

Optical Communication Devices

2.5 Gb/s Optical Receiver

TOAD345-RX/TOPD345-RX Series



APPLICATION

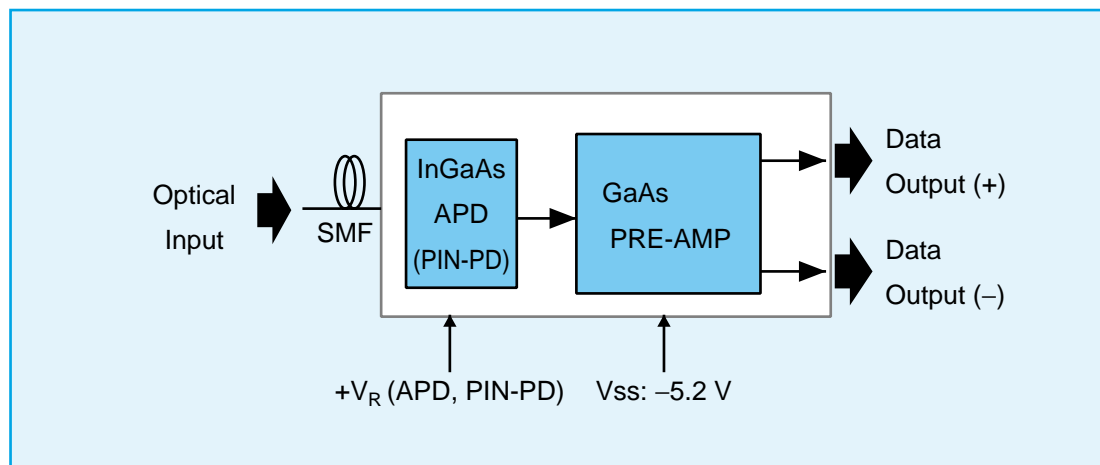
- SONET / SDH (OC-48 / STM-16) applications

FEATURES

- TOAD345-RX: APD and TIA
 - Sensitivity -33 dBm (Typ. @ BER = 1×10^{-10})
 - Overload -7.5 dBm (Typ. @ BER = 1×10^{-10})
- TOPD345-RX: PIN-PD and TIA
 - Sensitivity -25 dBm (Typ. @ BER = 1×10^{-10})
 - Overload -0.0 dBm (Typ. @ BER = 1×10^{-10})
- Wavelength: $1.3/1.55$ μ m
- Differential output
- Package size: 19.2 mm (W) x 20.2 mm (D) x 8.1 mm (H)

TOAD345-RX/TOPD345-RX Series

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit	Note
Storage temperature	Tstg	-40 to +85	°C	
Operating case temperature	Tc	0 to +70	°C	
Optical input power	Pr	-4	dBm	(1)
		3	dBm	(2)
Voltage supply	Vss	-6 to 0	V	
Soldering temperature / time	Tsol / tsol	260 / 5	°C / s	

Note: (1) TOAD345-RX, (2) TOPD345-RX

ELECTRICAL AND OPTICAL CHARACTERISTICS (2.48832 Gb/s, NRZ, PRBS 2²³-1, $\lambda = 1.55 \mu\text{m}$, Tc = 25 °C)

TOAD345-RX

Item	Symbol	Min	Typ.	Max	Unit	Note
Supply current	Iss	—	-130	—	mA	(1)
Sensitivity	Ps	—	-33.0	-31.5	dBm	(2)
Overload	Pol	-8.5	-7.5	—	dBm	(2)
Cut-off frequency	fc	1.25	1.6	3.0	GHz	
Output data voltage	Vpp	30		1000	mVpp	

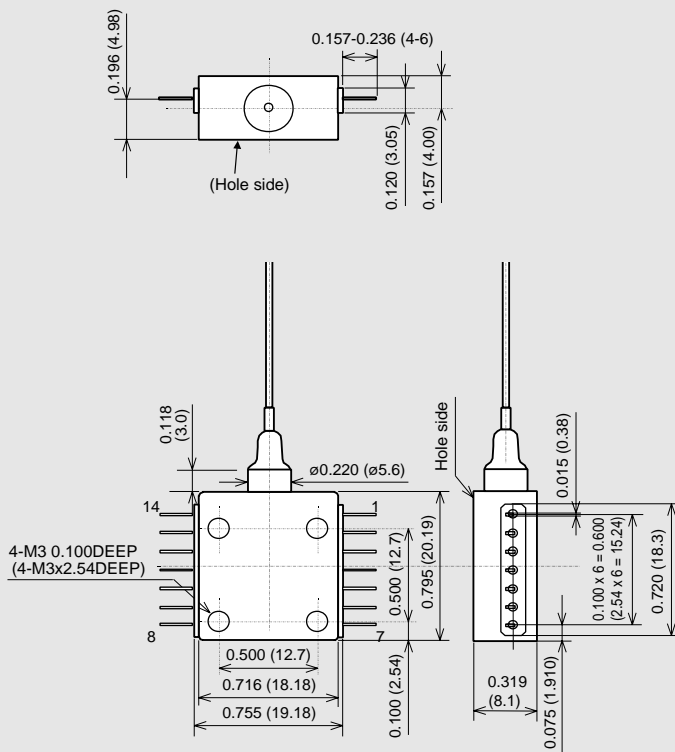
TOPD345-RX

Item	Symbol	Min	Typ.	Max	Unit	Note
Supply current	Iss	—	-130	—	mA	(1)
Sensitivity	Ps	—	-25.0	-23.5	dBm	(2)
Overload	Pol	-1.0	-0.0		dBm	(2)
Cut-off frequency	fc	1.25	1.7	3.3	GHz	
Output data voltage	Vpp	30		1000	mVpp	

Note: (1) Vss = -5.2 V, (2) at BER = 1×10^{-10}

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT

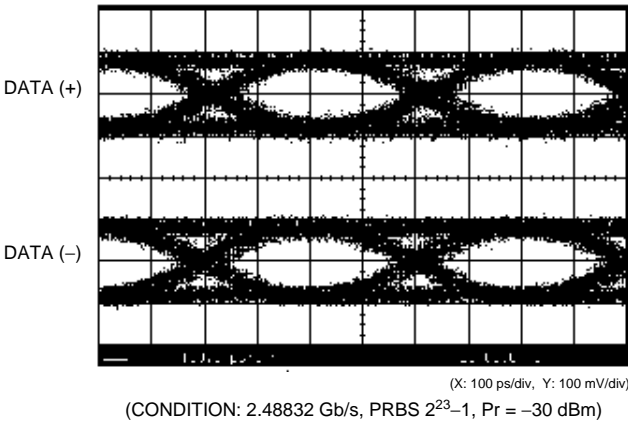
Unit: inch (mm)



Pin Assignment

Pin	Function	Pin	Function
1	GND	8	GND
2	V _R (APD, PD)	9	GND
3	GND	10	DATA OUT (+)
4	V _{ss} (-5.2 V)	11	DATA OUT (-)
5	GND	12	GND
6	THERMISTOR	13	NC
7	GND	14	NC

EYE DIAGRAM



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, 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.

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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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