155Mbps 1 x 9 SM Transceiver Module

Product Description

OW's OWR-22XX series of transceiver modules are the perfect solution for high-speed communication networks.

The transceiver modules support data rates up to 155Mbps. These modules are fully compliant with the Multi-sourced 1x9 protocol.

The transceiver module supplies the Differential PECL of 3.3V, 5V, 3.3V/5.0V Voltage and provides the system designer with products to implement a range of FDDI and ATM designs at the 100Mbps / 125Mbps rate and SONET/OC-3, SDH/STM-1 for Telecommunication.

Commerce level transceiver module which operating at 0℃ to 70℃ and Industry level which operating extended temperature as -40℃ to +85℃ for available.

Order Information

Table 1: Order Information

Type	Fiber Type	Wavelength(nm)	Fiber Length(Km)
OWR-2232	SM	1310 (FP LD)	20
OWR-2234	SM	1310 (FP LD)	40
OWR-2236	SM	1310 (FP LD)	60
OWR-2238	SM	1310 (FP LD)	80
OWR-2252	SM	1550 (FP LD)	20
OWR-2258	SM	1550 (DFB LD)	80

Product Features

- Multi-sourced 1 x 9 pin packaged
- 1310nm FP or 1550nm FP /DFB Laser Transmitter
- SC /FC/ST single receptacle or Pigtail SC/PC, ST/PC, FC/PC optional
- Up to 120Km with 9/125μm SMF
- Single 3.3V, 5V, 3.3V/5.0V power supply
- PECL signal input and output
- Wave solderable and washable with process plug inserted
- Two temperature ranges:
  - — 0°C to +70°C(V)
  - — -40°C to +85°C for industry level(IV)

155Mbps 1×9 SM Transceiver Module

Application

- ATM equipments
- SONET/OC-3、SDH/STM-1 equipments
- 100Mbps Fast Ethernet equipments

Absolute Maximum Ratings

Operating of the transceiver beyond the Absolute Conditions Listed in Table 1 will degrade or damage the product. It's not implied that the product would function above the recommended operating environment, it's possible to reduce the reliability and lifetime of device if Recommended Operating Environment is exceeded (Refer to table 2)

Table 1-- Absolute Maximum Conditions

Parameter		Symbol	Min	Max	Units
Storage Temperature		T_{ST}	-40	+85	℃
Operating Temperature	Commerce level	T_{OP}	0	+75	℃
	Industry level		-40	+85	
Supply Voltage		V_{CC}	0	+6	V
Output Current		I_O	0	20	mA
Relative Humidity		RH	5	95	%
Input voltage		V_{IN}	0	V_{CC}	
Lead Soldering Temperature & Time		-	-	260/10	℃/S

Table 2-- Recommended Operating Environment

Parameter		Symbol	Min	Typ	Max	Units
Supply Voltage	3.3V power	V_{CC}	3.1	3.3	3.5	V
	5V power		4.75	5.0	5.25	
Ambient operating Temperature	Commerce level	T_{OP}	0		+70	℃
	Industry level		-40		+85	
Supply Current		$I_{TX}+I_{RX}$	-	200	300	mA

Optical Parameters

Table 3 OWR-2232 Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1260	1310	1360	nm
Output Spectral width (RMS)	λ	-		3.0	nm
Average Optical Output Power	Po	-14	-8	-5	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-34	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-34	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Table 4 OWR-2234Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1260	1310	1360	nm
Output Spectral width (RMS)	λ	-		3.0	nm
Average Optical Output Power	Po	-10	-6	-3	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-36	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-36	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Table 5 OWR-2236 Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1260	1310	1360	nm
Output Spectral width (RMS)	λ	-		3.0	nm
Average Optical Output Power	Po	-5	-3	0	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-36	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-36	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Table 6 OWR-2238 Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC}= 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1260	1310	1360	nm
Output Spectral width (RMS)	λ	-		3.0	nm
Average Optical Output Power	Po	-3	-1	2	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-36	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-36	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Table 7 OWR-2252 Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1480	1550	1580	nm
Output Spectral width (RMS)	λ	-		3.0	nm
Average Optical Output Power	Po	-14	-8	-5	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-34	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-34	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Table 8 OWR-2258 Transceiver Optical and Electrical Characteristics

(Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Data rate	B		155	-	Mb/s
Output Center Wavelength	λc	1480	1550	1580	nm
Output Spectral width (-20 dB)	λ	-	-	1.0	nm
Average Optical Output Power	Po	-5	-3	0	dBm
Extinction Ratio	EXT	10	-	-	dB
Optic Output Eye: Compliant with Bellcore TR-NWT-000253 and ITU recommendation G.957					
Receiver					
Receiver Sensitivity	P_{MIN}	-		-38	dBm
Maximum Input Power	P_{MAX}	-3		-	dBm
Signal Detect -- Asserted	P_A	-		-38	dBm
Signal Detect -- Deasserted	P_D	-45		-	dBm
Signal Detect - Hysteresis	P_{HYS}	1.0		4.0	dB

Electrical Parameters

Table 9 (Ambient Operating Temperature Ta=0°C to +70°C, V_{CC} = 4.75 to 5.25V)

Parameter	Symbol	Min	Typ	Max	Units
Transmitter					
Power Supply Current	I_{CC}	-	-	140	mA
Data Input Current - Low	I_{IL}	-350	-	-	µA
Data Input Current - High	I_{IL}	-	-	350	µA
Data Input Voltage - Low	V_{IL}- V_{CC}	-1.81	-	-1.48	V
Data Input Voltage - High	V_{IH}- V_{CC}	-1.17	-	-0.88	V
Receiver					
Power Supply Current	I_{CC}	-	-	100	mA
Data Output Voltage – Low	V_{OL} - V_{CC}	-1.83	-	-1.56	V
Data Output Voltage – High	V_{OH} - V_{CC}	-1.09	-	-0.88	V
Signal Detect Output Voltage-Low	V_{OL} - V_{CC}	-1.83	-	-1.56	V
Signal Detect Output Voltage-High	V_{OH} - V_{CC}	-1.09	-	-0.88	V

Pin Assignment & Signal Definition

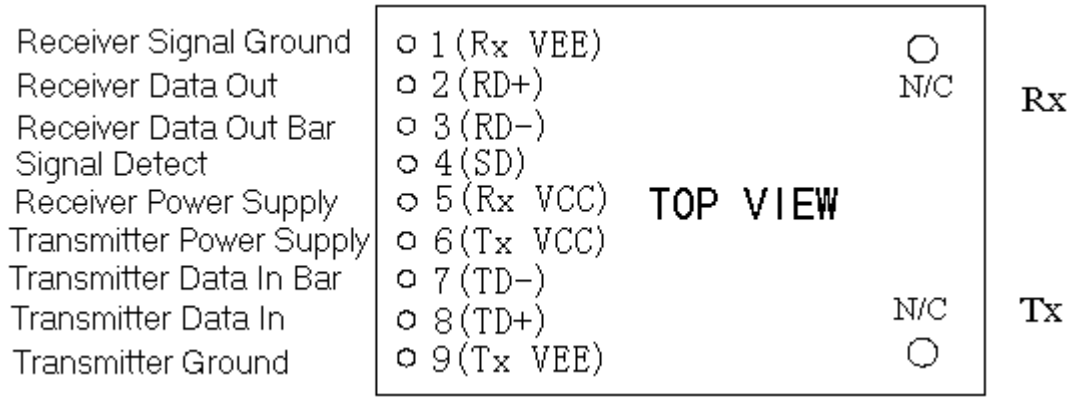
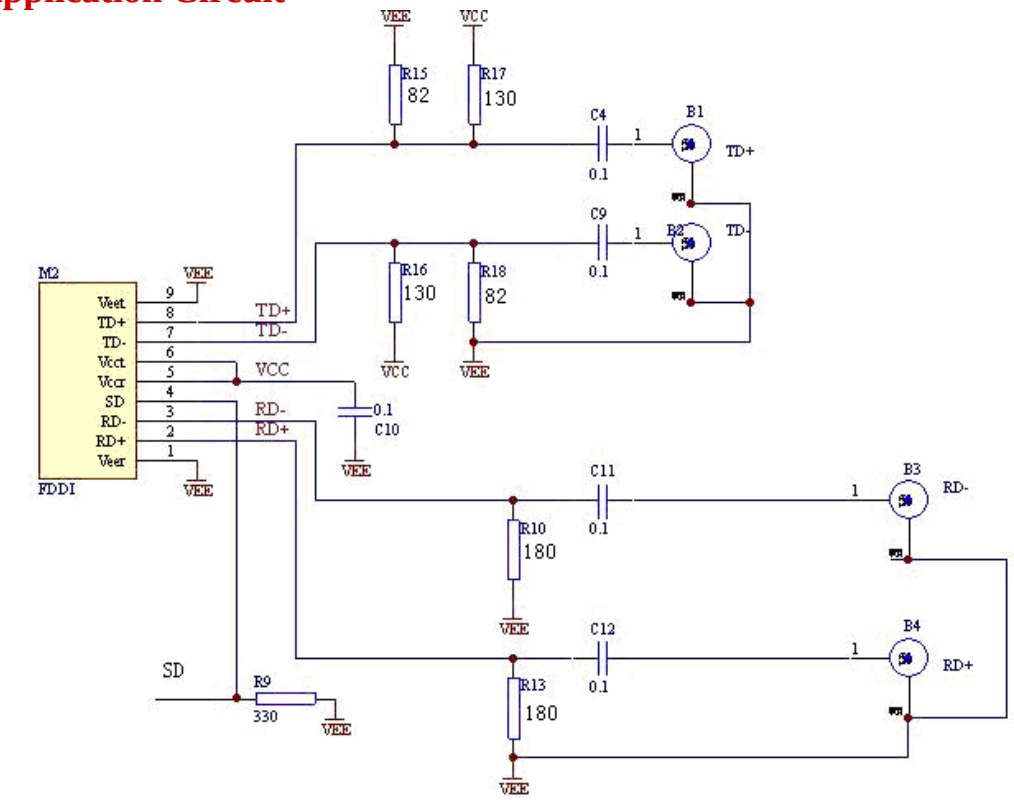


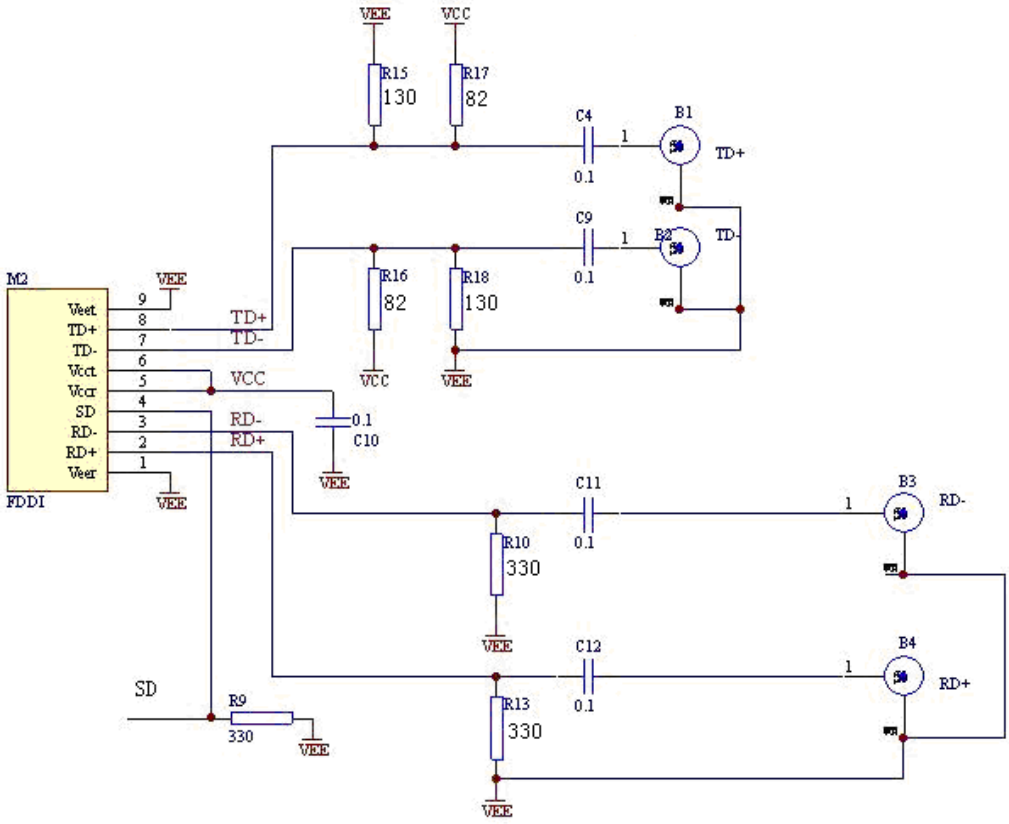
Table10—Connector pin assignment

Pin #	Pin Name	Description
1	Rx VEE	Receiver Signal Ground
2	RD+	Receiver Data Out
3	RD-	Receiver Data Out Bar
4	SD	Signal Detect
5	Rx VCC	Receiver Power Supply
6	Tx VCC	Transmitter Power Supply
7	TD-	Transmitter Data In Bar
8	TD+	Transmitter Data In
9	Tx VEE	Transmitter Ground

Typical Application Circuit

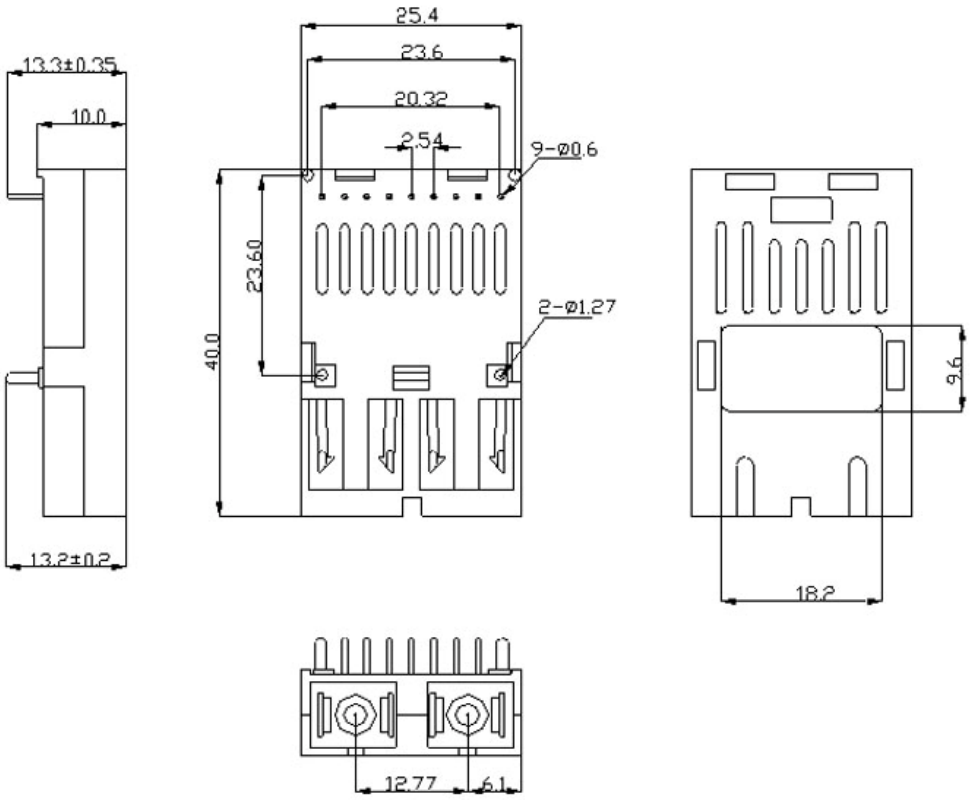


3.3V Typical Application Circuit



5.0V Typical Application Circuit

Module Outline Drawing



Note: Specifications subject to change without notice.