fi Component Systems



GaAs Infrared LEDs	Photodiodes
TLN231 TLN233 TLN237	TPS721A TPS723A

Wireless Keyboards and Wireless Mice



**Toshiba America
Electronic Components, Inc.**

Headquarters-Irvine, CA
9775 Toledo Way, Irvine, CA 92618, U.S.A.
Tel: (949)455-2000 Fax: (949)859-3963

Boulder, CO
3100 Arapahoe Avenue, Ste. 500,
Boulder, CO 80303, U.S.A.
Tel: (303)442-3801 Fax: (303)442-7216

Boynton Beach, FL(Orlando)
11924 W. Forest Hill Blvd., Ste. 22-337,
Boynton Beach, FL 33414, U.S.A.
Tel: (561)374-6193 Fax: (561)374-6194

Deerfield, IL(Chicago)
One Pkwy., North, Suite 500, Deerfield,
IL 60015-2547, U.S.A.
Tel: (847)945-1500 Fax: (847)945-1044

Duluth, GA(Atlanta)
3700 Crestwood Parkway, Ste. 460,
Duluth, GA 30096, U.S.A.
Tel: (770)931-3363 Fax: (770)931-7602

Edison, NJ
2035 Lincoln Hwy. Ste. #3000, Edison
NJ 08817, U.S.A.
Tel: (732)248-8070 Fax: (732)248-8030

Orange County, CA
2 Venture Plaza, #500 Irvine, CA 92618, U.S.A.
Tel: (949)453-0224 Fax: (949)453-0125

Portland, OR
1700 NW 167th Place, #240,
Beaverton, OR 97006, U.S.A.
Tel: (503)629-0818 Fax: (503)629-0827

Raleigh, NC
5511 Capitol Center Dr., #114,
Raleigh, NC 27606, U.S.A.
Tel: (919)859-2800 Fax: (919)859-2898

Richardson, TX(Dallas)
777 East Campbell Rd., Suite 650, Richardson,
TX 75081, U.S.A.
Tel: (972)480-0470 Fax: (972)235-4114

San Jose Engineering Center, CA
1060 Rincon Circle, San Jose, CA 95131, U.S.A.
Tel: (408)526-2400 Fax: (408)526-2410

Wakefield, MA(Boston)
401 Edgewater Place, Suite #360, Wakefield,
MA 01880-6229, U.S.A.
Tel: (781)224-0074 Fax: (781)224-1095

Toshiba Do Brasil S.A.

Electronic Components Div.
Estrada Dos Alvarengas, 5. 500-Bairro Alvarenga
09850-550-Sao Bernardo do campo - SP
Tel: (011)7689-7171 Fax: (011)7689-7189

**Toshiba Electronics Europe GmbH
Düsseldorf Head Office**

Hansaallee 181, D-40549 Düsseldorf
Germany
Tel: (0211)5296-0 Fax: (0211)5296-400

München Office
Büro München Hofmannstrasse 52,
D-81378, München, Germany
Tel: (089)748595-0 Fax: (089)748595-42

Toshiba Electronics France SARL
Immeuble Robert Schumann 3 Rue de Rome,
F-93561, Rosny-Sous-Bois, Cedex, France
Tel: (1)48-12-48-12 Fax: (1)48-94-51-15

Toshiba Electronics Italiana S.R.L.
Centro Direzionale Colleoni
Palazzo Perseo Ingr. 2-Piano 6,
Via Paracelso n.12,
1-20041 Agrate Brianza Milan, Italy
Tel: (039)68701 Fax:(039)6870205

Toshiba Electronics España, S.A.
Parque Empresarial San Fernando Edificio Europa,
1ª Planta, ES-28831 Madrid, Spain
Tel: (91)660-6700 Fax:(91)660-6799

Toshiba Electronics(UK) Limited
Riverside Way, Camberley Surrey,
GU15 3YA, U.K.
Tel: (01276)69-4600 Fax: (01276)69-4800

Toshiba Electronics Scandinavia AB
Gustavslundsvägen 12, 2nd Floor
S-161 15 Bromma, Sweden
Tel: (08)704-0900 Fax: (08)80-8459

**Toshiba Electronics Asia
(Singapore) Pte. Ltd.**

Singapore Head Office
438B Alexandra Road, #06-08/12 Alexandra
Technopark, Singapore 119968
Tel: (278)5252 Fax: (271)5155

Bangkok Office
135 Moo 5 Bangkadi Industrial Park, Tivanon Rd.,
Bangkadi Amphur Muang Pathumthani, Bangkok, 12000,
Thailand
Tel: (02)501-1635 Fax: (02)501-1638

**Toshiba Electronics Trading
(Malaysia)Sdn. Bhd.**

Kuala Lumpur Head Office
Suite W1203, Wisma Consplant, No.2,
Jalan SS 16/4, Subang Jaya, 47500 Petaling Jaya,
Selangor Darul Ehsan, Malaysia
Tel: (3)731-6311 Fax: (3)731-6307

Penang Office
Suite 13-1, 13th Floor, Menard Penang Garden,
42-A, Jalan Sultan Ahmad Shah,
10050 Penang, Malaysia
Tel: 4-226-8523 Fax: 4-226-8515

Toshiba Electronics Philippines, Inc.

26th Floor, Citibank Tower, Valero Street, Makati,
Manila, Philippines
Tel: (02)750-5510 Fax: (02)750-5511

Toshiba Electronics Asia, Ltd.

Hong Kong Head Office
Level 11, Top Glory Insurance Building, Grand Century
Place, No.193, Prince Edward Road West,
Mong Kok, Kowloon, Hong Kong
Tel: 2375-6111 Fax: 2375-0969

Beijing Office
Rm 714, Beijing Fortune Building,
No.5 Dong San Huan Bei-Lu, Chao Yang District,
Beijing, 100004, China
Tel: (010)6590-8795 Fax: (010)6590-8791

Chengdu Office
Unit F, 18th Floor, New Times Plaza, 42 Wenwu Road,
Xinhua Avenue, Chengdu, 610017, China
Tel: (028)675-1773 Fax: (028)675-1065

Shenzhen Office
Rm 3010-3012, Office Tower Shun Hing Square,
Di Wang Commercial Centre, 333 ShenNan
East Road, Shenzhen, 518008, China
Tel: (0755)246-1582 Fax: (0755)246-1581

Toshiba Electronics Korea Corporation

Seoul Head Office
14/F, KEC B/D, 257-7 Yangjae-Dong,
Seocho-ku, Seoul, Korea
Tel: (02)589-4334 Fax: (02)589-4302

Gumi Office
6/F, Ssangyong Investment Securities B/D,
56 Songjung-Dong, Gumi City
Kyeongbuk, Korea
Tel: (82)54-456-7613 Fax: (82)54-456-7617

**Toshiba Technology Development
(Shanghai) Co., Ltd.**

23F, Shanghai Senmao International Building, 101
Yin Cheng East Road, Pudong New Area, Shanghai,
200120, China
Tel: (021)6841-0666 Fax: (021)6841-5002

**Tsurong Xiamen Xiangyu Trading
Co., Ltd.**

8N, Xiamen SEZ Bonded Goods Market Building,
Xiamen, Fujian, 361006, China
Tel: (0592)562-3798 Fax: (0592)562-3799

**Toshiba Electronics Taiwan
Corporation**

Taipei Head Office
17F, Union Enterprise Plaza Bldg. 109
Min Sheng East Rd., Section 3, 0446 Taipei,
Taiwan
Tel: (02)514-9988 Fax: (02)514-7892

Kaohsiung Office
16F-A, Chung-Cheng Bldg., Chung-Cheng 3Rd.,
80027, Kaohsiung, Taiwan
Tel: (07)222-0826 Fax: (07)223-0046

The information contained herein is subject to change without notice.

The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others.

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 some of the products described in this documents. GaAs dust and fumes are toxic. Do not break, cut or pulverize the products, 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.

Website: <http://www.semicon.toshiba.co.jp/indexus.htm>

In Touch with Tomorrow
TOSHIBA

TOSHIBA CORPORATION

Electronic Devices Sales & Marketing Division
1-1, Shibaura 1-chome, Minato-ku, Tokyo, 105-8001, Japan
Tel: +81-3-3457-3405 Fax: +81-3-5444-9431