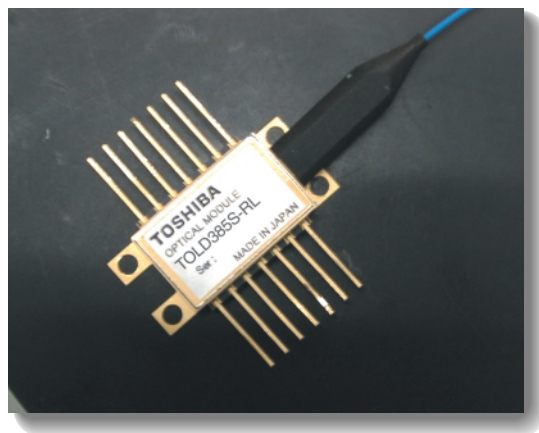


Optical Communication Devices

2.5 Gb/s Optical Transmitter

TOLD385S-RL Series (PRELIMINARY)



APPLICATION

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

FEATURES

- 1.55 μm DFB LD
- Included Bias-tee with 20 Ω resistance
- Included Thermo-Electric Cooler (TEC)
- Standard 14-pin butterfly package
- Dispersion penalty : 2dB (max. @ 80 km distance)

TOLD385S-RL Series

ABSOLUTE MAXIMUM RATINGS

| Item | Min | Max | Unit |
|-------------------------------|-----|-----|------|
| Storage temperature | -40 | 85 | °C |
| Operating case temperature | -5 | 70 | °C |
| LD forward current | - | 150 | mA |
| LD reverse voltage | - | 2 | V |
| PD reverse current | - | 2 | mA |
| PD reverse voltage | - | 15 | V |
| TEC current | - | 1.4 | A |
| Package mounting screw torque | - | 0.2 | Nm |
| Lead soldering temperature | - | 260 | °C |
| Lead soldering time | - | 10 | sec |

ELECTRICAL AND OPTICAL CHARACTERISTICS

| Item | Condition | Min | Typ. | Max | Unit |
|-----------------------------|------------------------|------|------|------|-------|
| Threshold current | CW | - | 15 | 30 | mA |
| Operating current | Pop = 2 mW, CW | - | - | 85 | mA |
| Slope efficiency | Pop = 2 mW, CW | 0.05 | - | 0.15 | mW/mA |
| Forward voltage | Pop = 2 mW, CW | - | 1.3 | 2 | V |
| Laser set temperature | - | 15 | - | 35 | °C |
| Input Impedance | - | - | 25 | - | Ω |
| Bandwidth | -3dB, Pop = 2 mW | 2.7 | - | - | GHz |
| Rise time | 20% to 80% | - | - | 160 | ps |
| Fall time | 80% to 20% | - | - | 160 | ps |
| Monitor PD current | Pop = 2 mW, CW | 50 | - | 1000 | uA |
| Monitor PD dark current | VrP = 5 V | - | 1 | 10 | nA |
| Peak wavelength | ITU-T grid compliant | 1528 | - | 1564 | nm |
| Spectral width | Pop = 2mW, -20dB, *1 | - | - | 1.0 | nm |
| Side mode suppression ratio | Pop = 2mW, CW | 33 | - | - | dB |
| Dispersion penalty | *1, *2 | - | - | 2 | dB |
| Thermistor resistance | T _{LD} = 25°C | - | 10 | - | kΩ |
| Thermistor B constant | 25°C/50°C | - | 3400 | - | K |
| TEC current | ΔT = 45°C | - | - | 1.0 | A |
| TEC voltage | ΔT = 45°C | - | - | 2.0 | V |

Notes:

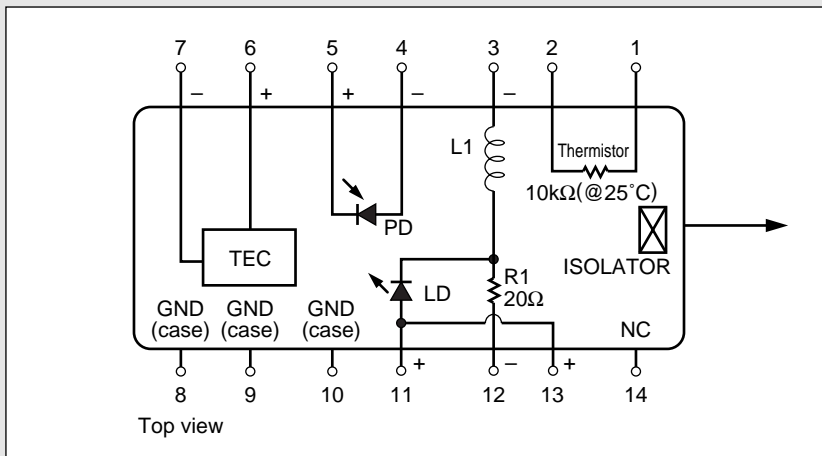
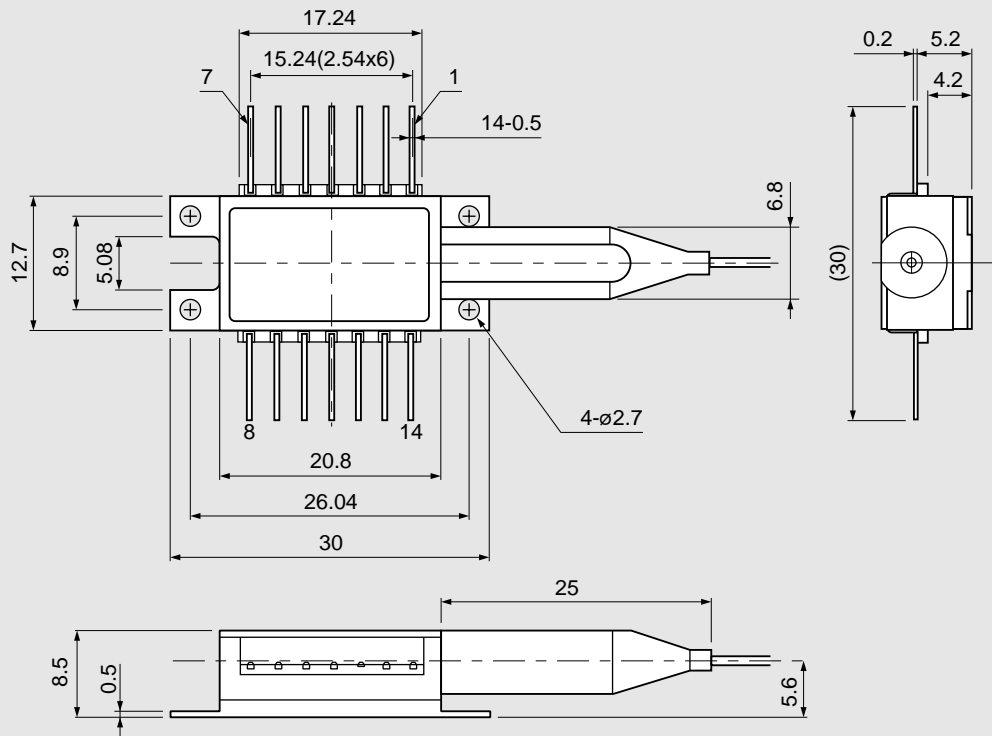
*1: 2.48832Gb/s, PRBS2²³ -1, NRZ, extinction ratio = 9dB

*2: Pop (Operating output power) = 2 mW, 80km transmission distance through general optical fiber

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT

TOLD385S-RL

(Unit: mm)



Pin Assignment

| Pin | Name |
|-----|---------------------------|
| 1 | Thermistor |
| 2 | Thermistor |
| 3 | LD DC bias (cathode) (-) |
| 4 | Monitor PD anode (-) |
| 5 | Monitor PD cathode (+) |
| 6 | Thermoelectric cooler (+) |
| 7 | Thermoelectric cooler (-) |
| 8 | GND (case) |
| 9 | GND (case) |
| 10 | GND (case) |
| 11 | LD anode (+) |
| 12 | LD FR input cathode (-) |
| 13 | LD anode (+) |
| 14 | NC |

PRECAUTIONS

- Power supply: Transient electric spike may cause a damage to the laser or the photodiode. 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.
- Safety: The laser emits invisible light harmful to the human eyes. Direct viewing should be avoided.

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

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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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