

1.25Gb/s Single-mode SFP Transceivers with DDM & 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.

These SFP Modules include DDM (Digital Diagnostic Monitoring)

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 120km 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 single-mode series of 1.25Gb/s Small Form Pluggable (SFP) Fiber Optic Transceivers are available with 1310nm, 1550nm or CWDM wavelengths. The transmitters use highly stable MQW DFB lasers. The receiver sections use an integrated GaAs detector preamplifier (IDP). The 1310nm transceiver operates at distances up to 30km and the 1550nm and CWDM transceivers operate at distances up to 120km on SM fiber. All of these SFP modules include DDM (Digital Diagnostic Monitoring).

The CWDM modules are also available for 40km and 120km distances. Contact the factory for details.

Ordering Information

MODEL	DESCRIPTION
OTOLS-13-30D	Transceiver, Data, SFP, DDM, 30km, SM, 1310nm, Dual LC
OTOLS-15-80D	Transceiver, Data, SFP, DDM, 80km, SM, 1550nm, Dual LC
OTOLS-15-120D	Transceiver, Data, SFP, DDM, 120km, SM, 1550nm, Dual LC
OTOLS-CW-80-27D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1270nm, Dual LC
OTOLS-CW-80-29D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1290nm, Dual LC
OTOLS-CW-80-31D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1310nm, Dual LC
OTOLS-CW-80-33D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1330nm, Dual LC
OTOLS-CW-80-35D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1350nm, Dual LC
OTOLS-CW-80-37D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1370nm, Dual LC
OTOLS-CW-80-39D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1390nm, Dual LC
OTOLS-CW-80-41D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1410nm, Dual LC
OTOLS-CW-80-43D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1430nm, Dual LC
OTOLS-CW-80-45D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1450nm, Dual LC
OTOLS-CW-80-47D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1470nm, Dual LC
OTOLS-CW-80-49D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1490nm, Dual LC
OTOLS-CW-80-51D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1510nm, Dual LC
OTOLS-CW-80-53D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1530nm, Dual LC
OTOLS-CW-80-55D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1550nm, Dual LC
OTOLS-CW-80-57D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1570nm, Dual LC
OTOLS-CW-80-59D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1590nm, Dual LC
OTOLS-CW-80-61D	Transceiver, Data, SFP, DDM, 80km, SM, CWDM, 1610nm, Dual LC

1310nm and 1550nm Specifications

Recommended Operating Conditions

	Min	Typ	Max	Units
Absolute Max. Ratings				
Power Supply Voltage	-0.5		+3.6	V
Storage Temperature	-40		+85	°C
Normal Operating Conditions				
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 23		oz. g
Dimensions (L x W x H)	2.68 x 0.47 x 0.28 68 x 12 x 7			in. mm

Optical and Electrical Characteristics

	Min	Typ	Max	Units
Distance (1310nm, 9/125µm)		30		km
Distance (1550nm, 9/125µm)	80		120	km
Data Rate		1.25		Gb/s
Transmitter				
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
Transmitter (cont.)				
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 _{cc} +0.3	V
Disable Tx_Enable	0		0.8	V
Tx_Fault = Fault	2.0		V _{cc} +0.3	V
Tx Fault = Normal	0		0.8	V
Tx_Disable Assert Time			10	s
Receiver				
Wavelength	1270		1610	nm
Sensitivity (1310nm)			-23	dBm
Sensitivity (1550nm-80km)			-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 _{cc} +0.3	V
LOS Low			0.8	V

Performance Specifications - Electrical

	Min	Typ	Max	Units
Transmitter				
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 _{cc} -0.5		V _{cc} +0.3	V
Tx_Fault Output Voltage - Low (4)	0		0.5	V
Receiver				
CML Outputs (Differential)(1)	400	800	1200	mVp-p
Output Impedance (Differential)	85	100	115	Ohms
Rx_LOS Output Voltage High (3)	V _{cc} -0.5		V _{cc} +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_{in} > 100 kOhms @ DC.

- 3) I_o = 400µA; Host V_{cc}.
4) I_o = -4.0mA.
5) With serial ID.

CWDM Specifications

Recommended Operating Conditions

	Min	Typ	Max	Units
Absolute Max. Ratings				
Power Supply Voltage	-0.5		+3.6	V
Storage Temperature	-40		+85	°C
Normal Operating Conditions				
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)	40	80	120	km
Data Rate		1.25		Gb/s
Transmitter				
Center Wavelength (-XX)	-6		+7.5	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 _{cc} +0.3	V
Disable Tx_Enable	0		0.8	V
Tx_Fault = Fault	2.0		V _{cc} +0.3	V
Tx Fault = Normal	0		0.8	V
Tx_Disable Assert Time			10	s
Receiver				
Wavelength	1270		1610	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 _{cc} +0.3	V
LOS Low			0.8	V

Performance Specifications - Electrical

	Min	Typ	Max	Units
Transmitter				
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 _{cc} -0.5		V _{cc} +0.3	V
Tx_Fault Output Voltage - Low (4)	0		0.5	V
Receiver				
CML Outputs (Differential)(1)	400	800	1200	mVp-p
Output Impedance (Differential)	85	100	115	Ohms
Rx_LOS Output Voltage High (3)	V _{cc} -0.5		V _{cc} +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_{IN} > 100 kOhms @ DC.

3) I_O = 400μA; Host V_{cc}.

4) I_O = -4.0mA.

5) With serial ID.