

Optical Communication Devices

2.5 Gb/s Optical Receiver

TOAD345-RX5 Series



APPLICATION

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

FEATURES

- APD and TIA
- Sensitivity: -33 dBm (Typ. @ BER = 1×10^{-10})
- Overload: -8 dBm (Typ. @ BER = 1×10^{-10})
- High Transimpedance: 1.5 k Ω
- Wavelength: $1.3/1.55$ μ m
- Operating case temperature range: 0 °C to 70 °C
- Package size: 19.2 (W) x 20.2 (D) x 8.1 (H) mm

TOAD345-RX5 Series

ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Storage temperature	Tstg	–40 to +85	°C
Operating case temperature	Tc	0 to +70	°C
APD forward current	If	1	mA
APD reverse current	Ir	500	μA
Positive supply voltage	Vdd	0 to +6	V
Negative supply voltage	Vss	–6 to 0	V
Soldering temperature / time	Tsol / tsol	260 / 5	°C / s

ELECTRICAL AND OPTICAL CHARACTERISTICS (Tc = 25 °C, Vdd = +5 V, Vss = –5.2 V)

Item	Min	Typ.	Max	Unit	Note
Negative supply current	—	80	100	mA	
Positive supply current	—	100	150	mA	
Breakdown voltage (Id = 10 μA)			85	V	
Dark current (M = 12)	—	—	100	nA	
Sensitivity	—	–33	–31.5	dBm	(1)
Overload	–10	–8		dBm	(1)
Bandwidth (–3 dB)	1.3	1.5		GHz	(2)
Logic sense					(3)
Optical return loss	—	—	–27	dB	(4)
Output signal amplitude	25	—	1000	mVpp	(5)
Electrical return Loss	8	—	—	dB	(6)
Thermistor resistance		3	—	KΩ	

Notes (1) 2.48832 Gb/s, NRZ, PRBS 2²³–1, BER = 1 × 10^{–10}, λ = 1.55 μm

(2) Pf = –30 dBm, M = 12

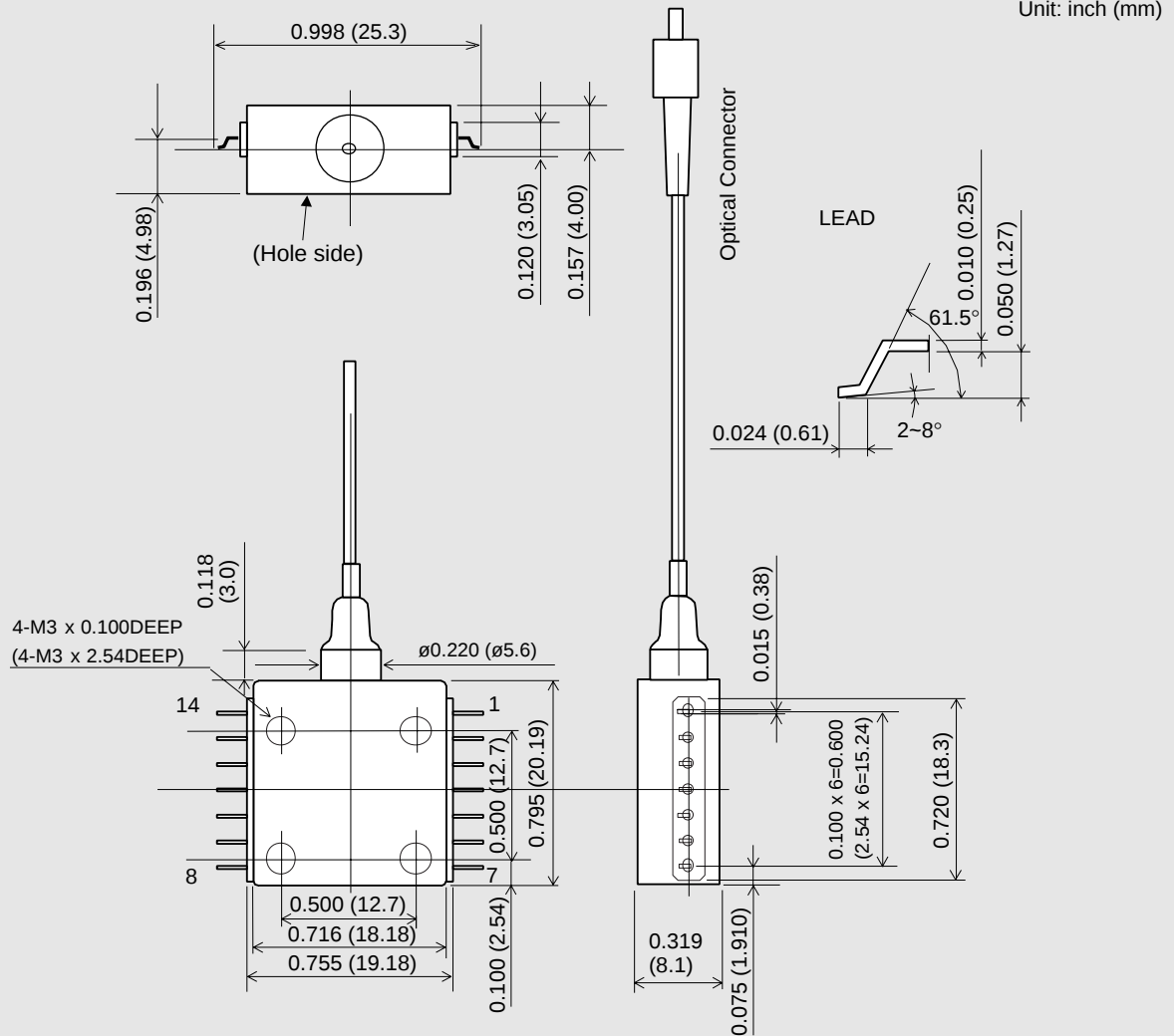
(3) DATA, Light ON = Vout Logic LOW

(4) λ = 1.3/1.55 μm

(5) –10 dBm > Pf > –30 dBm

(6) 0.3 GHz < F < 2.5 GHz

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT



Pin Assignment

Pin	Function	Pin	Function
1	GND	8	GND
2	Vapd	9	GND
3	GND	10	DATA OUT
4	Vss (-5.2 V)	11	NC
5	GND	12	GND
6	THERMISTOR	13	Vdd (+5.0 V)
7	GND	14	NC

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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