

# 1.25 Gb/s, 40 - 60 km CWDM 1270 nm – 1450 nm 1x9 Dual SC Package



## Description

OptixCom's CWDM transceivers are designed with high performance DFB laser and cover the wavelength spectrum from 1270 nm to 1450 nm, with industry standard 20 nm spacing. The transceiver modules use industry standard 1x9 pluggable package. This product can be used at 1.0625 Gb/s for Fiber Channel or 1.25 Gb/s for Gigabit Ethernet applications.

Two transceiver designs reach up to 40 km and 60 km of distances with 20 dB and 24 dB of power budget, respectively, for standard single mode fibers. The products are RoHS compliant.



Lead-Free

**DSC-1250CLX-AT40K-XX**  
**DSC-1250CLX-AT60K-XX**



## Key Features

- 1270 - 1450 nm single mode, 1.0625/1.25 Gb/s
- Duplex SC connector optical interface
- Industry standard 1x9 pluggable package
- AC coupling LVPECL differential I/O logics
- 40 km with 20 dB power budget
- 60 km with 24 dB power budget
- Compliant with IEEE 802.3z, 1000BASE-LX
- Compliant with Fiber Channel Standard
- TTL Signal detect to monitor optical signals
- Single 3.3/5 V power supply
- RoHS compliant

## Applications

- ✓ 1X Fiber Channel
- ✓ Gigabit Ethernet
- ✓ High speed I/O for file server
- ✓ Video over fiber links
- ✓ Media converter
- ✓ Data Communication for SAN and LAN
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

## Ordering Information

**Part Number:** DSC-1250CLX-AT40K-XX

**Description:**  
CWDM 1270 - 1450 nm 1.0625/1.25 Gb/s 1x9 DSC Transceiver, 40 km reach, 1XX0 nm wavelength, 0-70°C.

**Part Number:** DSC-1250CLX-AT60K-XX

**Description:**  
CWDM 1270 – 1450 nm, 1.0625/1.25 Gb/s 1x9 DSC Transceiver, 60 km reach, 1XX0 nm wavelength, 0-70°C

**XX** specifies the wavelength described below. For example, DSC-1250CLX-AT40K-27 is the 1270 nm module.

XX	Wavelength	XX	Wavelength
27	1270 nm	37	1370 nm
29	1290 nm	39	1390 nm
31	1310 nm	41	1410 nm
33	1330 nm	43	1430 nm
35	1350 nm	45	1450 nm

## Operating Conditions

Parameter	Min.	Typical	Max.	Units
Operate Temperature	0	25	70	°C
Data Rate	---	1.25	1.3	Gb/s
Supply Voltage	3.1	3.3	5.25	V
Supply Current	---	250	400	mA

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### Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units
Storage Temperature	$T_{st}$	-40	85	°C
Supply Voltage	$V_{cc}$	-0.5	6.0	V
Input Voltage	$V_{IN}$	-0.5	$V_{cc}$	V
Operating Current	$I_{op}$	---	400	mA
Output Current	$I_o$	---	50	mA

### Transmitter Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Differential Input Voltage <sup>1</sup>	$\Delta V_i$	0.65	---	2.0	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	ohm
Optical Output Power <sup>3</sup> (DSC-1250CLX-AT40K-XX)	$P_o$	-4	---	+1	dBm
Optical Output Power <sup>3</sup> (DSC-1250CLX-AT60K-XX)	$P_o$	-1	---	+4	dBm
Center Wavelength – 1270 nm	$\lambda_c$	1264.5	1270	1277.5	nm
Center Wavelength – 1290 nm	$\lambda_c$	1284.5	1290	1297.5	nm
Center Wavelength – 1310 nm	$\lambda_c$	1304.5	1310	1317.5	nm
Center Wavelength – 1330 nm	$\lambda_c$	1324.5	1330	1337.5	nm
Center Wavelength – 1350 nm	$\lambda_c$	1344.5	1350	1357.5	nm
Center Wavelength – 1370 nm	$\lambda_c$	1364.5	1370	1377.5	nm
Center Wavelength – 1390 nm	$\lambda_c$	1384.5	1390	1397.5	nm
Center Wavelength – 1410 nm	$\lambda_c$	1404.5	1410	1417.5	nm
Center Wavelength – 1430 nm	$\lambda_c$	1424.5	1430	1437.5	nm
Center Wavelength – 1450 nm	$\lambda_c$	1444.5	1450	1457.5	nm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Extinction Ratio	$ET$	7	---	---	dB
Side Mode Suppression Ratio	$SMSR$	30	---	---	dB
Relative Intensity Noise	$RIN$	---	---	-120	dB/Hz
Rise/Fall Time (20% - 80%)	$T_r/T_f$	---	---	260	ps
Total Jitter	$T_j$	---	---	227	ps

Notes:

1. Module is designed for AC coupling. DC voltage will be filtered by internal capacitor.
2. Single ended will be 50 ohm for each signal line.
3. Output of average coupling optical power into 9/125  $\mu$ m SMF.
4. Optical eye diagram is compliant with IEEE 802.3z standard.

### Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	$\lambda_c$	1260	---	1610	nm
Receiver Overload	$P_{max}$	-3	---	---	dBm
Receiver Sensitivity <sup>1</sup>	$P_I$	---	-26	-24	dBm
Differential Output Voltage	$\Delta V_o$	0.4	---	2.0	V
Differential Input Impedance <sup>2</sup>	$Z$	---	100	---	Ohm
Optical Return Loss	OL	12	---	---	dB
Rise/Fall Time	$T_r/T_f$	---	---	350	ps
Signal Detect Hysteresis	$P_{SD+} - P_{SD}$	1	---	---	dB
Signal Detect Output - Low	$V_{SD-}$	0	---	0.5	V
Signal Detect Output - High	$V_{SD+}$	2.4	---	$V_{CC}$	V

Notes:

1. Test at 1.25 Gb/s, 2<sup>7</sup> – 1 PRBS data pattern, and > 1x10<sup>-12</sup> of Bit-Error-Rate (BER).
2. Single ended will be 50 ohm for each signal line.

Class 1 Laser Product  
Complies with  
21 CFR 1040.10 and 1040.11

