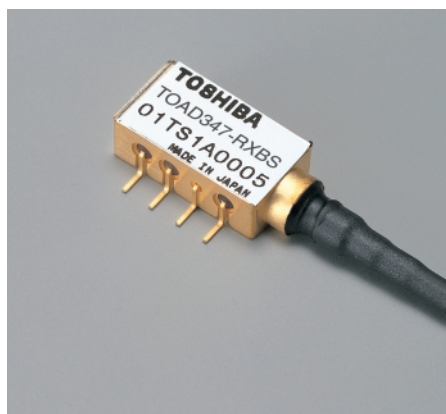


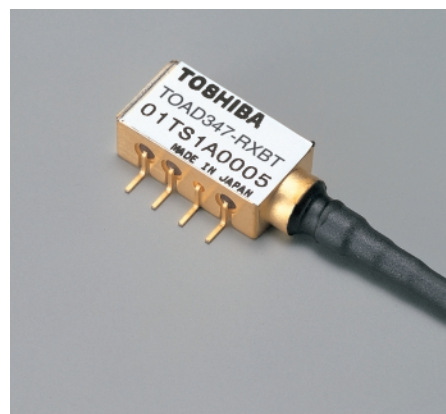
## Optical Communication Devices

### 2.5 Gb/s Optical Receiver

**TOAD347-RX Series** : TOAD347-RXBS/TOAD347-RXBT  
TOAD347-RXCS/TOAD347-RXCT



(SMD type : TOAD347-RXBS / TOAD347-RXCS)



(Through hole mount type : TOAD347-RXBT / TOAD347-RXCT)

#### APPLICATION

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

#### FEATURES

- APD and TIA
- Package: SMD type, through hole mount type
- With thermistor (TOAD347-RXCS / T)
- Differential data outputs
- Single power supply voltage: +3.3 V to +5 V
- Sensitivity: -33 dBm (typ. @ BER =  $1 \times 10^{-10}$ )
- Overload : 0 dBm (typ. @ BER =  $1 \times 10^{-10}$ )
- 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
APD forward current	If	1	mA
APD reverse current	Ir	2000	µA
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, Vdd = +3.3 V to +5 V)**

Item	Min	Typ.	Max	Unit	Note
Positive supply current	-	50	-	mA	
Breakdown voltage (Id = 100 µA, Tc = 25°C)	35	-	85	V	
Dark current (M = 12, Tc = 25°C)	-	40	100	nA	
Sensitivity	-	-33	-	dBm	(1)
Overload	-2	0	-	dBm	(1)
Bandwidth (-3 dB)	1.4	2.0	-	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)
Thermistor resistance (Tc = 25°C)	9.5	10.0	10.5	kΩ	(8),(9)

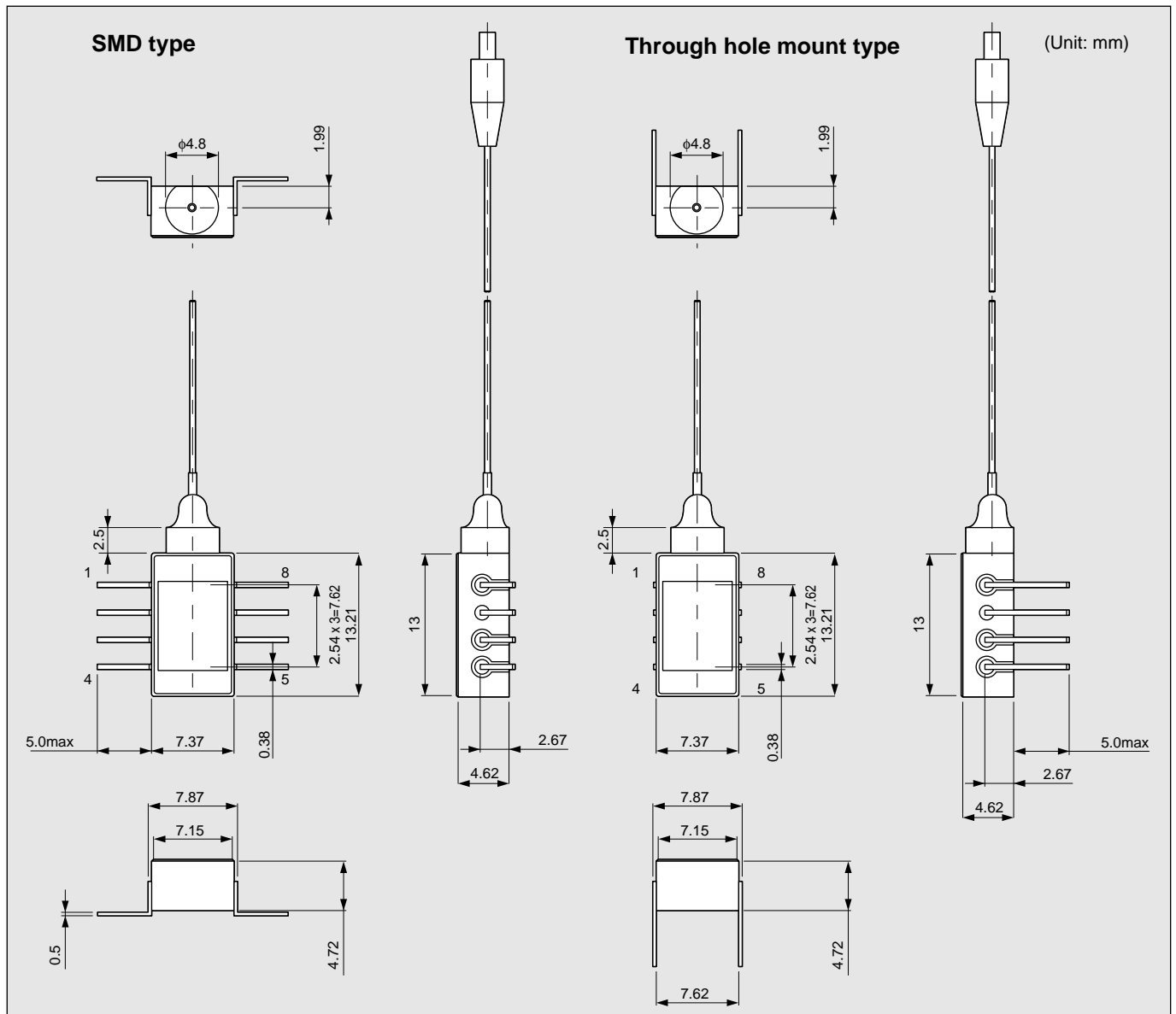
Notes:

- (1) 2.48832 Gb/s, NRZ, PRBS 2<sup>31</sup>-1, BER = 1 x 10<sup>-10</sup>, λ = 1.55 µm
- (2) Pf = -30 dBm, M = 12
- (3) DATA OUT (+), Light ON = Vout Logic HIGH  
DATA OUT (-), Light ON = Vout Logic LOW
- (4) λ = 1.3/1.55 µm
- (5) -10 dBm > Pf > -30 dBm
- (6) 0.13 GHz < F < 1.75 GHz
- (7) 1.75 GHz < F < 2.5 GHz
- (8) TOAD347-RXCS, TOAD347-RXCT
- (9) 3 kΩ (typ.) available

**PRODUCT LINE-UP**

Part Number	Package Type	Thermistor
TOAD347-RXBS	SMD	Non
TOAD347-RXBT	Through hole mount	Non
TOAD347-RXCS	SMD	Included
TOAD347-RXCT	Through hole mount	Included

## DIMENSIONAL OUTLINE



## PIN ASSIGNMENT

Pin Assignment for (TOAD347-RXBS/TOAD347-RXBT)

Pin	Function	Pin	Function
1	Vapd	5	GND
2	GND	6	DATA OUT (-)
3	DATA OUT (+)	7	GND
4	GND	8	Vdd (+3.3 V to +5 V)

Pin Assignment for (TOAD347-RXCS/TOAD347-RXCT)

Pin	Function	Pin	Function
1	Vapd	5	Thermistor
2	GND	6	DATA OUT (-)
3	DATA OUT (+)	7	GND
4	GND	8	Vdd (+3.3 V to +5 V)

## PRECAUTIONS

- 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, pins should not be connected or disconnected on the test fixture before turning the power off.
- 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)

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**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

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