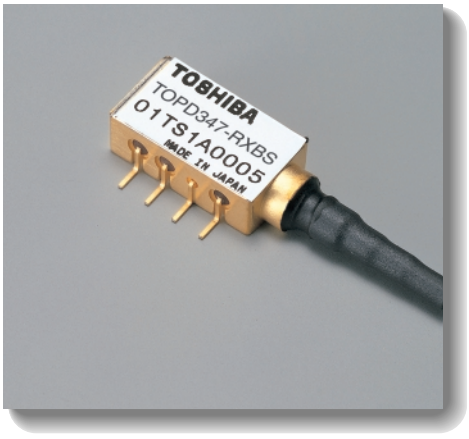
TOSHIBA

March 2002

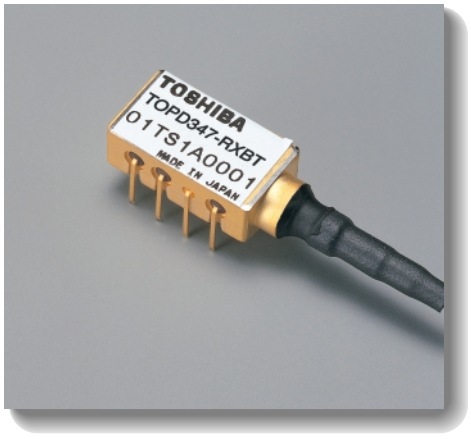
Optical Communication Devices

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 x 10^{-10})
- Overload : 0 dBm (typ. @ BER = 1 x 10^{-10})
- Operating case temperature range: –40 to +85 ˚C
- Package size: 7.4 (W) x 13.2 (D) x 4.6 (H) mm

TOPD347-RXB Series • TOPD347-RXBS • TOPD347-RXBT

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)

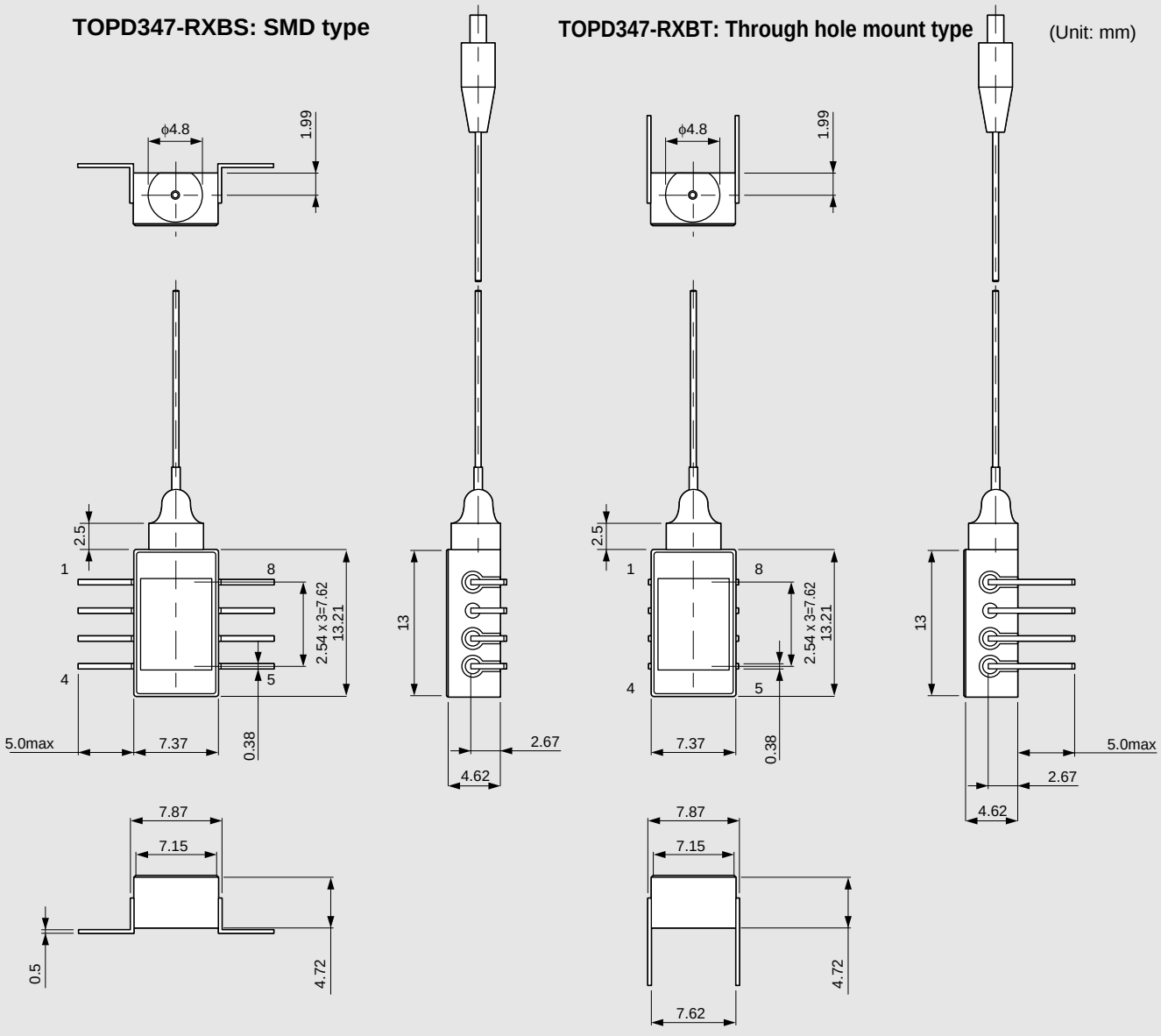
Notes:
(1) 2.48832 Gb/s, NRZ, PRBS 2^{31}–1, BER = 1 x 10^{-10}, λ = 1.55 µm
(2) –4 dBm > Pf > –27 dBm
(3) Data out (+), Light ON = Vout Logic HIGH
Data out (–), Light ON = Vout Logic LOW
(4) λ = 1.3/1.55 µm
(5) 0 dBm > Pf > –20 dBm
(6) 0.13 GHz < F < 1.75 GHz
(7) 1.75 GHz < F < 2.5 GHz

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT

TOPD347-RXBS: SMD type

TOPD347-RXBT: Through hole mount type

(Unit: mm)



Pin Assignment

Pin	Function	Pin	Function
1	Vpd (+5 V)	5	GND
2	GND	6	Data out (–)
3	Data out (+)	7	GND
4	GND	8	Vdd (+3.3 V to +5 V)

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 obtaininng 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

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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

Website: http://www.semicon.toshiba.co.jp/eng/index.html

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