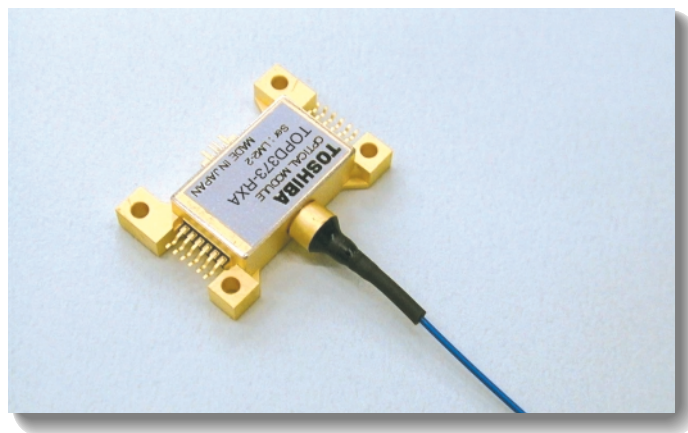


Optical Communication Devices

10 Gb/s Optical Receiver

TOPD373-RXA Series (PRERIMINARY)



APPLICATION

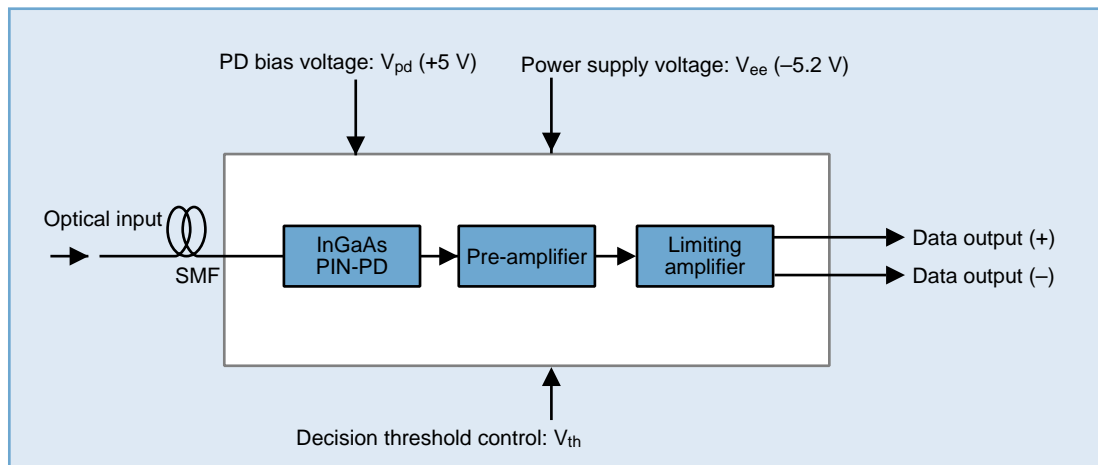
- SONET / SDH (OC-192 / STM-64) applications

FEATURES

- InGaAs PIN-PD and TIA with Limiting Amplifier
- 2R function included
- Decision threshold control
- Differential output
- Sensitivity: -17 dBm (typ. @ BER = 1×10^{-12} , PRBS $2^{23}-1$)
- Overload : 0 dBm (min @ BER = 1×10^{-12} , PRBS $2^{23}-1$)
- Data output: 200 mVpp to 800 mVpp (@ input power -18 dBm to 0 dBm)

TOPD373-RXA Series

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Min	Max	Unit
Supply voltage	V_{ee}	-6	0	V
PD bias	V_{pd}	0	12	V
PD forward current	I_f	-	3	mA
PD reverse current	I_r	-	2	mA
Maximum optical input power	P_{in}	-	+3	dBm
Operating case temperature	T_c	-5	70	°C
Storage temperature	T_{stg}	-40	85	°C
Lead soldering temperature	T_{sol}	-	260	°C
Lead soldering time	t_{sol}	-	5	s

ELECTRICAL AND OPTICAL CHARACTERISTICS

(Case temperature: $T_c = 0\text{ }^{\circ}\text{C}$ to $70\text{ }^{\circ}\text{C}$, $\lambda = 1.55\text{ }\mu\text{m}$, $V_{ee} = -5.2\text{ V}$)

Optical characteristics

Item	Symbol	Condition	Min	Typ.	Max	Unit
Sensitivity	P_s	Note 1	-	-17	-	dBm
Overload	P_o	Note 1	0	-	-	dBm
Optical return loss	ORL	-	27	-	-	dB
Responsivity	$R_{1.55}$	-	-	0.75	-	A/W
PD dark current	I_d	Note 1	-	-	10	nA

Note 1: 10 Gb/s, $2^{23}-1$, PRBS, 1×10^{-12} BER.

Electrical characteristics

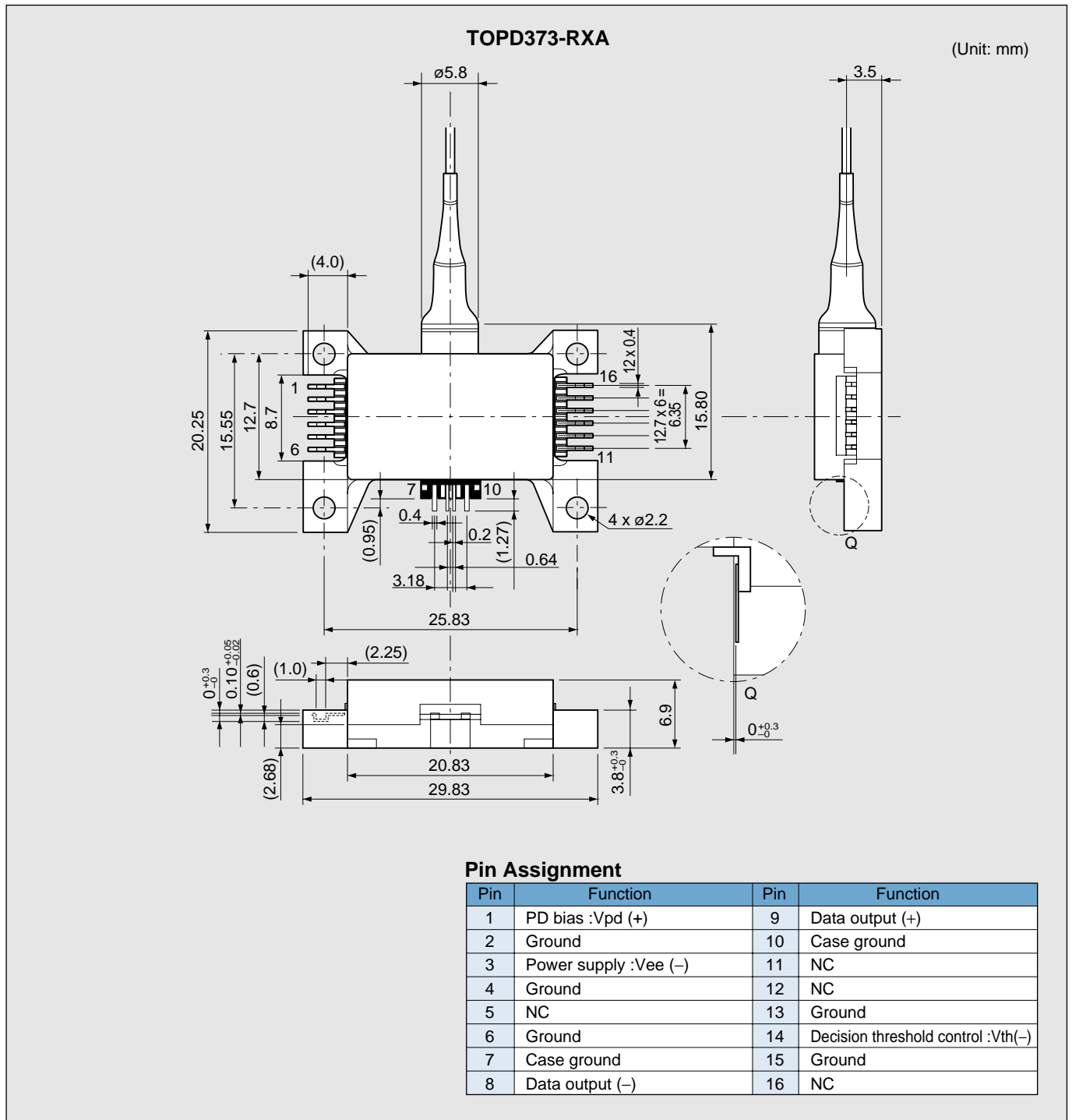
Item	Symbol	Condition	Min	Typ.	Max	Unit
Power supply	V_{ee}	-	-5.46	-5.2	-4.94	V
Bias	V_{pd}	-	-	5	-	V
Power supply current	I_{ee}	-	-	-	200	mA
Cutoff frequency (Low)	f_{cl}	Note 1	-	-	30	kHz
Cutoff frequency	f_c	Note 1	-	9	-	GHz
Output return loss	S_{22}	Note 2	-	10	-	dB
Output voltage amplitude (single ended)	V_{out}	Note 3	200	-	800	mVpp
Decision threshold control voltage	V_{th}	-	-	-2	-	V

Note 1: At 3 dB down from 130 MHz

Note 2: At Over band width of 0.13 to f_c

Note 3: At Input power = -18 dBm to 0 dBm

DIMENSIONAL OUTLINES AND PIN ASSIGNMENT



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

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