



TTL 5.0V 1×9 52M Transceiver Module

RTXM153-TL series

Features

- *Duplex SC receptacle or Duplex FC receptacle*
- *Standard 1×9 package*
- *Single +5.0V power supply*
- *1310nm FP-LD*
- *TTL compatible data input/output interface*
- *TTL receiver signal-detected indication*
- *RTXM153-4xx compliant with RoHS*

Application

- *PDH*
- *10M Fast Ethernet*

Standard

- Reference to ITU-T G.957

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_s	°C	-40	85
Relative Humidity	RH	%	5	85
Power Supply Voltage	V_{cc}	V	0	+6
Lead Solder Temperature	-	°C	-	260
Lead Solder Duration	-	S	-	10
Voltage on any input/output pin	VI	V	0	V_{cc}

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Temperature Range	T_{op}	°C	0	-	70
Power Supply Voltage	V_{cc}	V	4.75	5.0	5.25
Operating Data Rate		Mbps	-	52	-

Specifications ($T_{op}= 0^{\circ}C$ to $70^{\circ}C$ and $V_{cc}=4.75V$ to $5.25V$)

Parameter	Symbol	Unit	Min	Typ	Max	Note
Electrical Characteristics						
Supply Current	I_{cc}	mA	-	-	350	
Data Input Voltage - Low	V_{OL}	V	-	-	0.8	
Data Input Voltage -High	V_{OH}	V	2.0	-	-	
Data Input Current - Low	I_{IL}	mA	-	-	-0.6	
Data Input Current -High	I_{IH}	μA	-	-	20	
Data Output Voltage-Low	V_{OL}	mV	-	750	-	
Data Output Voltage-High	V_{OH}	V	3.4	3.7	-	
SD Output Voltage-Low	-	mV	-	-	300	
SD Output Voltage-High	-	V	-	V_{cc}	-	
Optical transmitter Characteristics						
Center Wavelength Range	λ_c	nm	1260	1310	1360	
Launch Optical Power	P_o	dBm	-14	-	-5	1
Extinction Ratio	EX	dB	10	-	-	
Spectral Width	$\Delta\lambda$	nm	-	-	4	
Optical receiver Characteristics						
Receiver Sensitivity	S	dBm	-	-	-38.0	2
Overload Input Power	P_{in}	dBm	-8	-	-	2

Signal Detect-Deasserted	P_D	dBm	-52.0	-	-
Signal Detect-Asserted	P_A	dBm	-	-	-38.0
Signal Detect-Hysteresis	P_A-P_D	dB	-	-	6

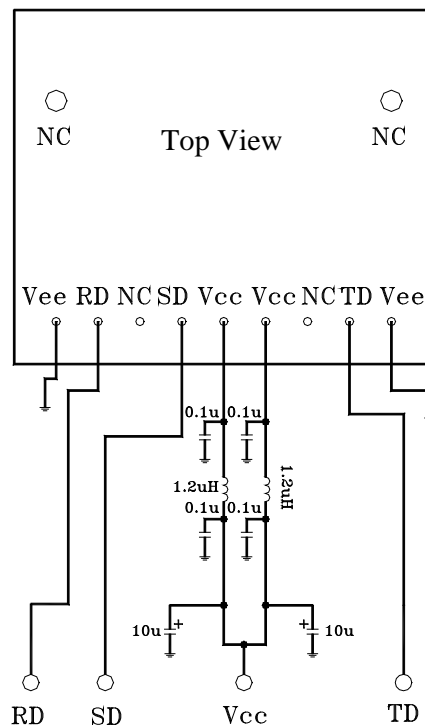
Note1: Minimum output optical level is at end of life.

Note2: Sensitivity and overload for 52M PRBS $2^{23}-1$ and Bit Error Rate better than or equal to $10E-10$.

Pin Description

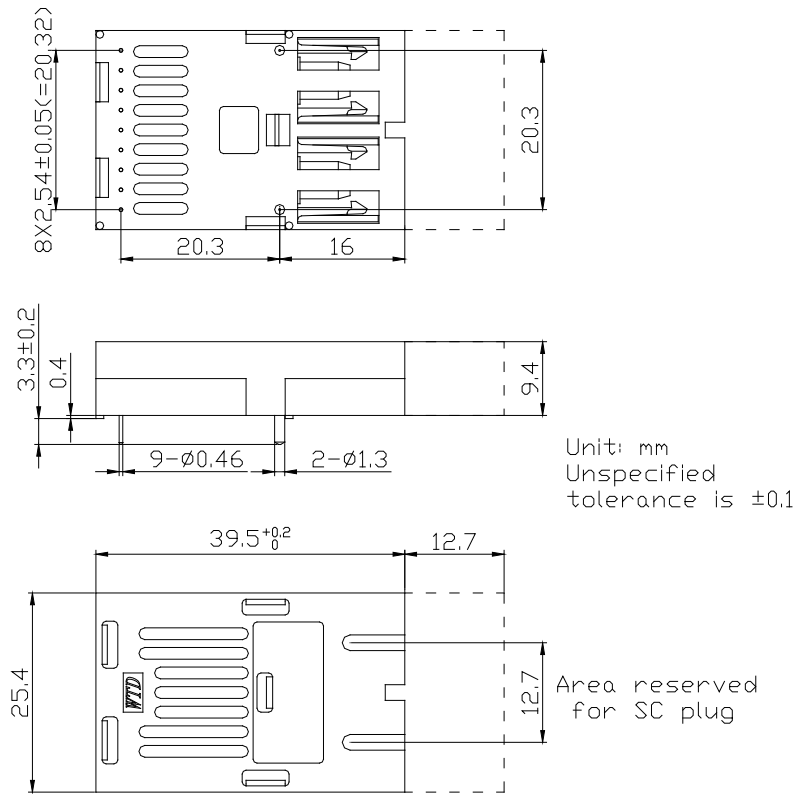
Pin Name	Level	Description
1	Vee	- Negative power of receiver section, normally grounded
2	RD	TTL Data output of receiver section
3	NC	- Pin not connected
4	SD	TTL Optical alarm of receiver section, High level when normal, low level when no light
5	Vcc	- Positive power of receiver section, normally +5V
6	Vcc	- Positive power of transmitter section, normally +5V
7	NC	- Pin not connected
8	TD	TTL Data input of transmitter section
9	Vee	- Negative power of transmitter section, normally grounded

Typical application circuit

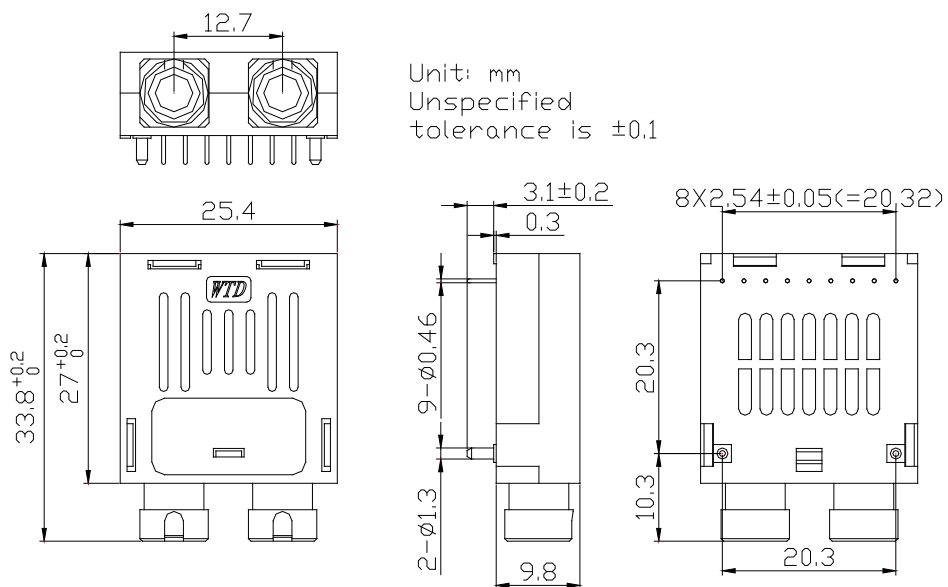


Package outline (unit: mm)

Duplex SC receptacle optical interface



Duplex FC receptacle optical interface



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.	Specifications								
	Package	Data rate	Laser	Pout	Detector	Sensitivity	Temp	Reach	others
RTXM153-403	1×9	52Mb/s	1310nmFP-LD	-14~-5dBm	PIN	<-38dBm	0~70°C	15km	SC; RoHS
RTXM153-TL									SC
RTXM153-405	1×9	52Mb/s	1310nmFP-LD	-14~-5dBm	PIN	<-38dBm	0~70°C	15km	FC; RoHS
RTXM153-TL-JFC									FC

*: The product marked with * is not available at present.

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