

OPT155-3140xxxR

155Mb/s 1x9 Optical Transceiver, Single mode, 1310nm, 40km, 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 40 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 OPT155-3140xxxR 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 30km to 40km 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 40km transceiver provides with choice of duplex SC, FC or ST connector for the different client. The OPT155-3140xxxR 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	OPT155-31403xxR

	V _{cc} (5V)	0.5	6.0	V	OPT155-31405xxR
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	-8	-	-3	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	-	-	-36	dBm
Maximum Input	P _{MAX}	-3	-	-	dBm

Power(Saturation)					
Signal Detect – Asserted	P_a	-	-	-36	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

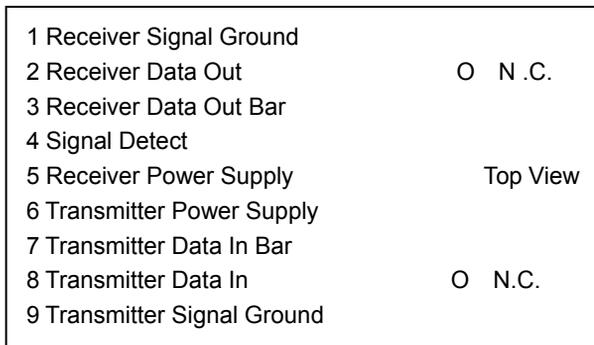


Figure 1. Pin-Out

Mechanical Dimensions

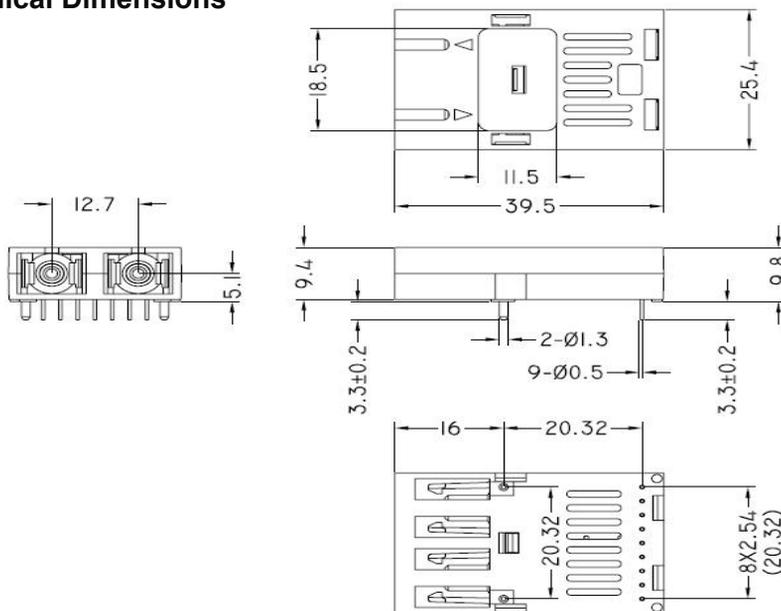


Figure 2. SC Connector

OPT155-31403TCR	155Mb/s 1x9 Transceiver,SMF,1310nm,40km,3.3V,ST
OPT155-31403FCR	155Mb/s 1x9 Transceiver,SMF,1310nm,40km,3.3V,FC
OPT155-31405SCR	155Mb/s 1x9 Transceiver,SMF,1310nm,40km,5V,SC
OPT155-31405TCR	155Mb/s 1x9 Transceiver,SMF,1310nm,40km,5V,ST
OPT155-31405FCR	155Mb/s 1x9 Transceiver,SMF,1310nm,40km,5V,FC
OPT155-31403STR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,3.3V,SC,-40~+85°C
OPT155-31403TTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,3.3V,ST,-40~+85°C
OPT155-31403FTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,3.3V,FC,-40~+85°C
OPT155-31405STR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,5V,SC,-40~+85°C
OPT155-31405TTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,5V,ST,-40~+85°C
OPT155-31405FTR	155Mb/s 1x9 Industrial Transceiver,SMF,1310nm,40km,5V,FC,-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



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