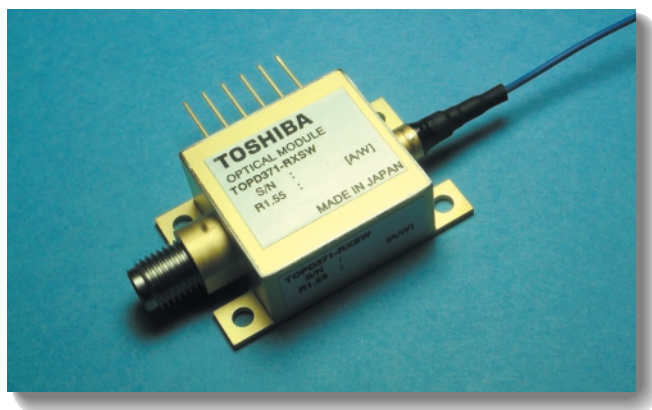


Optical Communication Devices

10 Gb/s Optical Receiver

TOPD371-RXSW Series



APPLICATIONS

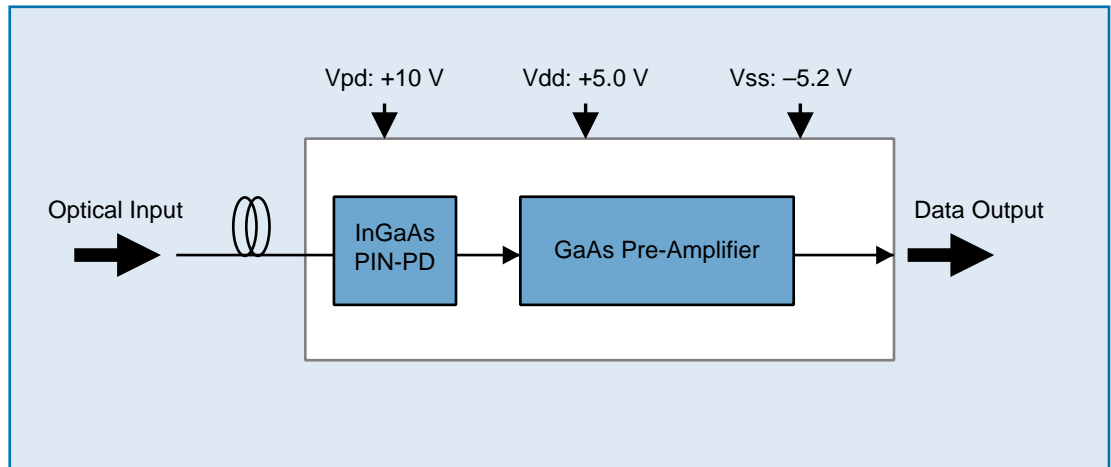
- SONET / SDH (OC-192 / STM-64) applications
- WDM system applications

FEATURES

- PIN-PD and Pre-amplifier
- K-connector output
- Sensitivity: -19 dBm (typ. @ BER = 1×10^{-12} , 10.6642Gb/s, RZ, PRBS $2^{31}-1$)
- Overload: $+1$ dBm (min @ BER = 1×10^{-12} , 10.6642Gb/s, RZ, PRBS $2^{31}-1$)
- Transimpedance: 700Ω (typ.)
- Groupe Delay (GD) deviation -10 to $+30$ ps
- Output electrical return loss: 15dB (typ.)

TOPD371-RXSW Series

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Ratings	Unit
Storage temperature	Tstg	- 40, + 85	°C
Operating case temperature	Tc	0, + 70	°C
PD forward current	If	3	mA
PD reverse current	Ir	2	mA
PD reverse voltage	Vpd	0 to +20	V
Positive supply voltage	Vdd	- 0.5 to +6.5	V
Negative supply voltage	Vss	- 7 to +0.5	V
Positive supply current	Idd	100	mA
Soldering temperature	Tsol	260 / 5	°C/s

ELECTRICAL AND OPTICAL CHARACTERISTICS

(Tc = 0 to 70 °C , λ = 1.55 μm, Vdd = + 5 V, Vpd = + 10 V, Vss = -5.2 V)

Item	Symbol	Conditions	Min	Typ.	Max	Unit
Total power consumption	-	-	-	300	-	mW
Positive supply current	Idd	-	-	50	-	mA
Responsivity	R _{1.55}	Pin = -14 dBm	0.68	0.75	-	A/W
Dark current	Id	-	-	-	10	nA
Cutoff frequency	fc	3dB down from 10MHz	7	-	12	GHz
Cutoff frequency (Low)	fcℓ	3dB down from 10MHz	-	-	100	kHz
Group delay (GD) deviation, Note 1	GD	-18dBm < Pin < +1dBm 300 kHz < f < fc	-10	-	+30	ps
Output signal level	-	-17dBm	-	30	-	mVpp
Output electrical return loss	S ₂₂	300 kHz < f < 8 GHz	12	15	-	dB
Sensitivity	Ps	Note 2	-	-19	-	dBm
Overload	Po	Note 2	+1	-	-	dBm
Optical return loss	ORL	-	27	-	-	dB
Logic sense	-	Light "ON" = Output Logic "HIGH" (Logic "HIGH" is defined to be more positive than Logic "Low")	-	-	-	-
Transimpedance	Zt	Pin = -10dBm	500	700	-	Ω

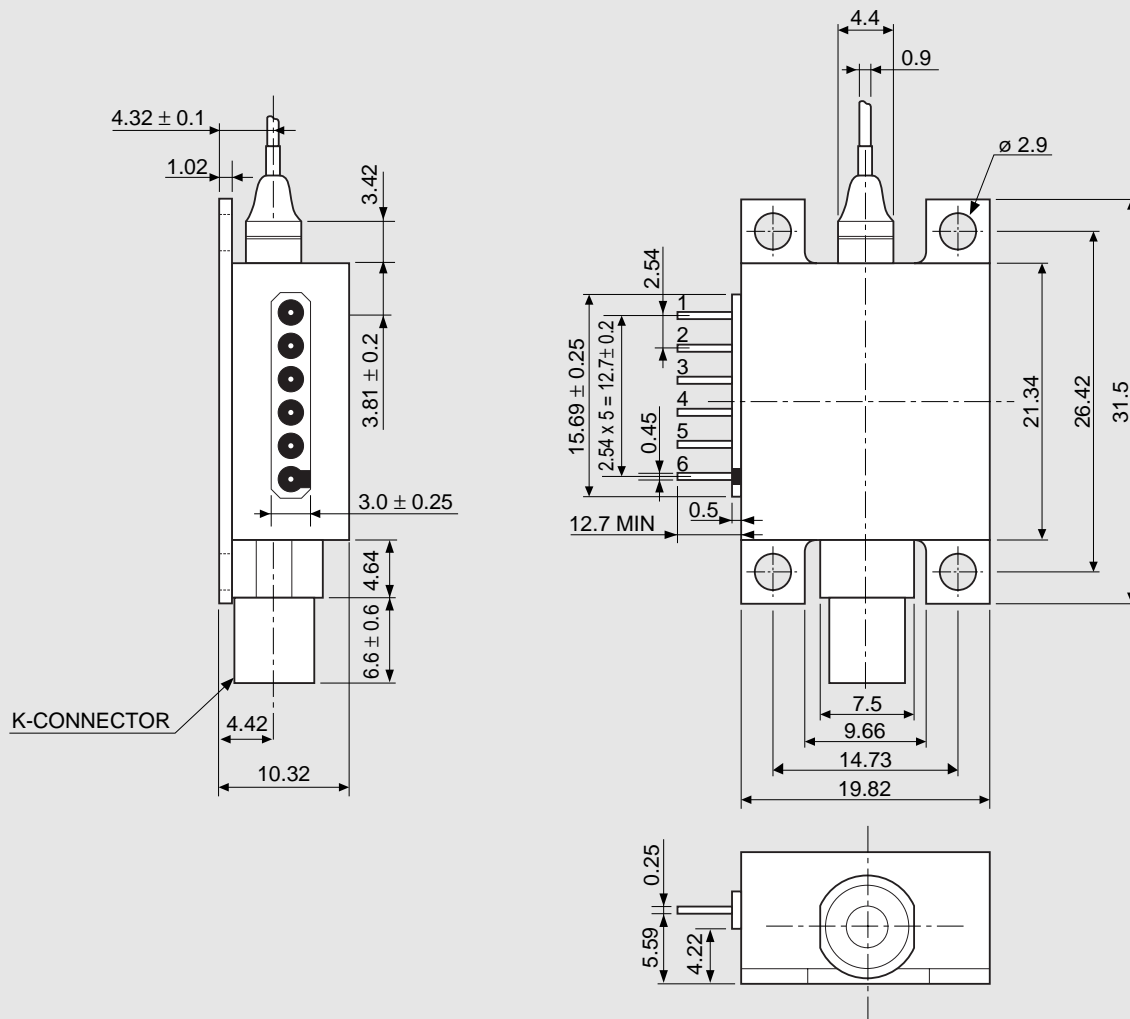
Note 1: O/E Transfer function group delay (GD) deviation from GD at low frequency

Note 2: 10.6642Gb/s, RZ, PRBS2³¹-1, BER = 10⁻¹²

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT

TOPD371-RXSW

(Unit: mm)



Pin Assignment

Pin	Function	Pin	Function
1	NC	4	Vss (-5.2V)
2	Vdd (+5V)	5	NC
3	Vpd (+10V)	6	GND

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 power off.
- The product should be grounded for obtaining the performance.

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