

OPT155-3180xxxR

155Mb/s 1x9 Optical Transceiver, Single mode, 1310nm, 80km, Duplex SC/ST/FC

Features

- Up to 155Mb/s data links
- Industry Standard 1×9 package
- Duplex SC, ST or FC connector
- Single +3.3V or +5V Power Supply
- Operating wavelength 1310nm
- Up to 80 km over single mode fiber
- Standard PECL or LVPECL data output with signal detect indication
- Class 1 laser safety standard IEC 60825 compliant
- ROHS compliant and Lead Free
- Operating case temperature: Standard: 0 to +70°C, Industrial: -40 to +85°C



Applications

- ATM 155 Mbps Links
- SONET OC-3 & SDH STM-1
- 100Base-EX Fast Ethernet Links
- Fast Ethernet to Fiber media converters
- Industrial grade for industrial hardened Ethernet
- Digital video transmission system
- FDDI

Description

The OPT155-3180xxxR series is the high performance and cost-effective Single mode 1×9 optical transceiver for serial optical communication applications. They are suitable for Fast Ethernet, SDH STM-1, SONET OC-3 and ATM (Asynchronous Transfer Mode) designs at the 155Mb/s rate. This series 1x9 transceiver module supports 60km to 80km transmission distance over Single mode fiber at a nominal wavelength of 1310nm.

Each 1×9 transceiver module consists of a transmitter section and a receiver section. The transmitter incorporates a highly reliable 1310 nm FP Laser and a driver circuit which converts Pseudo Emitter Coupled Logic(PECL) data to light signal, the receiver incorporates an efficient InGaAs/InP PIN photodiode converting the light signal into an electrical current which is amplified and regenerated into PECL compatible data.

The 155Mbps 1×9 Single mode 1310nm 80km transceiver provides with choice of duplex SC, FC or ST connector for the different client. The OPT155-3180xxxR family also provide the commercial grade for commonly application, and industrial grade for industrial hardened environment application such as industrial Ethernet Switch, Industrial computing, Industrial Ethernet media converters and so on. They are compliant with class 1 FDA, IEC60825-1 laser safety and RoHS.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Note
Storage Temperature	Ts	-40	85	°C	-
Power Supply Voltage	Vcc (3.3V)	0.5	4.0	V	OPT155-31803xxR

	V _{cc} (5V)	0.5	6.0	V	OPT155-31805xxR
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Input Voltage	V _{in}	GND	V _{cc}	V	-

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units
Power Supply Voltage	V _{cc}	3.1	3.3	3.5	V
		4.75	5	5.25	
Operating Temperature	Standard	0	-	70	°C
	Industrial	-40	-	85	°C
Data Rate	-	-	155	-	Mbps
Power Supply Current	I _{cc}	-	150	250	mA

Transmitter Specifications (0°C < T_{op} < 70°C)

Parameter	Symbol	Min.	Typ.	Max.	Units
Optical					
Optical Transmit Power	P _o	0	-	5	dBm
Optical Center Wavelength	λ _c	1260	1310	1360	nm
Output Spectrum Width	Δλ	-	-	4	nm (RMS)
Extinction Ratio	E _R	10.0	-	-	dB
Output Eye	Compliant with ITU recommendation G.957 STM-1/OC-3				
Optical Rise Time	t _r	-	-	2	ns
Optical Fall Time	t _f	-	-	2	ns
Electrical					
Differential Input Voltage	V _{IH} -V _{IL}	0.3	-	2.2	V
Common-mode Input Voltage	V _{COM} -V _{CC}	-1.38	-	-0.47	V
PECL Output Voltage-Low	V _{OL} -V _{CC}	-1.810	-	-1.620	V
PECL Output Voltage-High	V _{OH} -V _{CC}	-1.025	-	-0.880	V

Receiver Specifications (0°C < T_{op} < 70°C)

Parameter	Symbol	Min.	Typ.	Max.	Units
Optical					
Sensitivity	Sen	-	-	-37	dBm
Maximum Input	P _{MAX}	-3	-	-	dBm

Power(Saturation)					
Signal Detect – Asserted	P_a	-	-	-37	dBm
Signal Detect – Deasserted	P_d	-45	-	-	dBm
Signal Detect – Hysteresis	P_{hys}	1	-	4	dB
Wavelength of Operation	λ	1100	-	1600	nm
Electrical					
Data Output Voltage – Low	$V_{IL}-V_{CC}$	-1.83	-	-1.555	V
Data Output Voltage – High	$V_{IH}-V_{CC}$	-1.085	-	-0.88	V
Signal Detect Output Voltage - Low	$V_{SIL}-V_{CC}$	-2.0	-	-1.58	V
Signal Detect Output Voltage -High	$V_{SIH}-V_{CC}$	-1.1	-	-0.74	V

Pin Assignment

1 Receiver Signal Ground	
2 Receiver Data Out	O N.C.
3 Receiver Data Out Bar	
4 Signal Detect	
5 Receiver Power Supply	Top View
6 Transmitter Power Supply	
7 Transmitter Data In Bar	
8 Transmitter Data In	O N.C.
9 Transmitter Signal Ground	

Figure 1. Pin-Out

Mechanical Dimensions

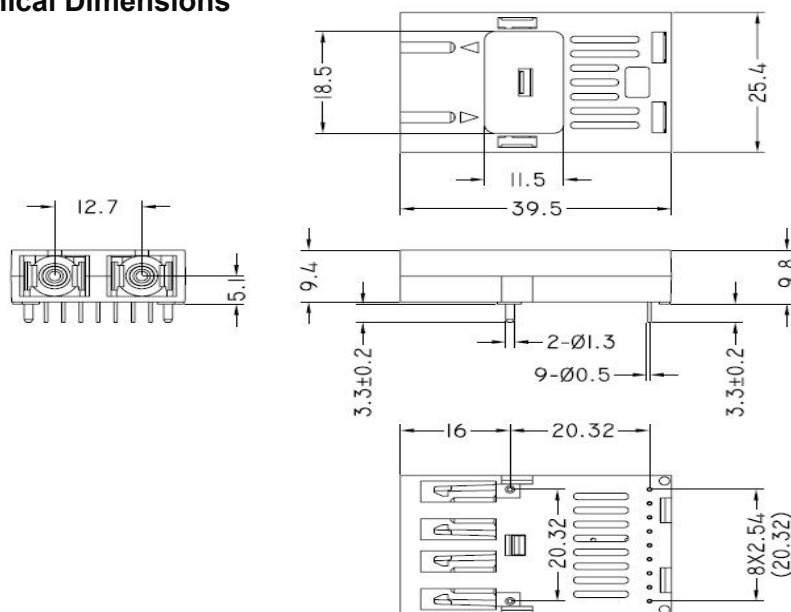


Figure 2. SC Connector

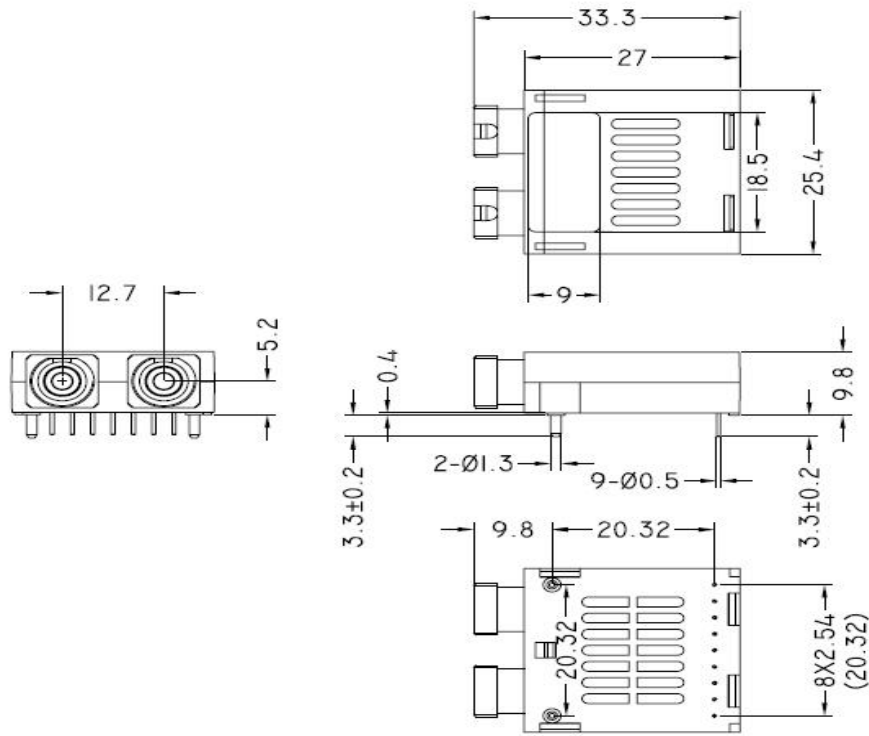


Figure 3. FC Connector

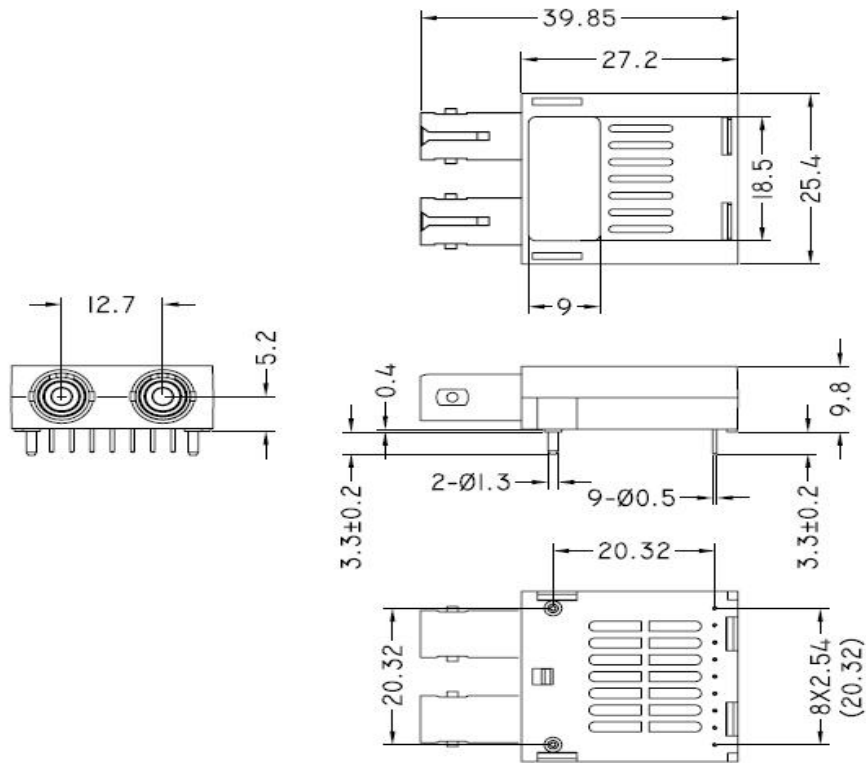


Figure 4. ST Connector

Ordering information

Part number	Description
OPT155-31803SCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,3.3V,SC

OPT155-31803TCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,3.3V,ST
OPT155-31803FCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,3.3V,FC
OPT155-31805SCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,5V,SC
OPT155-31805TCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,5V,ST
OPT155-31805FCR	155Mb/s 1x9 Transceiver,SMF,1310nm,80km,5V,FC
OPT155-31803STR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,3.3V,SC,-40~+85℃
OPT155-31803TTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,3.3V,ST,-40~+85℃
OPT155-31803FTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,3.3V,FC,-40~+85℃
OPT155-31805STR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,5V,SC,-40~+85℃
OPT155-31805TTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,5V,ST,-40~+85℃
OPT155-31805FTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,80km,5V,FC,-40~+85℃

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



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