



155Mbs SFF Optical Transceiver Module

RTXM132-411

Features

- *Duplex LC receptacle optical interface*
- *SFF 2×5 metallic package*
- *Single +3.3V power supply*
- *-20 to 70oC operating temperature range*
- *LVPECL compatible data input/output interface*
- *TTL transmitter laser shutdown*
- *TTL receiver signal-detected indication*
- *RoHS Compliant*

Application

- *SDH STM-1 L1.2*
- *100M Fast Ethernet*

Standard

- *Compliance ITU-T G.957*
- *Compliance SFF MSA July 5, 2000*
- *Compliant with IEEE 802.3*

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	$V_{com}-V_{cc}$	V	-1.38	-	-0.47	
LVPECL Output Voltage-Low	$V_{OL}-V_{cc}$	V	-1.810	-	-1.620	1
LVPECL Output Voltage-High	$V_{OH}-V_{cc}$	V	-1.025	-	-0.880	1
Signal Detect Output Voltage (LVTTTL)	High	V	$V_{cc}-1.3$	-	$V_{cc}+0.3$	
	Low	V	0	-	0.8	
Optical transmitter Characteristics						
Center Wavelength Range	λ_c	nm	1480	1550	1580	
Mean Launch Optical Power	P_o	dBm	-5	-	0	2
Extinction Ratio	EX	dB	10	-	-	
Spectral Width (-20dB)	$\Delta\lambda$	nm	-	-	1.0	
Side Mode Suppression Ratio	SMSR	dB	30	-	-	
Optical Rise Time	t_R	ns	-	-	2.0	3
Optical Fall Time	t_F	ns	-	-	2.0	3
Eye Diagram	ITU recommendation G.957 STM-1/OC-3					
Optical receiver Characteristics						
Receiver Sensitivity	S	dBm	-	-	-35	4

Overload Input Power		P_{in}	dBm	-10	-	-	4
LOS	Optical Deselect	P_D	dBm		-	-36.0	
	Optical Assert	P_A	dBm	-50.0	-	-	
LOS 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.

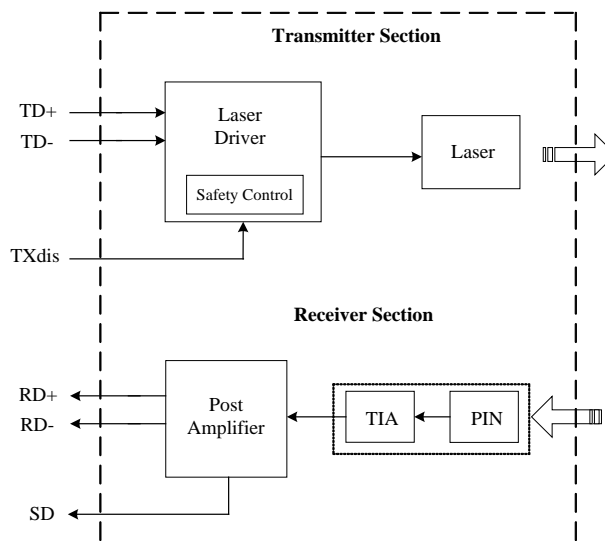
Note3: These are unfiltered 10~90% values.

Note4: Sensitivity and saturation levels for $2^{23}-1$ PRBS and BER better than or equal to $10E-10$.

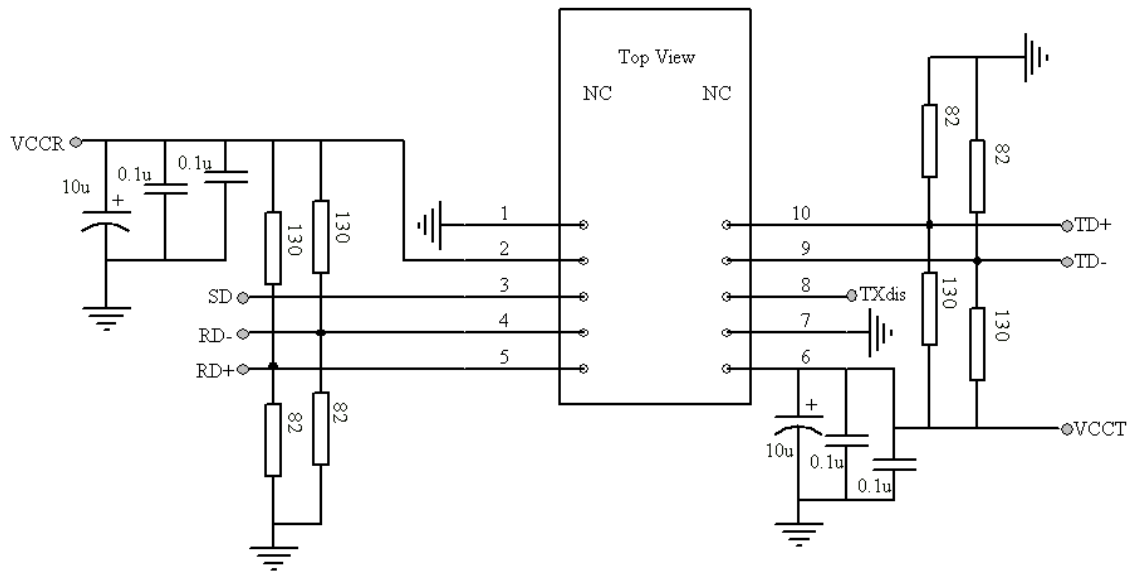
Pin Description

Pin	Name	Level	Description
1	Vee		Receiver Signal Ground
2	VccR		Receiver Power Supply
3	SD	LVTTTL	Signal Detect
			Normal Operation: logic "1" output Fault Condition: logic "0" output
4	RD-	LVPECL	Received Data Output Bar
5	RD+	LVPECL	Receiver data output
6	VccT		Transmitter Power Supply
7	Vee		Transmitter Signal Ground
8	TXDis	TTL	Transmitter Disable
			Normal Operation: logic "0" --Laser On Transmit Disabled: logic "1" --Laser Off
9	TD+	LVPECL	Transmitter Data In
10	TD-	LVPECL	Transmitter data In Bar

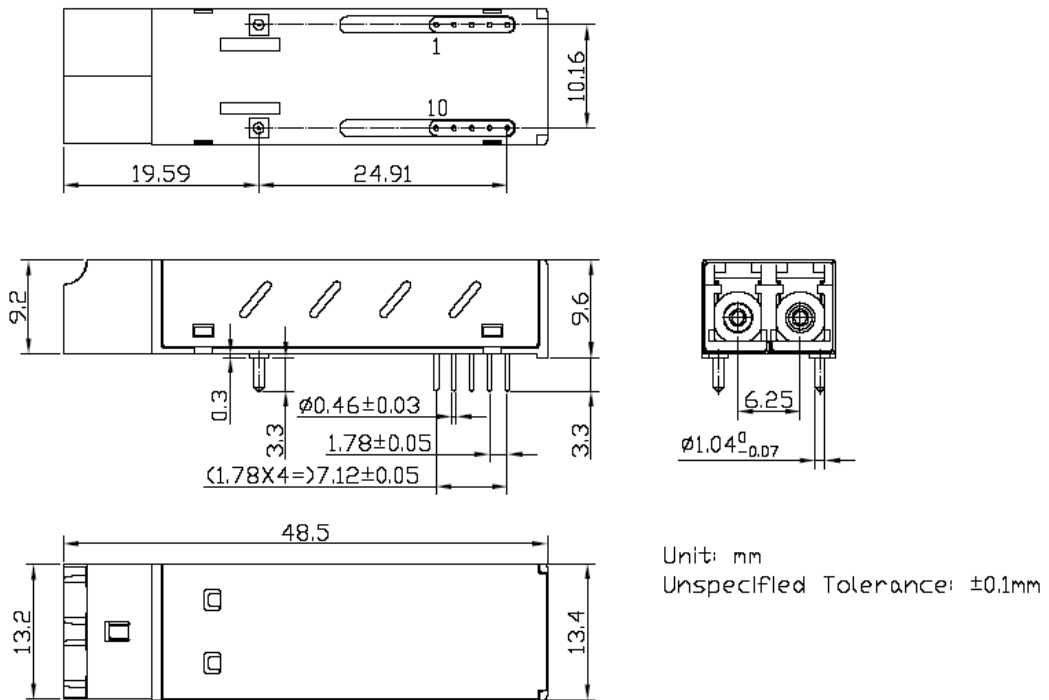
Block diagram



Typical application circuit



Package Outline



Top Label (unit: mm)



Note: SN on the label is random selected as a sample.

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 NO. E239070 TUV EN 60825-1	Compliant with Class 1 laser product

Ordering information

Part No.	Specifications							Application		
	Package	Datarate	Laser	Pout	Detector	Sensativity	Temp	Reach	Others	code
RTXM132-411	2x5 SFF	155Mb/s	1550nm DFB-LD	-5~-0dBm	PIN+TIA	< -35dBm	-20~70°C	80km	TTL; RoHS	SDHL-1.2

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