



155M SFF 850nm MMF Transceiver module

RTXM119

Features

- *Duplex LC receptacle optical interface*
- *850nm VCSEL*
- *Standard 2×5 package*
- *Single +3.3V power supply*
- *0 to 70°C operating temperature*
- *range*
- *LVPECL compatible data input/output interface*
- *TTL transmitter laser shutdown*
- *LVPECL receiver signal-detected indication*

Application

- *100M Fast Ethernet*
- *Short reach data communication*

Standard

- Reference to IEEE802.3z
- Compliant with SFF MSA July 5,2000

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	0	-	70
Power Supply Voltage	V _{cc}	V	3.14	3.3	3.47
Operating Data Rate	-	Mbps	-	155/100	-

Specifications (Top=0°C to 70°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	200	-	1660	
TTL Input Voltage-Low	VOL	V			0.8	
TTL Input Voltage-High	VOH	V	2			
PECL Output Voltage-Low	VOL-VCC	V	-1.810	-	-1.620	1
PECL Output Voltage-High	VOH-VCC	V	-1.025	-	-0.880	1
Optical transmitter Characteristics						
Launch Optical Power	P _o	dBm	-10		-4	2
Center Wavelength Range	λ _c	nm	830	850	860	
Extinction Ratio	EX	dB	8.2	-	-	
Spectral Width	Δλ	nm	-	-	0.85	
Eye Diagram	ITU recommendation G.957 STM-1/OC-3					
Optical receive Characteristics						
Receiver Sensitivity	S	dBm	-	-	-27.0	3
Overload Input Power	P _{SAT}	dBm	-3	-	-	3
Signal Detect-Deasserted	P _D	dBm	-45.0	-	-	

Signal Detect-Asserted	P_A	dBm	-	-	-28
Signal Detect-Hysteresis	P_A-P_D	dBm	0.5	-	6

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

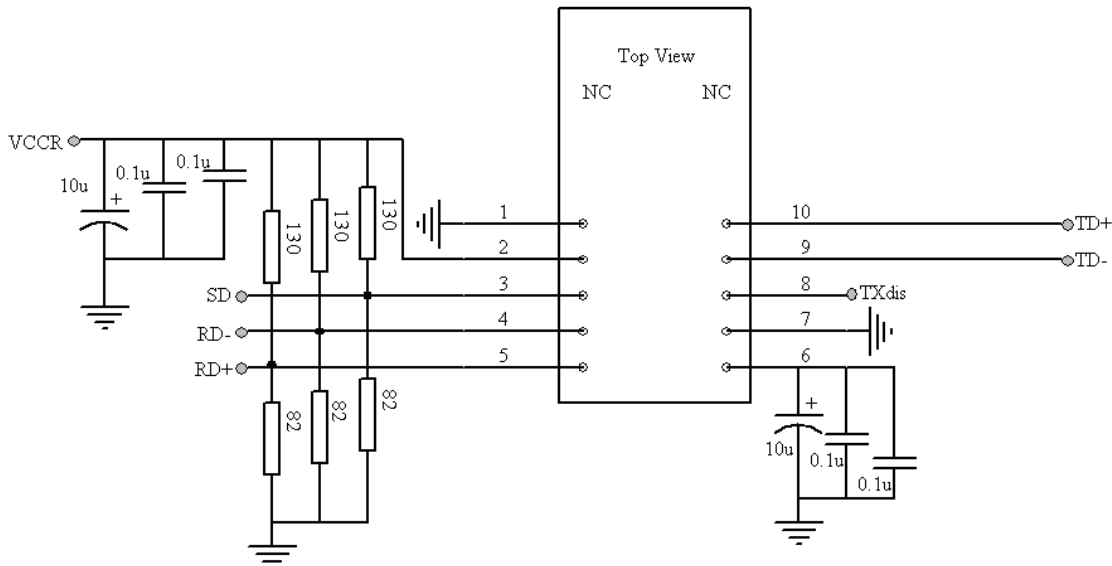
Note2: Minimum output optical level is at end of life.

Note3: Sensitivity and overload for 155M PRBS 2⁷-1 and BER better than or equal to 10E-10.

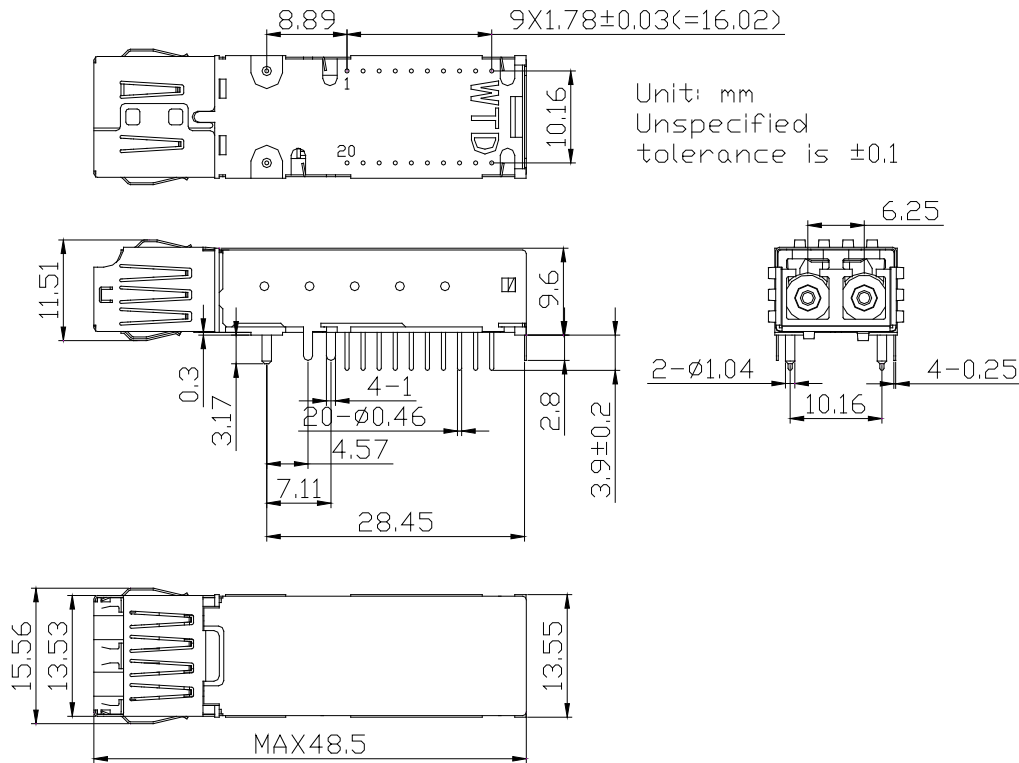
Pin Description

Pin Name	Level	Description
1	V_{EER}	passive power of receiver section, directly connected to ground
2	V_{CCR}	Positive power of receiver section
3	SD	LVPECL Optical alarm of receiver section, High level when normal, low level when no light
4	RD-	LVPECL Reverse data output of receiver section
5	RD+	LVPECL Data output of receiver section
6	V_{CCT}	Positive power of transmitter section
7	V_{EET}	Passive power of receiver section, directly connected to ground
8	TXDis	Laser disable of transmitter section. Low for normal operation; High or no connection for laser disable.
9	TD+	LVPECL Data input of transmitter section, AC coupling internally
10	TD-	LVPECL Reverse data input of transmitter section, AC coupling internally

Typical Application Circuit



Package Outline (unit: mm)



Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins Method 3015.7	MIL-STD-883E	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

Update Information

From datasheet V3.0 to V3.1

- Correct a mistake in clause 8 in "Pin Description" table (page 2), "Low or no connection for normal operation; High for laser disable" should be "Low for normal operation; High or no connection for laser disable".
- Revise the parameter "Signal Detect-Asserted" (in "Specifications" table, page2) from "-27dBm" to "-28dBm".

Ordering information

Part No.	Specification								
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Temp	Reach	Interface
RTXM119	2×5 SFF	155Mb/s	850nm VCSEL	-10~-4dBm	850nm PIN	-27dBm(max)	0~70 °C	550m	Duplex LC

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

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Edition 2009-12-01

Published by Wuhan Telecommunication Devices Co.,Ltd.

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