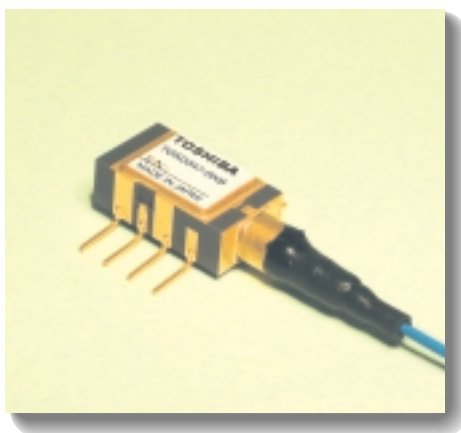


Optical Communication Devices

2.5 Gb/s Optical Receiver

TOAD347-RXB/TOAD347-RXC Series



APPLICATION

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

FEATURES

- APD and TIA
- TOAD347-RXB: Mini-DIL package without thermistor
- TOAD347-RXC: Mini-DIL package with thermistor
- Differential data output
- Single power supply voltage: +3.3 V to +5 V
- Sensitivity: -33 dBm (Typ. @ BER = 1×10^{-10})
- Overload: -8 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

TOAD347-RXB/TOAD347-RXC Series

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	500	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 = 10 μA, Tc = 25°C)	35	—	85	V	
Dark current (M = 12, Tc = 25°C)	—	40	100	nA	
Sensitivity	—	–33	—	dBm	(1)
Overload	—	–8	—	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	15	—	500	mVpp	(5)
Electrical return loss	10	—	—	dB	(6)
	9	—	—	dB	(7)
Thermistor resistance (TOAD347-RXC, Tc = 25°C)	9.5	10.0	10.5	kΩ	(8)

Notes:

(1) 2.48832 Gb/s, NRZ, PRBS 2³¹–1, BER = 1 × 10^{–10}, 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

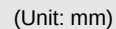
(4) λ = 1.3/1.55 μm

(5) –10 dBm > Pf > –30 dBm

(6) 0.13 GHz < F < 1.75 GHz

(7) 1.75 GHz < F < 2.5 GHz

(8) 3 kΩ (typ.) available



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	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)

- (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, pins should not be connected or disconnected on the test fixture before turning the power off.
- (b) The product should be grounded for obtaining the performance.

OVERSEAS SUBSIDIARIES AND AFFILIATES

010126 (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 60015-2547, U.S.A.
Tel: (847)945-1500 Fax: (847)945-1044

Edison, NJ
2035 Lincoln Hwy. Ste. #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., Suite 650, Richardson,
TX 75081, U.S.A.
Tel: (972)480-0470 Fax: (972)235-4114

Wakefield, MA(Boston)
401 Edgewater Place, Suite #360, Wakefield,
MA 01880-6229, 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 Ingr. 2-Piano 6,
Via Paracelso n.12,
I-20041 Agrate Brianza Milan, Italy
Tel: (039)68701 Fax: (039)6870205

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, 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

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

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

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

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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