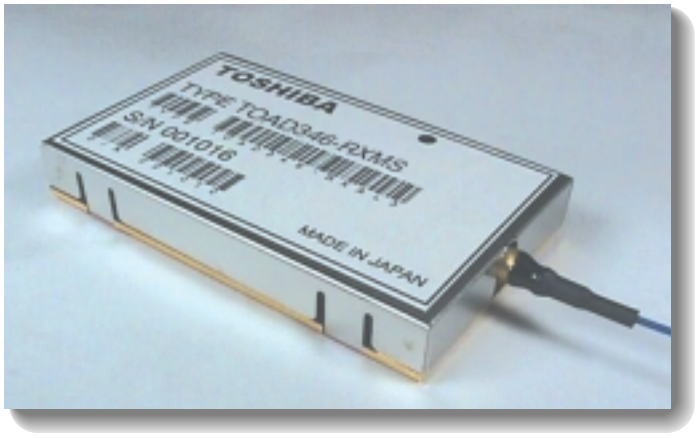
TOSHIBA

September 2001

Optical Communication Devices

2.5 Gb/s Optical Receiver Module

TOAD346-RXMS/TOPD346-RXMS Series



APPLICATIONS

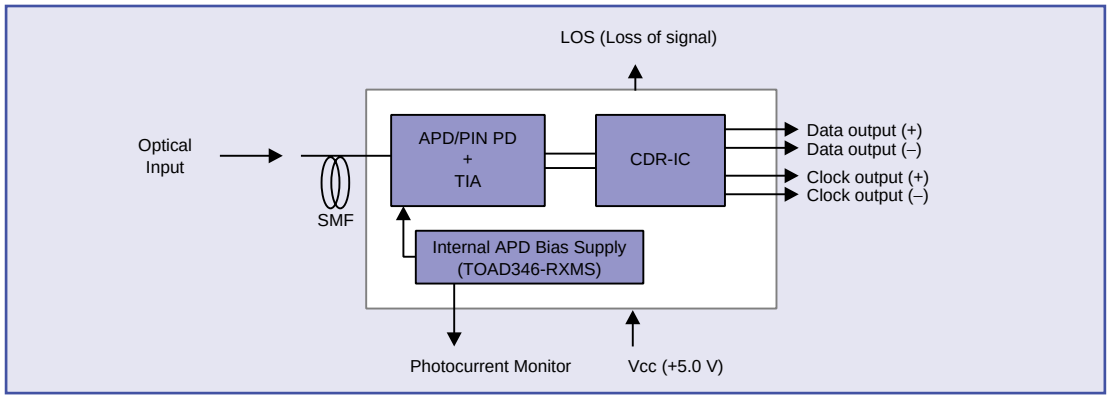
- SONET / SDH (OC-48 / STM-16) applications

FEATURES

- TOAD346-RXMS: APD, TIA and CDR
  Sensitivity: –32 dBm (typ. @ BER = 1 x 10^{-10}, PRBS 2^{23}–1)
  Internal APD bias power supply
- TOPD346-RXMS: PIN-PD, TIA and CDR
  Sensitivity: –24 dBm (typ. @ BER = 1 x 10^{-10}, PRBS 2^{23}–1)
- Tc: –40 to +85 ˚C
- Loss of signal (LOS) output
- SC/PC Optical connector available
- Accordance with Multi Source Agreement (MSA)
- Package size: 35 x 58 x 8.9 (max) mm

TOAD346-RXMS/TOPD346-RXMS Series

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Rating	Unit
Storage temperature	Tstg	–40 to +85	˚C
Operating case temperature	Topr	–40 to +85	˚C
Positive supply voltage	Vcc	0.0 to +5.5	V
Maximum optical input power	Pom (TOAD346-RXMS)	+0.0	dBm
	Pom (TOPD346-RXMS)	+3.0	dBm
Soldering temperature / time	Tsol / tsol	260 / 10	˚C / s

ELECTRICAL AND OPTICAL CHARACTERISTICS (Tc = –40 to +85˚C)

ELECTRICAL CHARACTERISTICS

Item	Min	Typ.	Max	Unit	Note
Bit rate	2488.07	2488.32	2488.57	Mb / s	
Positive power supply voltage	4.75	5.00	5.25	V	
Positive power supply current	—	300	380	mA	
Total power dissipation	—	1.5	2	W	
Data / Clock single output voltage	300	—	1000	mVp-p	
Jitter generation (rms)	—	—	10	mUI	
Jitter transfer	ITU G958 and bellcore GR-253-CORE compliant				
Jitter tolerance	ITU G958 and bellcore GR-253-CORE compliant				
Loss of signal (LOS) alarm output voltage (normal)	0.0	—	0.4	V	
Loss of signal (LOS) alarm output voltage (alarm active)	2.4	—	Vcc	V	
Loss assert time	—	—	1	ms	
Loss de-assert time	—	—	1	ms	
Setup / Hold time	100	—	—	ps	Fig. 1

Notes

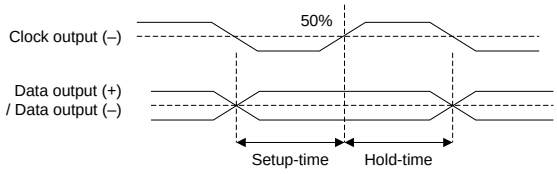


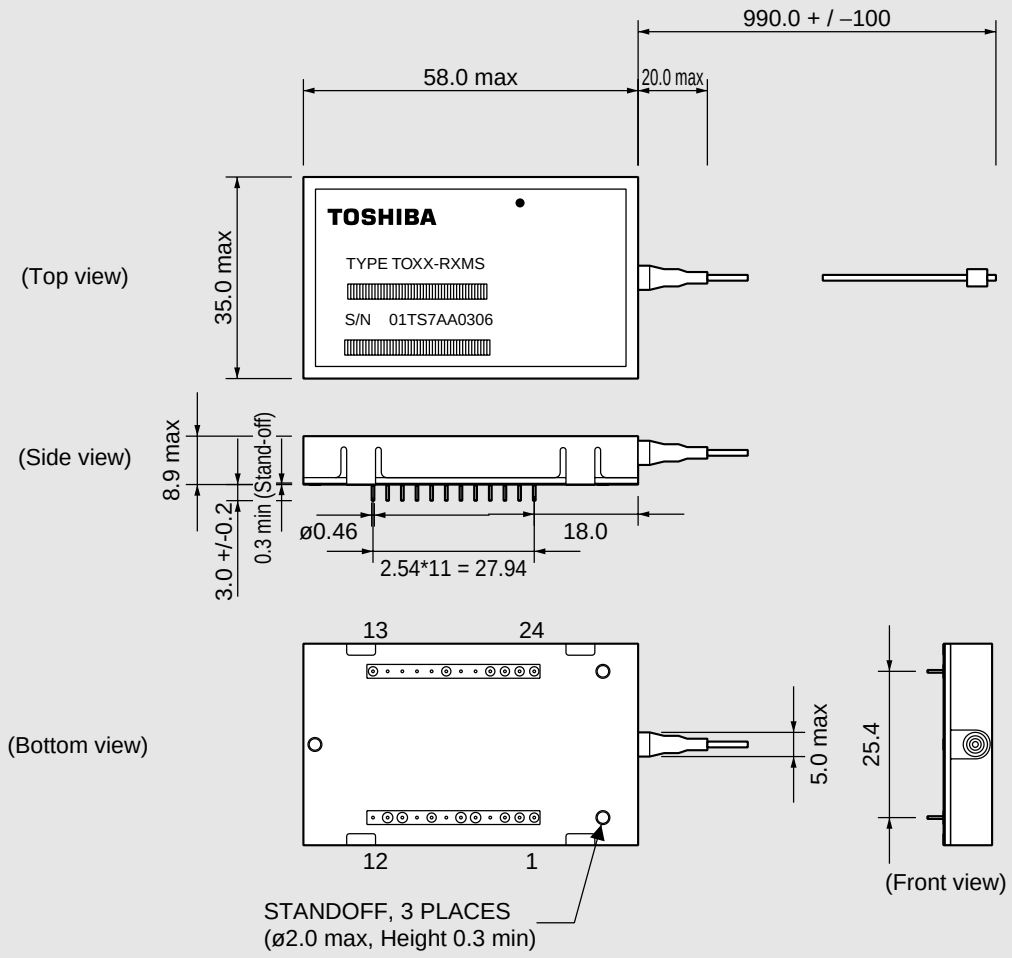
Fig. 1: Setup-Hold time

OPTICAL CHARACTERISTICS

Item	Min	Typ.	Max	Unit	Note
Input wave length	1260	—	1620	nm	
Sensitivity (WL = 1550 nm, TOAD346-RXMS)	—	–32.0	–30.0	dBm	(1), (2)
Sensitivity (WL = 1300 nm, TOPD346-RXMS)	—	–24.0	–22.0	dBm	(1)
Overload (TOAD346-RXMS)	–7	—	—	dBm	(1)
Overload (TOPD346-RXMS)	–2	—	—	dBm	(1)
LOS alarm for decreasing light input (TOAD346-RXMS)	–45	—	–35	dBm	
LOS alarm for decreasing light input (TOPD346-RXMS)	–38	—	–27	dBm	
Optical return loss	—	—	–27	dB	

Notes: (1) Bit rate = 2488.32 Mb/s, PRBS 2^{23}–1, measured at BER 10^{-10}
(2) –31 dBm (Max. @Tc = –10 to +70 ˚C) available

DIMENSIONAL OUTLINE AND PIN ASSIGNMENT



The case is ground. The bottom of the case is coated with an insulating material.
The case temperature shall be measured at the top and the center of module.

Pin Assignment

Pin	Symbol	Function	Pin	Symbol	Function	Pin	Symbol	Function
1	NIC	No internal connection	9	GND	GND	17	GND	Ground
2	NUC	No user connection	10	DATA+	Data output (+)	18	NUC	No user connection
3	LOS	Loss of alram	11	DATA–	Data output (–)	19	GND	Ground
4	GND	Ground	12	GND	Ground	20	GND	Ground
5	CLK–	Clock output (–)	13	NIC	No internal connection	21	NUC	No user connection
6	CLK+	Clock output (+)	14	GND	Ground	22	Vcc	Positive power supply (+5.0 V)
7	GND	Ground	15	GND	Ground	23	OILV	Optical Input light Voltage
8	Vcc	Positive power supply (+5.0 V)	16	GND	Ground	24	NUC	No user connection

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 obtaininng the performance.

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