

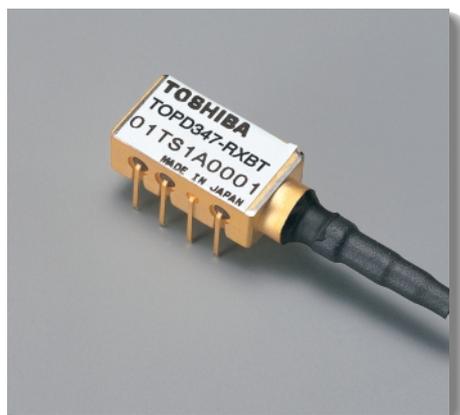
Optical Communication Devices

2.5 Gb/s Optical Receiver

TOPD347-RXB Series : TOPD347-RXBS
TOPD347-RXBT



(SMD type : TOPD347-RXBS)



(Through hole mount type : TOPD347- RXBT)

APPLICATION

- SONET / SDH (OC-48 / STM-16) applications

FEATURES

- PIN-PD and TIA
- TOPD347-RXBS: SMD type
- TOPD347-RXBT: through hole mount type
- Differential data outputs
- Single power supply voltage: +3.3 V to +5 V
- Sensitivity: -23.5 dBm (typ. @ BER = 1×10^{-10})
- Overload : 0 dBm (typ. @ BER = 1×10^{-10})
- Operating case temperature range: -40 to +85 °C
- Package size: 7.4 (W) x 13.2 (D) x 4.6 (H) mm

ABSOLUTE MAXIMUM RATINGS (Tc = 25 °C)

Item	Symbol	Rating	Unit
Storage temperature	Tstg	-40 to +85	°C
Operating case temperature	Tc	-40 to +85	°C
PD forward current	If	10	mA
PD reverse current	Ir	1	mA
PD reverse voltage	Vpd	20	V
Positive supply voltage	Vdd	0 to +6	V
Soldering temperature / time	Tsol / tsol	260 / 5	°C / s

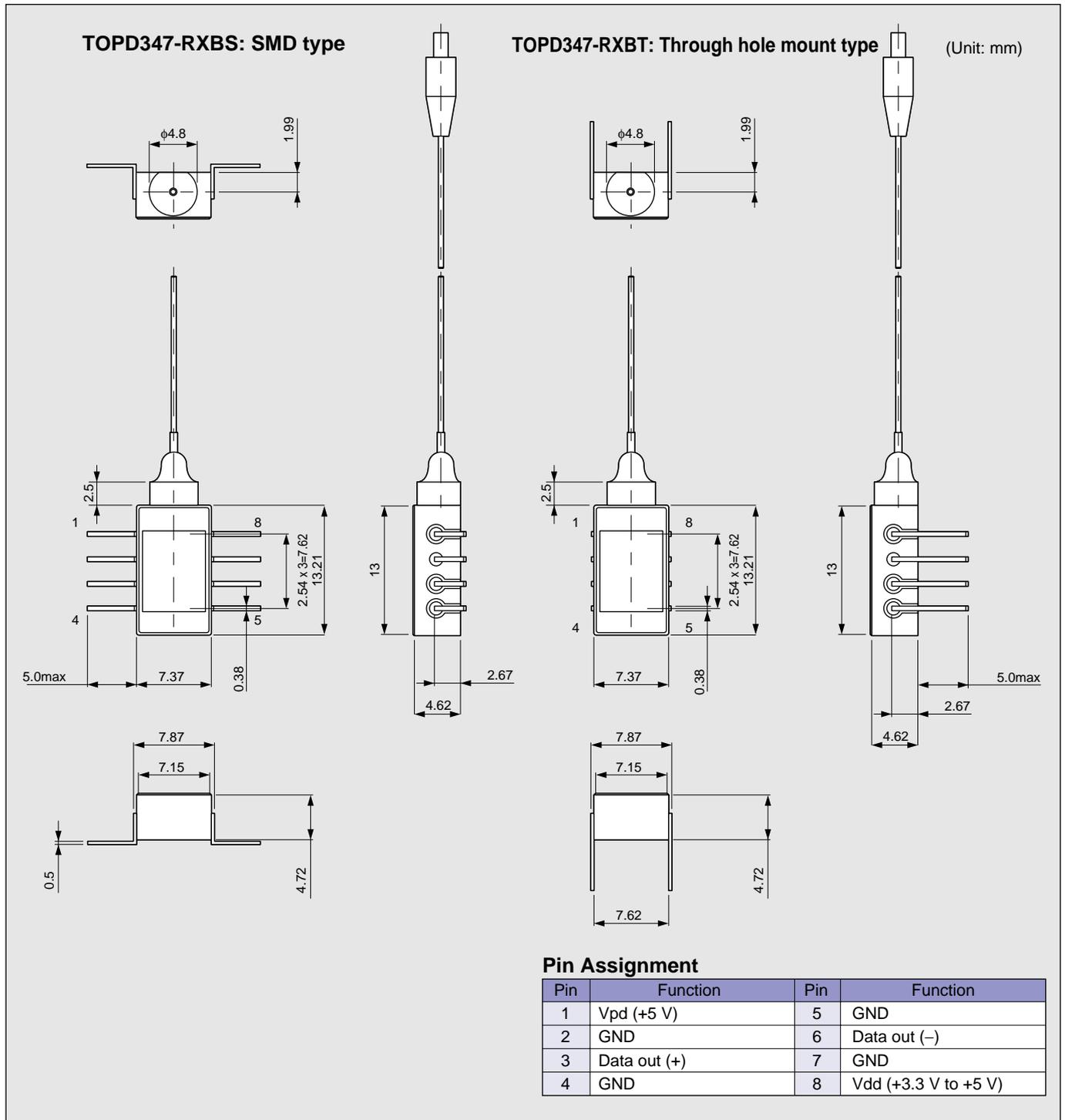
ELECTRICAL AND OPTICAL CHARACTERISTICS (Tc = -40 to +85 °C, Vpd = +5 V, Vdd = +3.3 V to +5 V)

Item	Min	Typ.	Max	Unit	Note
Positive supply current	-	34	-	mA	
Sensitivity	-	-23.5	-20	dBm	(1)
Overload	-2	0	-	dBm	(1)
Dark current	-	-	50	nA	
Bandwidth (-3 dB)	1.4	1.8	-	GHz	(2)
Logic sense	-	-	-	-	(3)
Skew, data out (+) to data out (-)	-20	-	20	ps	
Optical return loss	-	-	-27	dB	(4)
Output signal amplitude	20	-	250	mVpp	(5)
Electrical return loss	10	-	-	dB	(6)
	9	-	-	dB	(7)

Notes:

- (1) 2.48832 Gb/s, NRZ, PRBS 2³¹-1, BER = 1 x 10⁻¹⁰, λ = 1.55 μm
- (2) -4 dBm > Pf > -27 dBm
- (3) Data out (+), Light ON = Vout Logic HIGH
Data out (-), Light ON = Vout Logic LOW
- (4) λ = 1.3/1.55 μm
- (5) 0 dBm > Pf > -20 dBm
- (6) 0.13 GHz < F < 1.75 GHz
- (7) 1.75 GHz < F < 2.5 GHz

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT



PRECAUTIONS

- (a) Power supply: Transient electric spike may cause a damage to the photodiode or IC chips.
A surge-free power supply and a slow starter circuit should be used.
To avoid causing an electrical surge, pin should not be connected or disconnected on the fixture before turning the power off.
- (b) The product should be grounded for obtaining the performance.

OVERSEAS SUBSIDIARIES AND AFFILIATES

011025 (X)

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

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

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

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., #650, Richardson,
TX 75081, U.S.A.
Tel: (972)480-0470 Fax: (972)235-4114

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

Toshiba Electronics Europe GmbH

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

Toshiba Electronics Italiana S.R.L.
Centro Direzionale Colleoni,
Palazzo Perseo 3,
1-20041 Agrate Brianza, (Milan), Italy
Tel: (039)68701 Fax:(039)6870205

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

Toshiba Electronics Scandinavia A.B.
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

Toshiba Electronics Asia, Ltd.

Hong Kong Head Office
Level 11, Tower 2, 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)6590-8796 Fax: (010)6590-8791

**Toshiba Electronics Korea
Corporation**

Seoul Head Office
14/F, KEC B/D, 275-7 Yangjae-dong,
Seocho-ku, Seoul, Korea
Tel: (02)589-4300 Fax: (02)589-4302

**Toshiba Technology Development
(Shanghai) Co., Ltd.**
23F, HSBC Tower, 101
Yin Cheng East Road, Pudong New Area, Shanghai,
200120, China
Tel: (021)6841-0666 Fax: (021)6841-5002

**Toshiba Electronics Taiwan
Corporation**

Taipei Head Office
17F, Union Enterprise Plaza Bldg. 109
Min Sheng East Rd., Section 3, 10446 Taipei, Taiwan
Tel: (02)2514-9988 Fax: (02)2514-7892

(As of August, 2001)

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.

The products described in this document are subject to the foreign exchange and foreign trade laws. 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/eng/index.html>

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

©2002 TOSHIBA CORPORATION
Printed in Japan