



10Gbit/s Tunable Transponder

RTXM227-401

Features

- *Full C band Tunable Transponder*
- *ITU-T Grid 50GHz spacing (Full C band Tunable)*
- *9.953Gb/s to 11.3Gb/s Bit Rate*
- *Available in 80 km reaches(1600ps/nm)*
- *MZ Lithium Niobate (LiNbO₃) External Modulator integrated*
- *Integrated 10 Gbps Tunable Transmitter and 10 Gbps Receiver with 16 channels 622Mbps Mux and Demux*
- *High Sensitivity PIN or APD Receiver*
- *TxTrace function optionally available*
- *RxDTV function optionally available*
- *I2C interface to provide monitor control and alarm*
- *Electrical interface, connector and outline Compliant with 300- pin Multi Source Agreement (MSA)*
- *Compliant to Telcordia GR-253 and OIF SFI-4*
- *Operating case temperature: -5°C to 70°C*

Application

- *Metro/Regional/Long Haul DWDM Universal and Spare Line-card*
- *SONET/SDH and 10 Gbps Ethernet with or without FEC*
- *Dynamic Wavelength Provisioning for Reconfigurable OADM Applications*

Standard

- *ITU-T G.691 ;G.692; G.825*
- *GR-253*
- *OIF-SFI4-01.0*
- *Reference Document For 300 Pin 10Gbps Transponder*
- *I2C Reference Document For 300Pin MSA 10G and 40G Transponder*

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Case Operating Temperature Range	Tc	°C	-5	70
Storage Temperature Range	Ts	°C	-40	85
Fiber yield strength	-	kgf	-	1
Fiber bend radius	-	mm	30	-

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max	
Case Operating Temperature Range	Tc	°C	-5	25	70	
Power Supply Voltage	-5.2V Supply Voltage	VEE	V	-4.94	-5.2	-5.45
	+3.3V Supply Voltage	VDD	V	3.13	3.3	3.47
	+5.0V Supply Voltage	VCC	V	4.75	5	5.25
	+1.8V Supply Voltage	VDD1	V	1.71	1.8	1.89

Specifications

(tested under recommended operating conditions ,unless otherwise noted)

Parameter	Symbol	Unit	Min	Typ	Max	Test condition
Optical transmitter Characteristics						
Data rate	-	Gbps	9.953	-	11.3	-
Launch Optical Power	Po	dBm	1	-	7	-
Channel Spacing	-	GHz	50	-	-	-
C-Band tuning range	λ_c	nm	1528.77	-	1563.86	ITU-T G.691

Locked frequency accuracy	-	GHz	-2.5	-	2.5	EOL
SMSR	-	dB	35	-	-	-
Extinction Ratio	-	dB	10	-	-	NRZ at 9.953Gb/s and PRBS 2 ³¹ -1
Shutdown Optic Power	-	dBm	-	-35	-30	-
Return Loss	-	dB	-	-50	-40	-
Tuning Speed		ms	-		<10	
Optical Path Penalty	-	dBm	-	-	2	BER10 ⁻¹² , 2 ³¹ -1PRBS, 9.953Gb/s
Dispersion Tolerance	-	ps/nm	-	-	1600	-
Optical receiver Characteristics						
Overload Input Optical Power(APD)	-	dBm	-9	-	-7	BER10 ⁻¹² , 2 ³¹ -1PRBS, 9.953Gb/s
Overload Input Optical Power(PIN)	-	dBm	0	-	3	BER10 ⁻¹² , 2 ³¹ -1PRBS 9.953Gb/s
Receiver Sensitivity (APD)	-	dBm	-	-	-24	BER10 ⁻¹² , 2 ³¹ -1PRBS 9.953Gb/s
Receiver Sensitivity (PIN)	-	dBm	-	-	-16	BER10 ⁻¹² , 2 ³¹ -1PRBS 9.953Gb/s
Reflectance	-	dB	-	-	-27	-

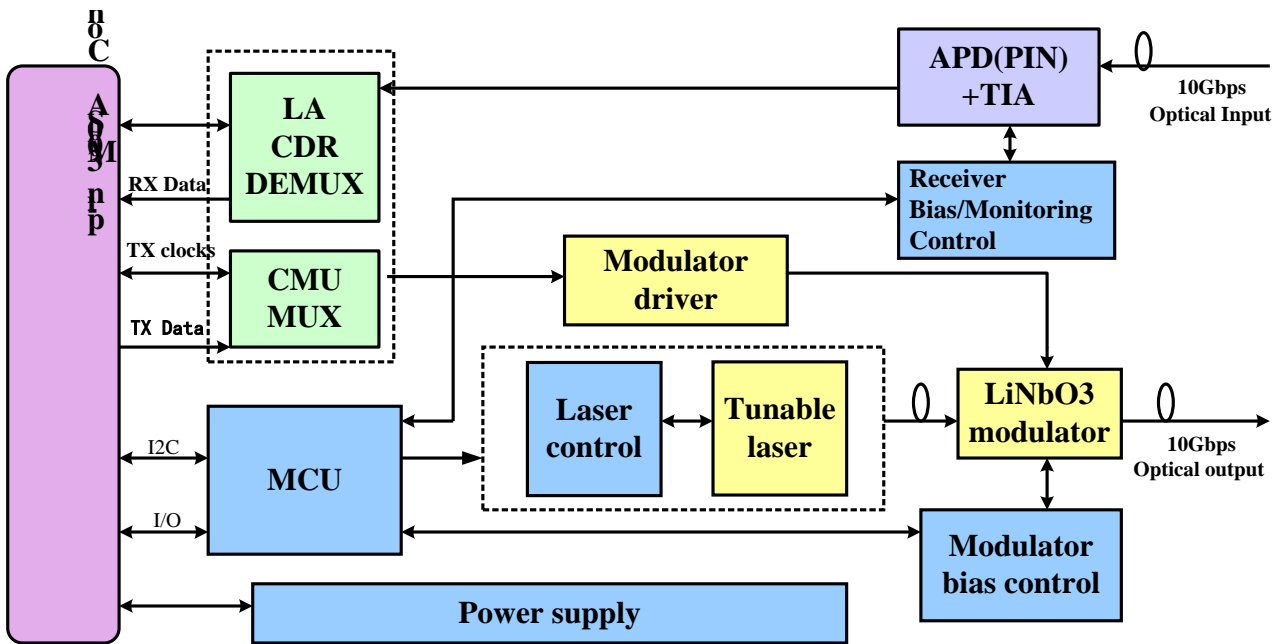
Pins Description

	K	J	H	G	F	E	D	C	B	A
1	+5.0V	NC	GND	RxDout12P	+1.8V	RxDout8P	GND	RxDout4P	GND	RxDout0P
2	+5.0V	FFU	GND	RxDout12N	+1.8V	RxDout8N	GND	RxDout4N	GND	RxDout0N
3	NC	NC	NC	GND	RxPOWMON	GND	I2CAD0	GND	NC	GND
4	+3.3V	NC	GND	RxDout13P	+3.3V	RxDout9P	GND	RxDout5P	GND	RxDout1P
5	+3.3V	NC	GND	RxDout13N	+3.3V	RxDout9N	GND	RxDout5N	GND	RxDout1N
6	NC	NC	NC	GND	RxPOWALM	GND	I2CAD1	GND	RxMUTEDOUT	GND
7	+3.3V	FFU	GND	RxDout14P	+3.3V	RxDout10P	GND	RxDout6P	GND	RxDout2P
8	+3.3V	FFU	GND	RxDout14N	+3.3V	RxDout10N	GND	RxDout6N	GND	RxDout2N
9	RxMUTEPOCLK	NC	FFU	GND	NC	GND	I2CAD2	GND	RxLCKREF	GND
10	-5.2V	NC	GND	RxDout15P	-5.2V	RxDout11P	GND	RxDout7P	GND	RxDout3P
11	-5.2V	NC	GND	RxDout15N	-5.2V	RxDout11N	GND	RxDout7N	GND	RxDout3N
12	RxMUTEMCLK	FFU	FFU	GND	NC	GND	MOD_RESET	GND	RxMCLKSEL	GND
13	-5.2V	FFU	GND	NC	-5.2V	RxPOCLKP	GND	RxMCLKP	GND	RxREFCLKP
14	-5.2V	NC	GND	NC	-5.2V	RxPOCLKN	GND	RxMCLKN	GND	RxREFCLKN
15	I2CCLOCK	NC	ALM-INT	GND	RxREFSEL	GND	FFU	GND	RxLOCKERR	GND
16	+5.0V	NC	GND	TxDin12P	+1.8V	TxDin8P	GND	TxDin4P	GND	TxDin0P
17	+5.0V	FFU	GND	TxDin12N	+1.8V	TxDin8N	GND	TxDin4N	GND	TxDin0N

18	I2CDATA	NC	NC	GND	LsBIASMON	GND	LsPOWMON	GND	NC	GND
19	+3.3V	NC	GND	TxDin13P	+3.3V	TxDin9P	GND	TxDin5P	GND	TxDin1P
20	+3.3V	NC	GND	TxDin13N	+3.3V	TxDin9N	GND	TxDin5N	GND	TxDin1N
21	NC	NC	NC	GND	LsENABLE	GND	LsTEMPMON	GND	NC	GND
22	+3.3V	FFU	GND	TxDin14P	+3.3V	TxDin10P	GND	TxDin6P	GND	TxDin2P
23	+3.3V	FFU	GND	TxDin14N	+3.3V	TxDin10N	GND	TxDin6N	GND	TxDin2N
24	TxRESET	NC	NC	GND	LsBIASALM	GND	TxPHSADJ0	GND	NC	GND
25	-5.2V	NC	GND	TxDin15P	-5.2V	TxDin11P	GND	TxDin7P	GND	TxDin3P
26	-5.2V	NC	GND	TxDin15N	-5.2V	TxDin11N	GND	TxDin7N	GND	TxDin3N
27	TxFIFORES	NC	NC	GND	TxTEMPALM	GND	TxPHSADJ1	GND	NC	GND
28	-5.2V	NC	GND	TxPICKP	-5.2V	TxPCKP	GND	TxMCKP	GND	TxREFCLKP
29	-5.2V	NC	GND	TxPICKN	-5.2V	TxPCKN	GND	TxMCKN	GND	TxREFCLKN
30	TxFIFOERR	NC	TxLINETIMSEL	GND	TxREFSEL	GND	LsPOWALM	GND	TxLOCKERR	GND

Receiver power & GND supplies	Transmitter power & GND supplies	NC: no user connection
Receiver d.c. signals	Transmitter d.c. signals	FFU: reserved for future use
622M differential signals	622M differential signals	

Block Diagram



TIA: Transimpedance Amplifier

MCU: Microprocessor Control Unit

LA: Limit Amplifier

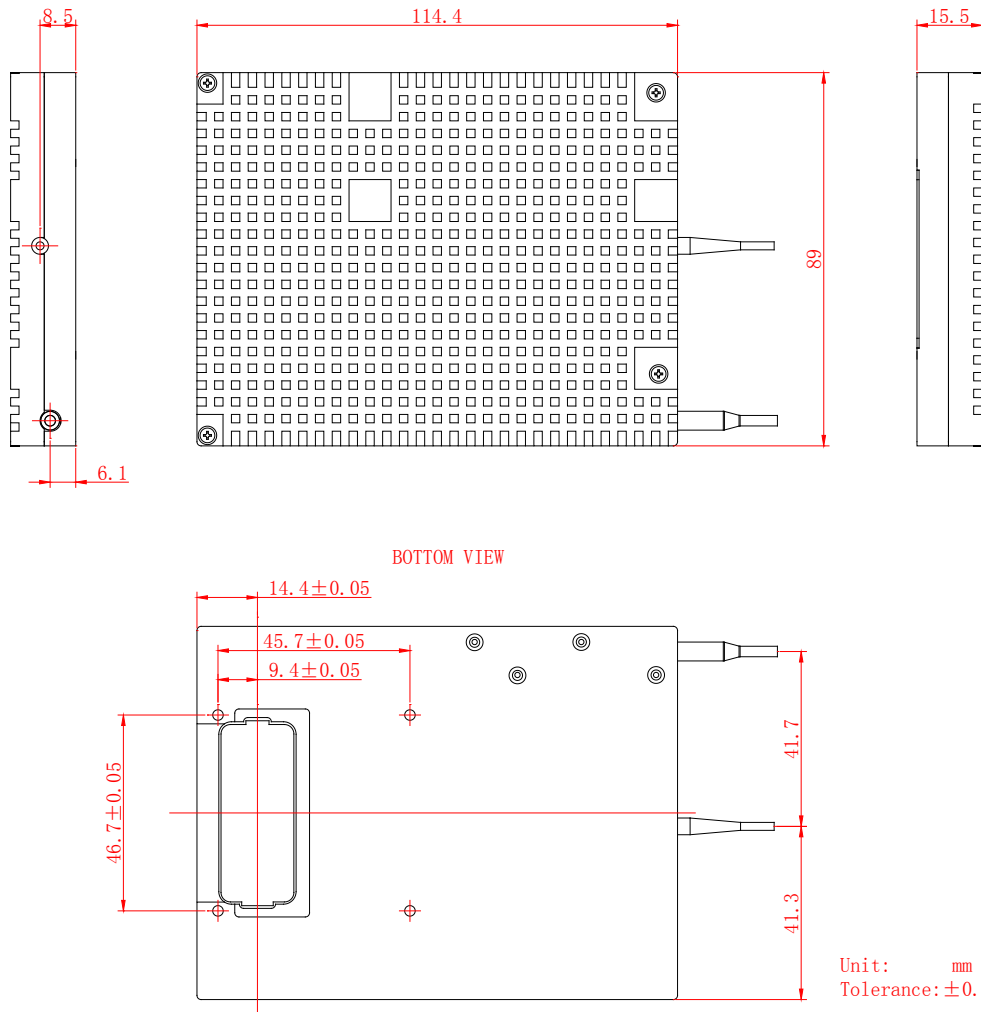
MUX: 16:1 Multiplexer

CDR: Clock Data Recovery

DEMUX: 1:16 Demultiplexer

CMU: Clock Multiplier Unit

Package Outline(mm)



Ordering Information

Part No.	Specification								Application
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Temp	Reach	
RTXM227-401	300PIN	10G	Tunable Laser	+1 ~+7dBm	APD or PIN	-24dBm(APD)	-5~70°C	80km	SDH, DWDM
	10GMSA					-16dBm(PIN)			

WTD reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Edition 2009-12-1

Published by Wuhan Telecommunication Devices Co.,Ltd.

Copyright © WTD

All Rights Reserved.

Wuhan Telecommunication Devices Co., Ltd.
http://www.wtd.com.cn