



3.3V 1×9 155M Transceiver

RTXM135-402

Features

- *Duplex SC receptacle*
- *Standard 1×9 package*
- *Single +3.3V power supply*
- *-20 to 70°C operating temperature range*
- *LVPECL compatible data input/output interface*
- *LVPECL receiver signal-detected indication*
- *RoHS compliant*

Application

- *SDH STM-1 S1.1 and L1.1*
- *100M Fast Ethernet*

Standard

- *Compliant with ITU-T G.957*

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_s	°C	-40	85
Relative Humidity	RH	%	0	95
Power Supply Voltage	V_{cc}	V	-0.5	+4.5
Lead Solder Temperature	-	°C	-	260
Lead Solder Duration	-	S	-	10
Voltage on any input/output pin	V_I	V	0	V_{cc}

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Temperature Range	T_{op}	°C	-20	-	70
Power Supply Voltage	V_{cc}	V	3.14	3.3	3.47
Operating Data Rate	-	Mbps	-	155.52	-

Specifications ($T_{op}=-20^{\circ}C$ to $70^{\circ}C$ and $V_{CC}=3.13V$ to $3.47V$)

Parameter	Symbol	Unit	Min	Typ	Max	Note
Electrical Characteristics						
Supply Current	I_{cc}	mA	-	-	250	
Transmitter Differential Input Voltage	V_D	mV	300	-	1860	
Common-mode Input Voltage	$V_{com-VCC}$	V	-1.38	-	-0.47	
LVPECL Output Voltage-Low	V_{OL-VCC}	V	-1.810	-	-1.620	1
LVPECL Output Voltage-High	V_{OH-VCC}	V	-1.025	-	-0.880	1
Optical transmitter Characteristics						
Center Wavelength Range	λ_c	nm	1261	1310	1360	
Launch Optical Power	P_o	dBm	-15	-	-8	2
Extinction Ratio	EX	dB	8.2	-	-	
Spectral Width	$\Delta\lambda$	nm	-	-	7.7	
Optical Rise Time	tR	ns	-	-	2.0	3
Optical Fall Time	tF	ns	-	-	2.0	3
Eye Diagram	ITU recommendation G.957 STM-1/OC-3					
Optical receiver Characteristics						
Sensitivity	S	dBm	-	-	-35	4
Overload Input Power	P_{in}	dBm	-8	-	-	4
Signal Detect-Deasserted	P_D	dBm	-50.0	-	-	
Signal Detect-Asserted	P_A	dBm	-	-	-36	

Signal Detect-Hysteresis	P_A-P_D	dB	0.5	-	6
--------------------------	-----------	----	-----	---	---

Note1: Terminated with 50Ω to $V_{CC} -2V$.

Note2: Minimum output optical level is at end of life.

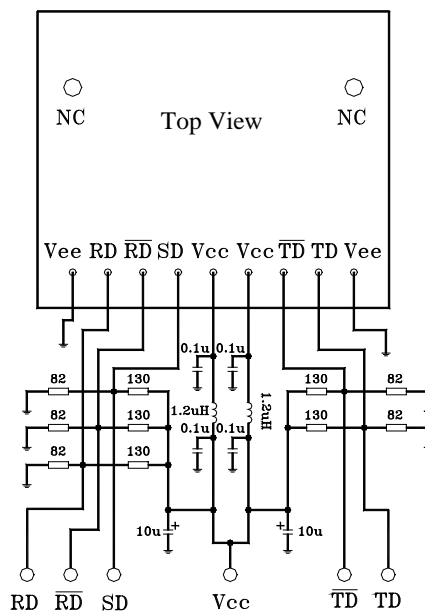
Note3: These are unfiltered 10~90% values.

Note4: Sensitivity and overload for $2^{23}-1$ PRBS and Bit Error Rate better than or equal to $10E-10$.

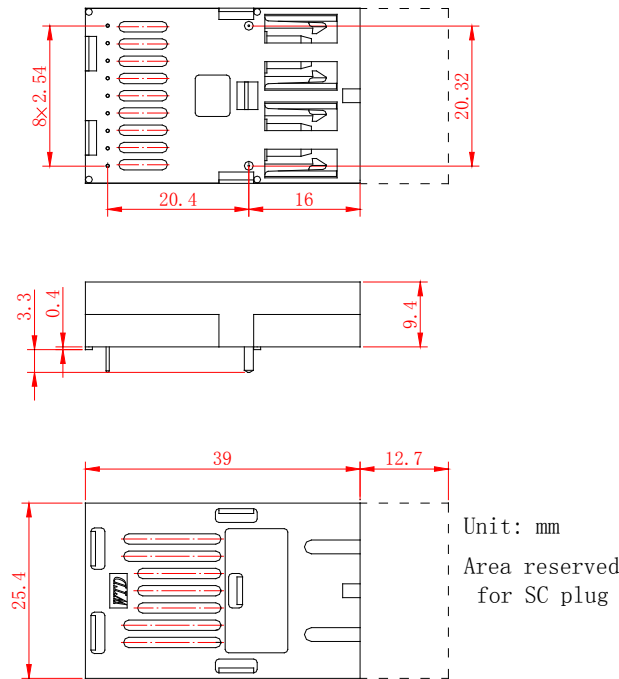
Pin Description

Pin	Name	Level	Description
1	Vee		Negative power of receiver section, normally grounded
2	RD+	LVPECL	Data output of receiver section
3	RD-	LVPECL	Reverse data output of receiver section
4	SD	LVPECL	Optical alarm of receiver section, High level when normal, low level when no light
5	Vcc		Positive power of receiver section, normally +3.3V
6	Vcc		Positive power of transmitter section, normally +3.3V
7	TD-	LVPECL	Reverse data input of transmitter section
8	TD+	LVPECL	Data input of transmitter section
9	Vee		Negative power of transmitter section, normally grounded

Typical Application Circuit



Package Outline (unit: mm)



Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>1.5kV) – Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B EN55022 Class B	Compliant with standards
Immunity	IEC61000-4-3 Class 2 EN55024	Typically show no measurable effect from a 3V/m field swept from 80 to 1000MHz applied to the transceiver without a chassis enclosure.
Eye Safety	FDA 21 CFR 1040.10 and 1040.11 UL TUV EN 60825-1	Compliant with Class 1 laser product UL No. E239070

Ordering Information

Part No.	Specification									Application
	Package	Data rate	Laser	Power	Detector	Sensitivity	Temp	Reach	Interface	code
RTXM135-402	1×9 thin	155M	1310nm FP	-15~-8dBm	PIN+TIA	< -35dBm	-20~70°C	15km	Duplex SC	SDH S-1.1

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.