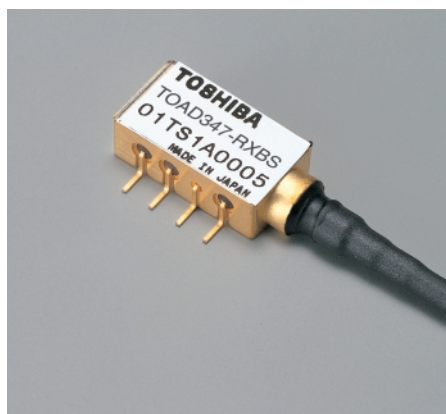


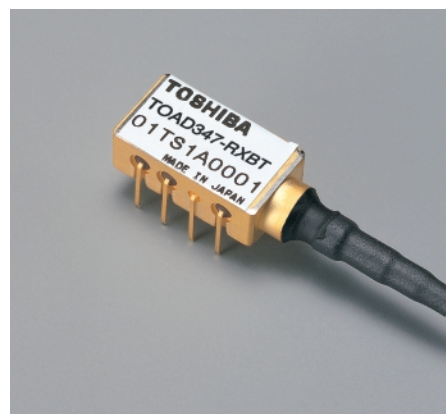
Optical Communication Devices

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 = 1×10^{-10})
- Overload : 0 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

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) |

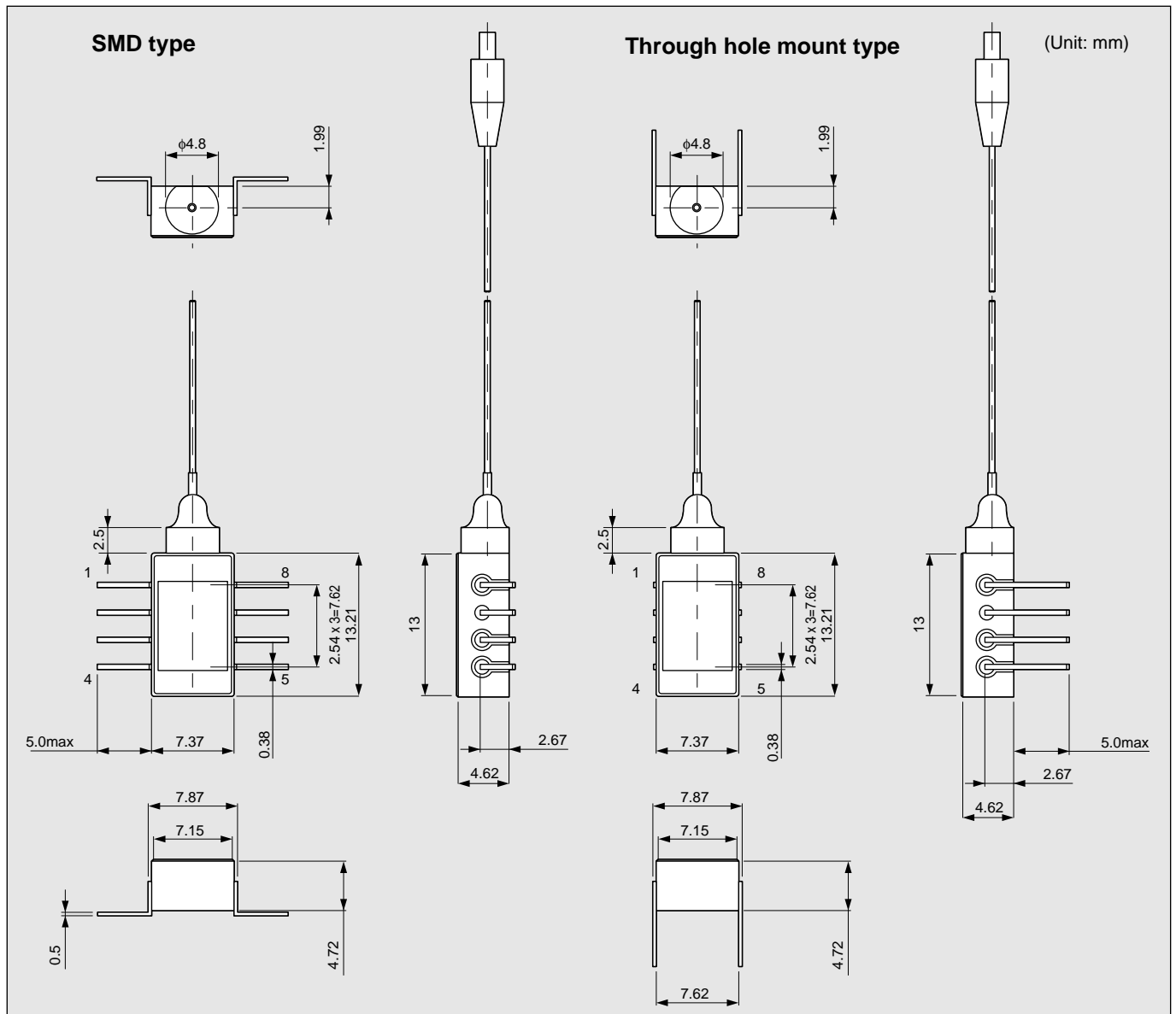
Notes:

- (1) 2.48832 Gb/s, NRZ, PRBS 2³¹-1, BER = 1 x 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) 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 | 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.

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(As of August, 2001)

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