

Optical Communication Devices

2.5 Gb/s Optical Receiver

TOAD345-RX/TOPD345-RX Series



APPLICATION

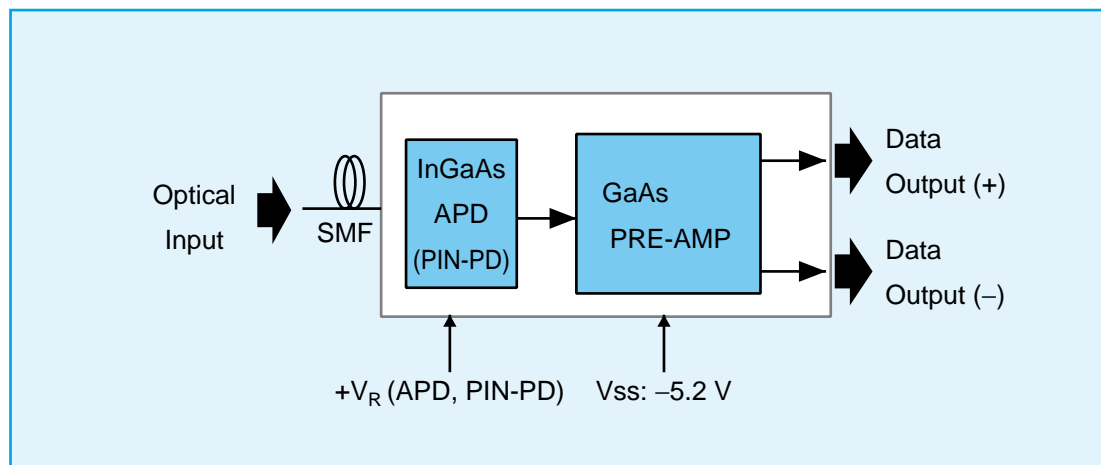
- SONET / SDH (OC-48 / STM-16) applications

FEATURES

- TOAD345-RX: APD and TIA
 - Sensitivity -33 dBm (Typ. @ BER = 1×10^{-10})
 - Overload -7.5 dBm (Typ. @ BER = 1×10^{-10})
- TOPD345-RX: PIN-PD and TIA
 - Sensitivity -25 dBm (Typ. @ BER = 1×10^{-10})
 - Overload -0.0 dBm (Typ. @ BER = 1×10^{-10})
- Wavelength: $1.3/1.55$ μ m
- Differential output
- Package size: 19.2 mm (W) x 20.2 mm (D) x 8.1 mm (H)

TOAD345-RX/TOPD345-RX Series

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit	Note
Storage temperature	Tstg	-40 to +85	°C	
Operating case temperature	Tc	0 to +70	°C	
Optical input power	Pr	-4	dBm	(1)
		3	dBm	(2)
Voltage supply	Vss	-6 to 0	V	
Soldering temperature / time	Tsol / tsol	260 / 5	°C / s	

Note: (1) TOAD345-RX, (2) TOPD345-RX

ELECTRICAL AND OPTICAL CHARACTERISTICS (2.48832 Gb/s, NRZ, PRBS 2²³-1, $\lambda = 1.55 \mu\text{m}$, Tc = 25 °C)

TOAD345-RX

Item	Symbol	Min	Typ.	Max	Unit	Note
Supply current	Iss	—	-130	—	mA	(1)
Sensitivity	Ps	—	-33.0	-31.5	dBm	(2)
Overload	Pol	-8.5	-7.5	—	dBm	(2)
Cut-off frequency	fc	1.25	1.6	3.0	GHz	
Output data voltage	Vpp	30		1000	mVpp	

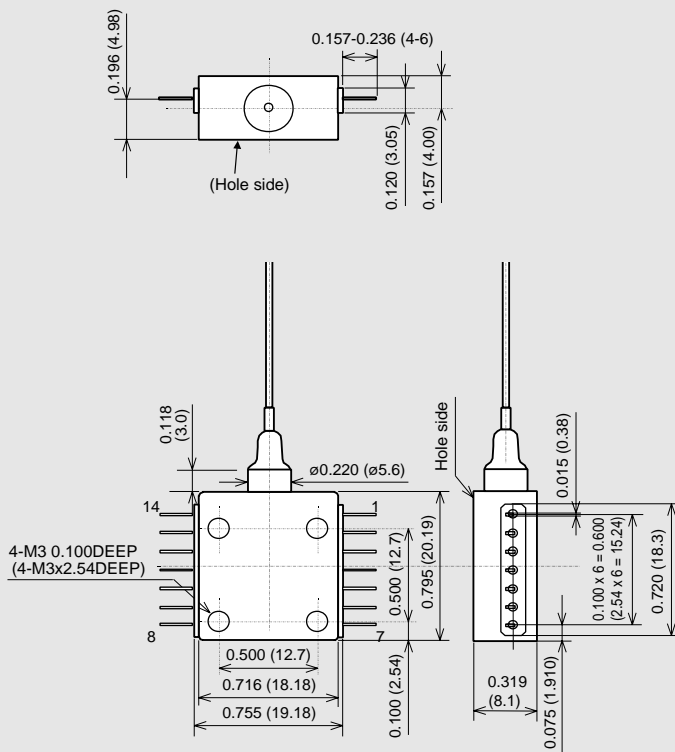
TOPD345-RX

Item	Symbol	Min	Typ.	Max	Unit	Note
Supply current	Iss	—	-130	—	mA	(1)
Sensitivity	Ps	—	-25.0	-23.5	dBm	(2)
Overload	Pol	-1.0	-0.0		dBm	(2)
Cut-off frequency	fc	1.25	1.7	3.3	GHz	
Output data voltage	Vpp	30		1000	mVpp	

Note: (1) Vss = -5.2 V, (2) at BER = 1×10^{-10}

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT

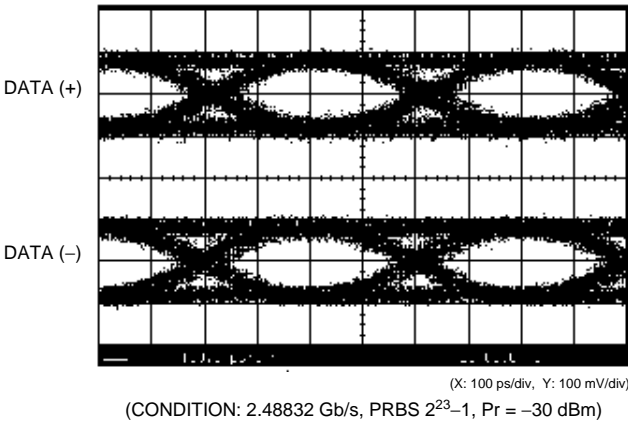
Unit: inch (mm)



Pin Assignment

Pin	Function	Pin	Function
1	GND	8	GND
2	V _R (APD, PD)	9	GND
3	GND	10	DATA OUT (+)
4	V _{ss} (-5.2 V)	11	DATA OUT (-)
5	GND	12	GND
6	THERMISTOR	13	NC
7	GND	14	NC

EYE DIAGRAM



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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