

## 1.25Gb/s Single-mode SFP Transceivers with Dual LC Connectors

### Features and Benefits

Compatible with Olson's Model OTDV-1250 Transport Link to provide 1.25Gb/s data over Dual Single-mode optical fibers at 1310nm, 1550nm, and CWDM wavelengths.

Single 3.3V power supply and TTL logic interface.

Hot-pluggable SFP footprint with compact dual LC optical connectors.

Fully metallic enclosure assures low EMI.

Transmits 30km, 80km or more depending on the transmitter ordered.

Ideal for LAN 1000BASE-T, 1.25Gb Ethernet over single-mode fiber.

Can be used to create a very high quality video, audio, data, and Ethernet broadcast contribution/distribution network.



The Olson Model OTOLS-1X12-XX series of 1.25Gb/s Single Mode Small Form Pluggable (SFP) Fiber Optic Transceivers are module options available for the Model OTDV-1250 Transport Link, a very high quality V/A/A/D+Ethernet transport platform. The SFP 20-pin hot plug connector allows the module to be swapped in the field.

The modules offer laser options for 1310nm, 1550nm or CWDM wavelengths. The transmitter sections use multiple quantum well DFB lasers. The receiver sections use an integrated GaAs detector preamplifier (IDP). The 1310nm transceiver operates up to 30km on single mode fiber. The 1550nm transceiver operates up to 80km on single mode

### Ordering Information

Model OTOLS-1312-30	Transceiver, Data, SFP, 1.25Gb/s, 1310nm, DFB Laser, Dual LC Conn., SM
Model OTOLS-1512-80	Transceiver, Data, SFP, 1.25Gb/s, 1550nm, DFB Laser, Dual LC Conn., SM
Model OTOLS-1612-CW-80-51	Transceiver, Data, SFP, 1.25Gb/s, 1510nm CWDM Laser, Dual LC Conn., SM
Model OTOLS-1612-CW-80-53	Transceiver, Data, SFP, 1.25Gb/s, 1530nm CWDM Laser, Dual LC Conn., SM
Model OTOLS-1612-CW-80-55	Transceiver, Data, SFP, 1.25Gb/s, 1550nm CWDM Laser, Dual LC Conn., SM
Model OTOLS-1612-CW-80-57	Transceiver, Data, SFP, 1.25Gb/s, 1570nm CWDM Laser, Dual LC Conn., SM

## 1310nm and 1550nm Specifications

### Recommended Operating Conditions

	Min	Typ	Max	Units
<b>Absolute Max. Ratings</b>				
Power Supply Voltage	-0.5		+3.6	V
Storage Temperature	-40		+85	°C
<b>Normal Operating Conditions</b>				
Operating Temperature	0		+70	°C
Power Supply Voltage	3.15	3.3	3.45	V
Power Supply Current			190	mA
Surge Current			+30	mA
Baud Rate		1.25		GBaud
Total Supply Current			+300	mA

### Physical Characteristics

	Min	Typ	Max	Units
Weight		0.8		oz.
		23		g
Dimensions (L x W x H)	2.68 x 0.47 x 0.28			in.
	68 x 12 x 7			mm

### Optical and Electrical Characteristics

	Min	Typ	Max	Units
Distance (1310nm, 9/125µm)		30		km
Distance (1550nm, 9/125µm)		80		km
Data Rate		1.25		Gb/s
<b>Transmitter</b>				
Wavelength	1260	1310	1360	nm
Wavelength	1480	1550	1580	nm
Spectral Width (RMS)(1310nm)			35	nm
Spectral Width (RMS) (1550nm)			1	nm

### Optical and Electrical Characteristics (cont.)

	Min	Typ	Max	Units
<b>Transmitter (cont.)</b>				
Optical Output Power (1310nm)	-5.0		0	dBm
Optical Output Power (1550nm)	0		+5	dBm
Extinction Ratio	9			dB
Side Mode Suppression Ratio (1550nm)	30			dB
Rise/Fall Time (20%-80%) (1310nm)			1.2	ns
Rise/Fall Time (20%-80%) (1550nm)			260	ns
Total Jitter			56.5	ps
Output Optical Eye	IUT-T G.957 Compliant			
Data Input Swing Differential	500		2000	mV
Input Differential Impedance	90	100	110	Ohms
Enable Tx_Disable	2.0		V <sub>cc</sub> +0.3	V
Disable Tx_Enable	0		0.8	V
Tx_Fault = Fault	2.0		V <sub>cc</sub> +0.3	V
Tx Fault = Normal	0		0.8	V
Tx_Disable Assert Time			10	s
<b>Receiver</b>				
Wavelength	1100		1600	nm
Sensitivity (1310nm)			-23	dBm
Sensitivity (1550nm)			-24	dBm
Output Differential Impedance	90	100	110	Ohms
Data Output Swing Differential	370		2000	mV
Rise/Fall Times			2.2	ns
LOS De-assert			-25	dBm
LOS Assert	-40			dBm
LOS High	2.0		V <sub>cc</sub> +0.3	V
LOS Low			0.8	V

### Performance Specifications - Electrical

	Min	Typ	Max	Units
<b>Transmitter</b>				
CML/PECL Inputs (Differential) (1)	400		2500	mVp
Input Impedance (Differential) (2)	85	100	115	Ohms
Tx_Disable Input Voltage - High	2		3.45	V
Tx_Disable Input Voltage - Low	0		0.8	V
Tx_Fault Output Voltage - High (3)	V <sub>cc</sub> -0.5		V <sub>cc</sub> +0.3	V
Tx_Fault Output Voltage - Low (4)	0		0.5	V
<b>Receiver</b>				
CML Outputs (Differential)(1)	400	800	1200	mVp
Output Impedance (Differential)	85	100	115	Ohms
Rx_LOS Output Voltage High (3)	V <sub>cc</sub> -0.5		V <sub>cc</sub> +0.3	V
Rx_LOS Output Voltage Low (4)	0		0.8	V
Mod_Def (0:2) Output Voltage High (5)	2.5			V
Mod_Def (0:2) Output Voltage High (5)	0		0.5	V

#### NOTES:

- 1) Ac coupled inputs.
- 2) R<sub>in</sub> > 100 kOhms @ DC.

- 3) I<sub>o</sub> = 400µA; Host V<sub>cc</sub>.
- 4) I<sub>o</sub> = -4.0mA.
- 5) With serial ID.

## CWDM Specifications

### Recommended Operating Conditions

	Min	Typ	Max	Units
<b>Absolute Max. Ratings</b>				
Power Supply Voltage	-0.5		+3.6	V
Storage Temperature	-40		+85	°C
<b>Normal Operating Conditions</b>				
Operating Temperature	0		+70	°C
Power Supply Voltage	3.15	3.3	3.45	V
Power Supply Current			190	mA
Surge Current			+30	mA
Baud Rate		1.25		GBaud
Total Supply Current			+300	mA

### Physical Characteristics

	Min	Typ	Max	Units
Weight		0.8		oz.
		23		g
Dimensions (L x W x H)	2.68 x 0.47 x 0.28			in.
	68 x 12 x 7			mm

### Optical and Electrical Characteristics (cont.)

	Min	Typ	Max	Units
Distance (9/125μm)		>80		km
Data Rate		1.25		Gb/s
<b>Transmitter</b>				
Wavelength (-51)	1504	1510	1517.5	nm
Wavelength (-53)	1524	1530	1537.5	nm
Wavelength (-55)	1544	1550	1557.5	nm
Wavelength (-57)	1564	1570	1577.5	nm
Spectral Width (-20dB)			1	nm
Optical Output Power	0		+5	dBm
Extinction Ratio	10			dB
Side Mode Suppression Ratio	30			dB
Rise/Fall Time (20%-80%)			2	ns
Output Optical Eye	IUT-T G.957 Compliant			
Data Input Swing Differential	500		2000	mV
Input Differential Impedance	90	100	110	Ohms
Enable Tx_Disable	2.0		V <sub>cc</sub> +0.3	V
Disable Tx_Enable	0		0.8	V
Tx_Fault = Fault	2.0		V <sub>cc</sub> +0.3	V
Tx Fault = Normal	0		0.8	V
Tx_Disable Assert Time			10	s
<b>Receiver</b>				
Wavelength	1100		1600	nm
Sensitivity			-24	dBm
Output Differential Impedance	90	100	110	Ohms
Data Output Swing Differential	370		2000	mV
Rise/Fall Times			2.2	ns
LOS De-assert			-25	dBm
LOS Assert	-40			dBm
LOS High	2.0		V <sub>cc</sub> +0.3	V
LOS Low			0.8	V

### Performance Specifications - Electrical

	Min	Typ	Max	Units
<b>Transmitter</b>				
CML/PECL Inputs (Differential) (1)	400		2500	mVp-p
Input Impedance (Differential) (2)	85	100	115	Ohms
Tx_Disable Input Voltage - High	2		3.45	V
Tx_Disable Input Voltage - Low	0		0.8	V
Tx_Fault Output Voltage - High (3)	V <sub>cc</sub> -0.5		V <sub>cc</sub> +0.3	V
Tx_Fault Output Voltage - Low (4)	0		0.5	V
<b>Receiver</b>				
CML Outputs (Differential)(1)	400	800	1200	mVp-p
Output Impedance (Differential)	85	100	115	Ohms
Rx_LOS Output Voltage High (3)	V <sub>cc</sub> -0.5		V <sub>cc</sub> +0.3	V
Rx_LOS Output Voltage Low (4)	0		0.8	V
Mod_Def (0:2) Output Voltage High (5)	2.5			V
Mod_Def (0:2) Output Voltage High (5)	0		0.5	V

#### NOTES:

- 1) Ac coupled inputs.
- 2) R<sub>in</sub> > 100 kOhms @ DC.

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