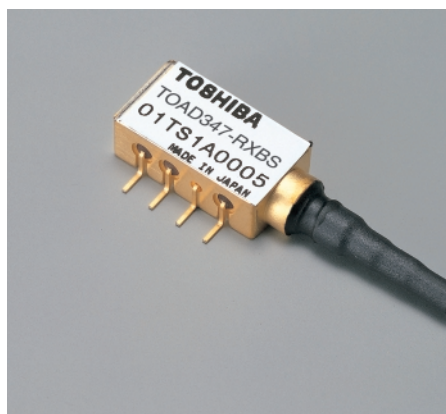


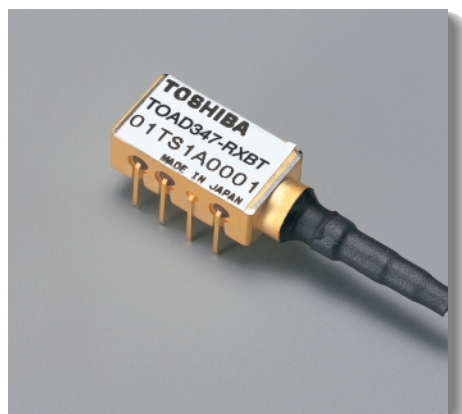
## Optical Communication Devices

### 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

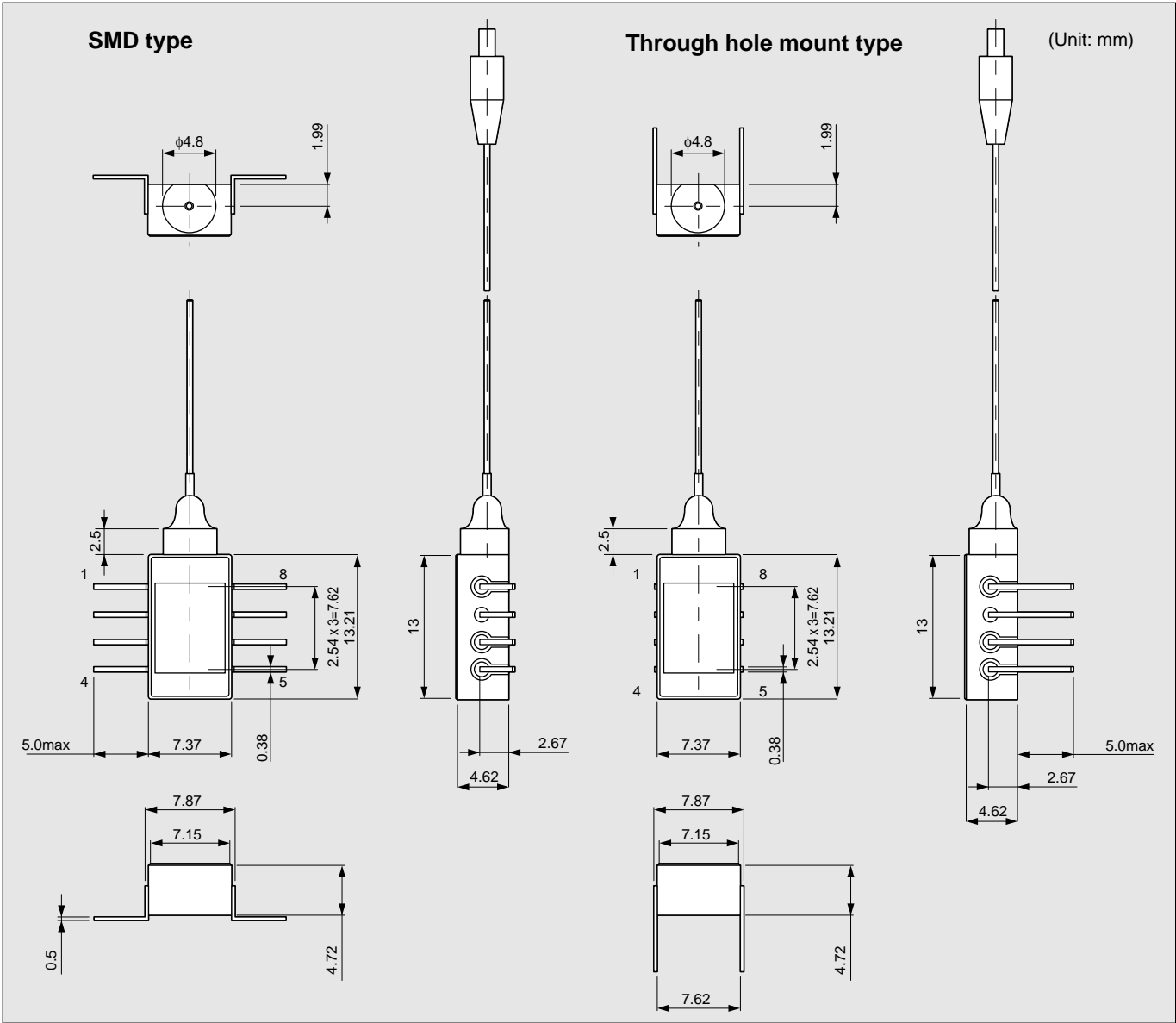
(8) TOAD347-RXCS, TOAD347-RXCT

(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/TOAD347RXBT)				Pin Assignment for (TOAD347-RXCS/TOAD347-RXCT)			
Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	Vapd	5	GND	1	Vapd	5	Thermistor
2	GND	6	DATA OUT (-)	2	GND	6	DATA OUT (-)
3	DATA OUT (+)	7	GND	3	DATA OUT (+)	7	GND
4	GND	8	Vdd (+3.3 V to +5 V)	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, 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.

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(As of May, 2002)

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