Optium | 10GB/S (OC-192) OPTICAL TRANSCEIVER / TRANSPONDER

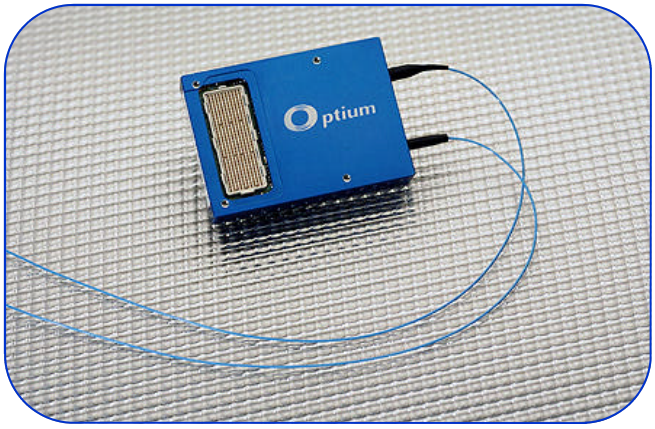
1310nm AND 1550nm PRODUCT LINE OVERVIEW

Optium has developed a line of serial 10Gb/s (OC-192) transponders that incorporate all of the features required by the 300 PIN Multi-Source Agreement (MSA) and serial Optical Internetworking Forum (OIF99.102.8) specification. The 1310 nm transponders are designed for typical applications with optical links up to 40 kilometers. The 1550 nm transponders are designed for long reach and back-haul applications.

Optium's products include all of the necessary components to cost effectively transmit and receive high-speed serial (10Gb/s) optical data. The receiver converts the optical input to 16 parallel electrical outputs and the transmitter combines 16 parallel electrical inputs into 10Gb/s serial optical outputs. These inputs may be SONET, Ethernet, or FEC rate.

The optical receiver is based on a high Sensitivity PIN Diode with a Sensitivity of -20.o dBm at a Bit Error Rate (BER) of 10^{-12}. It is also available with an Avalanche Photodiode (APD) receiver providing a receiver Sensitivity of -26.0dBm at a BER of 10^{-12}.

The optical transmitter employs Optium's proprietary and patented designs, giving the highest performance levels at the lowest cost. With this technical approach, Optium achieves Electro-Absorptive Modulated LASER performance (eye performance) at a price comparable to that of an un-cooled Directly Modulated LASER based transponder.



Features

- Extended Reach Technology—NRZ, RZ, Duo-Binary and EDC Transponders (C or L Band)
- Compliant with the 300 PIN MSA
- Small Form Factor 2.2" x 3.0" x 0.53"
- Operating Temperature 0°C to 70°C (case)
- Multi-Rate Product Applications Supporting SONET, Ethernet, and FEC Data Rates
- 10Gb/s Optical Serial In/Out with 622/644/669 by 16 Electrical SERDES
- Low Power Dissipation

Note: The 1550nm 40km module is available on the ITU grid and in APD.

Applications

- Telecommunications
  - Optical-Electrical-Optical (OEO)
  - Signal Regeneration
  - Long Haul
  - Intra-Office SONET/SDH
  - Metropolitan Area Networks

Optical Performance Specifications

1310nm Transponders

Module	Parameter	12km Min	12km Typ	12km Max	24km Min	24km Typ	24km Max	40km Min	40km Typ	40km Max	Unit
Receiver	Sensitivity {BER = 10^{-12}}		-18	-15		-18	-16		-24	-22	dBm
	Maximum Overload {BER = 10^{-10}}	-1	0		-1	0		-7	-5		dBm
	RX Spectral Range	1290		1600	1290		1600	1290		1600	nm
	Optical Return Loss	27			27			27			dB
	Jitter Tolerance	GR 253 Compliant			GR 253 Compliant			GR 253 Compliant			
Transmitter	Output Power	-4		-1	-2		1	-2		1	dBm
	Extinction Ratio	7	8		8.2	11		8.2	11		dB
	TX Spectral Range	1290		1330	1290		1330	1290		1330	nm
	Sidemode Suppression Ration	30			30			30			dB
	Jitter Generation & Transfer	GR 253 Compliant			GR 253 Compliant			GR 253 Compliant			
Optical Path	Optical Path Penalty			1			1			1	dB
	Optical Budget	0		10	2		13	8		19	dB
	Chromatic Dispersion Tolerance			40			70			140	ps/nm

1550nm Transponders

Module	Parameter	40km Min	40km Typ	40km Max	80km Min	80km Typ	80km Max	Unit
Receiver	Sensitivity {BER = 10^{-12}}		-19	-16		-26	-24	dBm
	Maximum Overload {BER = 10^{-10}}	-1	0		-7	-5		dBm
	RX Spectral Range	1290		1600	1290		1600	nm
	Optical Return Loss	27			27			dB
	Jitter Tolerance	GR 253 Compliant			GR 253 Compliant			
Transmitter	Output Power	-1		2	0		4	dBm
	Extinction Ratio	8.2	11		9	11		dB
	TX Spectral Range	1530		1565	1530		1565	nm
	Sidemode Suppression Ration	30			30			dB
	Jitter Generation & Transfer	GR 253 Compliant			GR 253 Compliant			
Optical Path	Optical Path Penalty			2			2	dB
	Optical Budget	3		13	11		22	dB
	Chromatic Dispersion Tolerance			800			1600	ps/nm

High Performance 1550nm

Module	Parameter	Min	Typ	Max	Unit	Note
Receiver	Sensitivity {BER = 10^{-12}}		-26/-20	-24/-17	dBm	The transponder ($LiNbO_3$) has a mechanical size of 3.5" x 4.5" x .53" and is available on the ITU grid with an integrated wavelocker. Performance specifications are listed as APD/PIN except for Chromatic Dispersion Tolerance, for which the values are listed for -0.7 chirp and 0 chirp.
	Maximum Overload {BER = 10^{-10}}	-5/-1	-3/0		dBm	
	RX Spectral Range	1290		1600	nm	
	Optical Return Loss	27			dB	
	Jitter Tolerance	GR 253 Compliant				
Transmitter	Output Power	4		7	dBm	
	Extinction Ratio	12	13.5		dB	
	TX Spectral Range	1528		1570	nm	
	Sidemode Suppression Ration	30			dB	
	Jitter Generation & Transfer	GR 253 Compliant				
Optical Path	Optical Path Penalty			2	dB	
	Optical Budget	12/ 8		26/19	dB	
	Chromatic Dispersion Tolerance (-0.7/0 chirp)	0/-800		1600/800	ps/nm	

Optium

Tel: 267-803-3800
www.optium.com