

## OTB2-xx20xxxR

Ultra-Low Data Rate TTL 1x9 BiDi Optical Transceiver, Single Mode, 2Mbps, 20km

### Features

- SC/ST/FC receptacle optical interface
- Single +3.3V or +5V Power Supply
- 1x9 SIP package
- Operating wavelength 1310nm/1550nm over single mode fiber
- Super low power consumption design, applied to some special applications
- Optional transmission bit rate with down to 0bps and up to 2Mbps
- Standard TTL data output with signal detect indication
- Compliant with RS485 function
- RoHS Compliance
- Operating case temperature:
  - Standard: 0 to +70°C
  - Extended: -10 to +85°C
  - Industrial: -40 to +85°C



### Applications

- Industrial Ethernet Applications: industrial Ethernet switches, Ethernet media converters and fiber converters
- Serial Communications over fiber: Industrial RS-232/RS-422/RS-485 serial to fiber media converter, industrial RS-232 to RS-422 and RS-485 Adapters
- RS232/RS485/RS422 optical-electrical converter for electric power control, industrial control, industrial computing

### Description

The OTB2-xx20xxxR family Bidirectional optical transceivers from Optcore provide the system designer and manufacturers with products to implement a range of industrial control, special low data rate Ethernet designs at the 0Mb/s-2Mb/s rate. This series fiber optic transceiver are all supplied in the industry standard 1x9 SIP package. The transceivers are high performance, cost effective modules with TTL data interface that supporting data-rate of 0~2Mbps and 20km transmission distance over single mode fiber cable (SMF).

The OTB2-xx20xxxR series single mode transceiver help you convert copper signals to optical fiber. They are usually used for serial communications over fiber like RS-232/422/485 serial to fiber media converter and industrial Ethernet networks to fiber networks communications like industrial fiber optic converters and industrial Ethernet switches.

The OTB2-xx20xxxR series features a simplex SC or ST or FC connector receptacle, which provide the choice of different connector for client. They provide 3 types operating temperature for different applications:

- Standard type (0~70°C) for commonly commercial application, provided with lowest cost
- Extended type (-10~85°C) for extended temperature application, provides wider operating temperature
- Industrial grade (-40~85°C) is made with robust and reliable components, to meet the needs of Industrial Ethernet application under hardened environmental conditions. It is designed for industrial media converter, Industrial Ethernet Switches, rugged switch and other industrial fiber connection equipment.

### Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply Voltage	V <sub>cc</sub>	0	6.0	V
Storage Temperature	T <sub>s</sub>	-40	+85	°C
Operating Humidity	-	5	95	%

### Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case Temperature	Standard	0		+70	°C
	Extended	-10		+85	°C
	Industrial	-40		+85	°C
Power Supply Voltage	V <sub>cc</sub>	4.75	5.0	5.25	V
	V <sub>cc</sub>	3.14	3.3	3.47	V
Power Supply Current	I <sub>TX</sub> +I <sub>RX</sub>			100	mA
Data Rate		0		2	Mbps

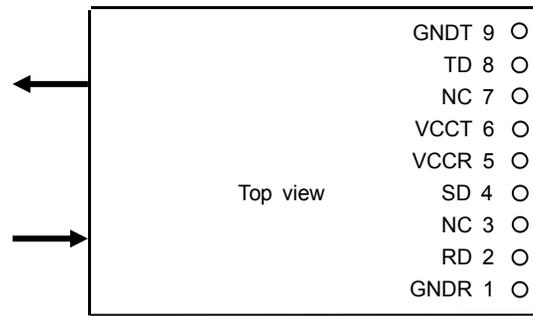
### Optical Characteristics

Parameter	Symbol	Min	Typical	Max	Unit	Notes
<b>Transmitter</b>						
Centre Wavelength	λ	1270	1310	1350	nm	OTB2-3520xxxR
	λ	1520	1550	1570	nm	OTB2-5320xxxR
Spectral Width (-20dB)	Δλ			3	nm	
Average Output Power	P <sub>out</sub>	-6	-	0	dBm	
Extinction Ratio	ER	9			dB	
<b>Receiver</b>						
Receiver Sensitivity	S			-18	dBm	
Receiver Overload	P <sub>in</sub>	-3			dBm	

### Pin Definitions

Pin	Signal Name	Remark	Description
1	GNDR		Receiver section grounded
2	RD	TTL/LVTTL	Data output of receiver section
3	NC		No connect
4	SD	TTL/LVTTL	Optical alarm of receiver section, low level when no light
5	V <sub>ccR</sub>		Positive power of receiver section, normally +5V and 3.3V
6	V <sub>ccT</sub>		Positive power of transmitter section, normally +5V and 3.3V
7	NC		No connect
8	TD	TTL/LVTTL	Data input of transmitter section
9	GNDT		Transmitter section grounded

**Topview diagram**



**Mechanical Dimensions**

Figure 1 SC Connector

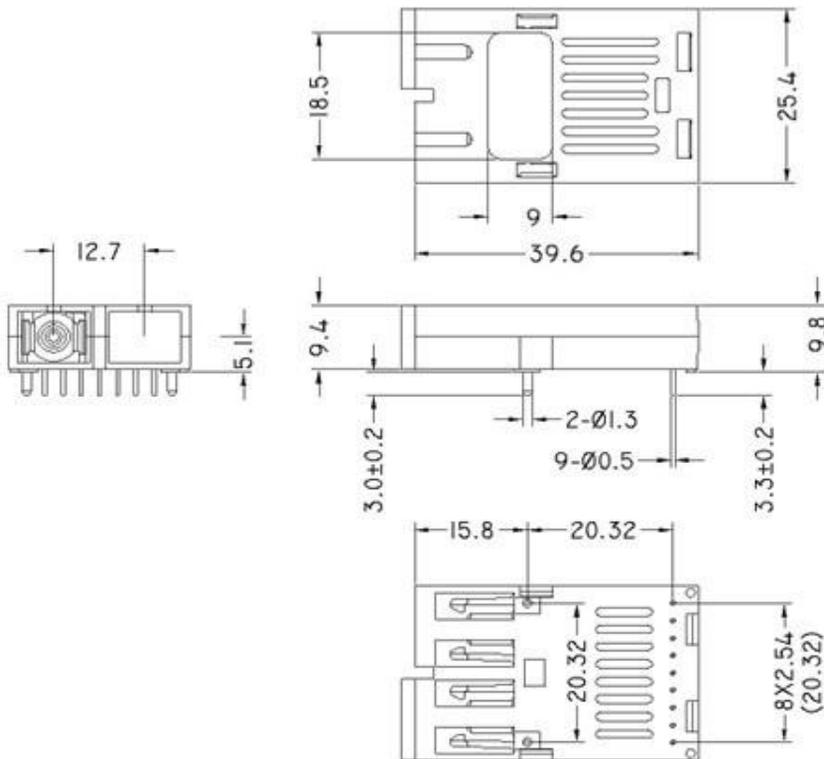


Figure 2 ST Connector

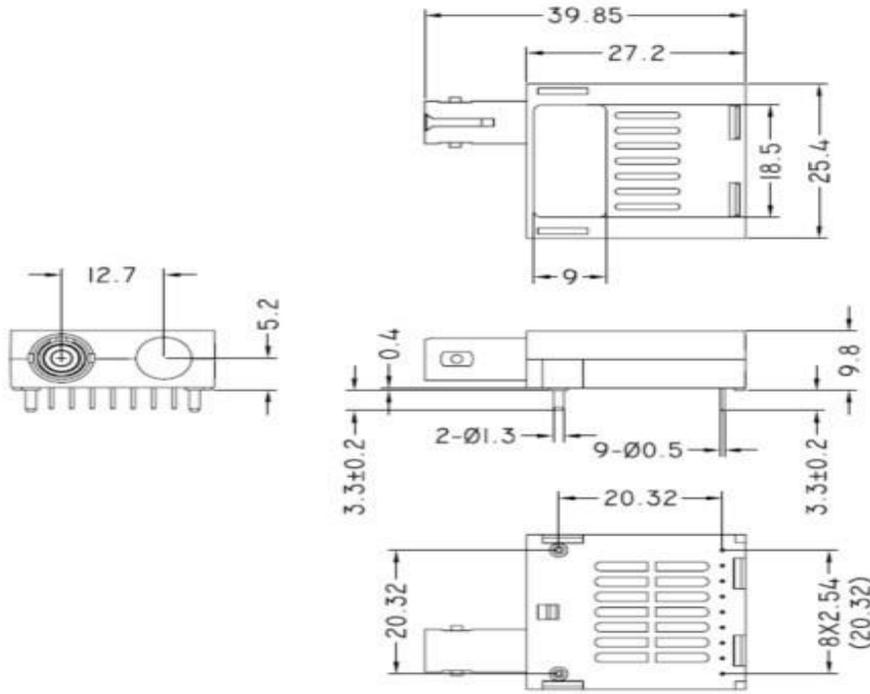
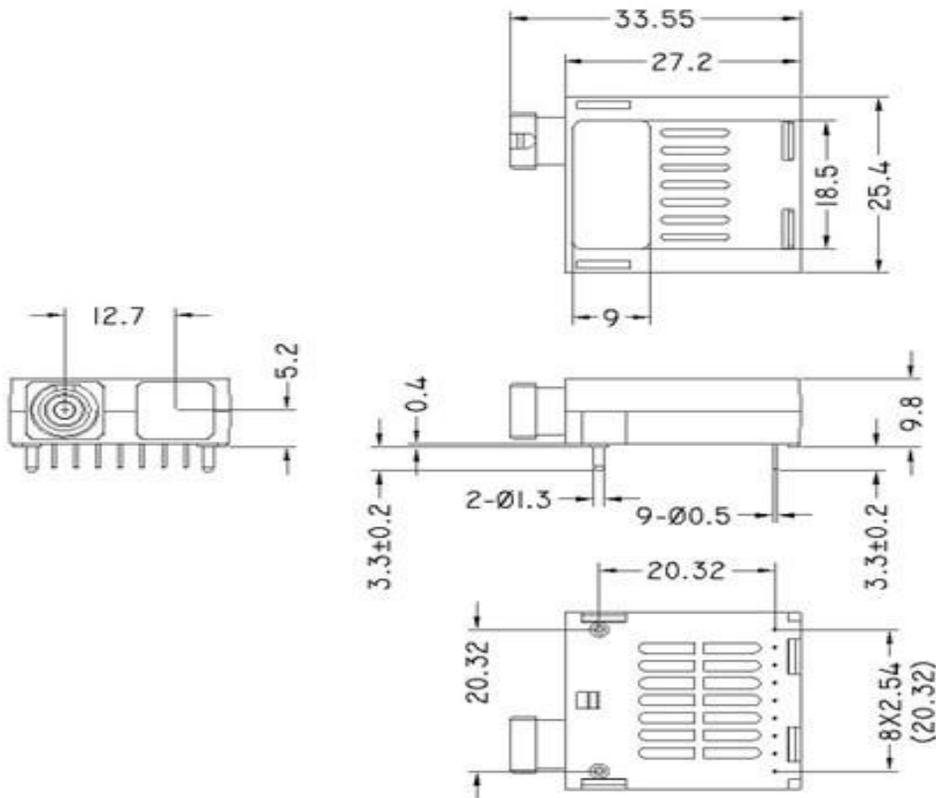


Figure 3 FC Connector



**Ordering information**

**0~2Mbps BiDi 1x9 TTL 20km Transceiver (Commercial Temperature)**

Part number	Wavelength	Voltage	Connector	Operating Temperature
OTB2-35203SCR	Tx:1310nm/Rx:1550nm	3.3V	SC	0~70 °C
OTB2-53203SCR	Tx:1550nm/Rx:1310nm	3.3V	SC	0~70 °C

OTB2-35203TCR	Tx:1310nm/Rx:1550nm	3.3V	ST	0~70 °C
OTB2-53203TCR	Tx:1550nm/Rx:1310nm	3.3V	ST	0~70 °C
OTB2-35203FCR	Tx:1310nm/Rx:1550nm	3.3V	FC	0~70 °C
OTB2-53203FCR	Tx:1550nm/Rx:1310nm	3.3V	FC	0~70 °C
OTB2-35203PCR	Tx:1310nm/Rx:1550nm	3.3V	FC pigtail	0~70 °C
OTB2-53203PCR	Tx:1550nm/Rx:1310nm	3.3V	FC pigtail	0~70 °C
OTB2-35205SCR	Tx:1310nm/Rx:1550nm	5V	SC	0~70 °C
OTB2-53205SCR	Tx:1550nm/Rx:1310nm	5V	SC	0~70 °C
OTB2-35205TCR	Tx:1310nm/Rx:1550nm	5V	ST	0~70 °C
OTB2-53205TCR	Tx:1550nm/Rx:1310nm	5V	ST	0~70 °C
OTB2-35205FCR	Tx:1310nm/Rx:1550nm	5V	FC	0~70 °C
OTB2-53205FCR	Tx:1550nm/Rx:1310nm	5V	FC	0~70 °C
OTB2-35205PCR	Tx:1310nm/Rx:1550nm	5V	FC pigtail	0~70 °C
OTB2-53205PCR	Tx:1550nm/Rx:1310nm	5V	FC pigtail	0~70 °C

**0~2Mbps BiDi 1x9 TTL 20km Transceiver (Extended Temperature)**

Part number	Wavelength	Voltage	Connector	Operating Temperature
OTB2-35203SER	Tx:1310nm/Rx:1550nm	3.3V	SC	-10~85 °C
OTB2-53203SER	Tx:1550nm/Rx:1310nm	3.3V	SC	-10~85 °C
OTB2-35203TER	Tx:1310nm/Rx:1550nm	3.3V	ST	-10~85 °C
OTB2-53203TER	Tx:1550nm/Rx:1310nm	3.3V	ST	-10~85 °C
OTB2-35203FER	Tx:1310nm/Rx:1550nm	3.3V	FC	-10~85 °C
OTB2-53203FER	Tx:1550nm/Rx:1310nm	3.3V	FC	-10~85 °C
OTB2-35203PER	Tx:1310nm/Rx:1550nm	3.3V	FC pigtail	-10~85 °C
OTB2-53203PER	Tx:1550nm/Rx:1310nm	3.3V	FC pigtail	-10~85 °C
OTB2-35205SER	Tx:1310nm/Rx:1550nm	5V	SC	-10~85 °C
OTB2-53205SER	Tx:1550nm/Rx:1310nm	5V	SC	-10~85 °C
OTB2-35205TER	Tx:1310nm/Rx:1550nm	5V	ST	-10~85 °C
OTB2-53205TER	Tx:1550nm/Rx:1310nm	5V	ST	-10~85 °C
OTB2-35205FER	Tx:1310nm/Rx:1550nm	5V	FC	-10~85 °C
OTB2-53205FER	Tx:1550nm/Rx:1310nm	5V	FC	-10~85 °C
OTB2-35205PER	Tx:1310nm/Rx:1550nm	5V	FC pigtail	-10~85 °C
OTB2-53205PER	Tx:1550nm/Rx:1310nm	5V	FC pigtail	-10~85 °C

**0~2Mbps 1x9 TTL Single mode 1310nm 20km Transceiver (Industrial Temperature)**

Part number	Wavelength	Voltage	Connector	Operating Temperature
OTB2-35203STR	Tx:1310nm/Rx:1550nm	3.3V	SC	-40~85 °C
OTB2-53203STR	Tx:1550nm/Rx:1310nm	3.3V	SC	-40~85 °C
OTB2-35203TTR	Tx:1310nm/Rx:1550nm	3.3V	ST	-40~85 °C
OTB2-53203TTR	Tx:1550nm/Rx:1310nm	3.3V	ST	-40~85 °C

OTB2-35203FTR	Tx:1310nm/Rx:1550nm	3.3V	FC	-40~85 °C
OTB2-53203FTR	Tx:1550nm/Rx:1310nm	3.3V	FC	-40~85 °C
OTB2-35203PTR	Tx:1310nm/Rx:1550nm	3.3V	FC pigtail	-40~85 °C
OTB2-53203PTR	Tx:1550nm/Rx:1310nm	3.3V	FC pigtail	-40~85 °C
OTB2-35205STR	Tx:1310nm/Rx:1550nm	5V	SC	-40~85 °C
OTB2-53205STR	Tx:1550nm/Rx:1310nm	5V	SC	-40~85 °C
OTB2-35205TTR	Tx:1310nm/Rx:1550nm	5V	ST	-40~85 °C
OTB2-53205TTR	Tx:1550nm/Rx:1310nm	5V	ST	-40~85 °C
OTB2-35205FTR	Tx:1310nm/Rx:1550nm	5V	FC	-40~85 °C
OTB2-53205FTR	Tx:1550nm/Rx:1310nm	5V	FC	-40~85 °C
OTB2-35205PTR	Tx:1310nm/Rx:1550nm	5V	FC pigtail	-40~85 °C
OTB2-53205PTR	Tx:1550nm/Rx:1310nm	5V	FC pigtail	-40~85 °C

**Warnings**

**Process plug**

The transceiver optics is supplied with a dust cover. This plug protects the transceiver optics during standard manufacturing processes by preventing contamination from air borne particles. It is recommended that the dust cover remain in the transceiver whenever an optical fiber connector is not inserted.

**Handling Precautions**

The transceiver optics is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

**Laser Safety**

The transceiver optics is a Class 1 laser product per international standard IEC 60825-1. Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

For more product information, visit us on the web at [www.optcore.net](http://www.optcore.net)



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