

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

Description

OptoC'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

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 ¹	ΔV_i	0.65	---	2.0	V
Differential Input Impedance ²	Z	---	100	---	ohm
Optical Output Power ³ (DSC-1250CLX-AT40K-XX)	P_o	-4	---	+1	dBm
Optical Output Power ³ (DSC-1250CLX-AT60K-XX)	P_o	-1	---	+4	dBm
Center Wavelength – 1270 nm	λ_c	1264.5	1270	1277.5	nm
Center Wavelength – 1290 nm	λ_c	1284.5	1290	1297.5	nm
Center Wavelength – 1310 nm	λ_c	1304.5	1310	1317.5	nm
Center Wavelength – 1330 nm	λ_c	1324.5	1330	1337.5	nm
Center Wavelength – 1350 nm	λ_c	1344.5	1350	1357.5	nm
Center Wavelength – 1370 nm	λ_c	1364.5	1370	1377.5	nm
Center Wavelength – 1390 nm	λ_c	1384.5	1390	1397.5	nm
Center Wavelength – 1410 nm	λ_c	1404.5	1410	1417.5	nm
Center Wavelength – 1430 nm	λ_c	1424.5	1430	1437.5	nm
Center Wavelength – 1450 nm	λ_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 μ 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	λ_c	1260	---	1610	nm
Receiver Overload	P_{max}	-3	---	---	dBm
Receiver Sensitivity ¹	P_I	---	-26	-24	dBm
Differential Output Voltage	ΔV_o	0.4	---	2.0	V
Differential Input Impedance ²	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, 2⁷ - 1 PRBS data pattern, and > 1x10⁻¹² 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
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**1.25 Gb/s, 60 - 80 km
CWDM 1470 nm – 1610 nm
1x9 Dual SC Package**

Description

OptoC's CWDM transceivers are designed with high performance DFB laser and cover the wavelength spectrum from 1470 nm to 1610 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 60 km and 80 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-1250CEX-AT60K-XX
DSC-1250CEX-AT80K-XX**



Key Features

- 1470 - 1610 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
- 60 km with 20 dB power budget
- 80 km with 24 dB power budget
- Compliant with IEEE 802.3z, 1000BASE-EX
- 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
- ✓ Bus extension
- ✓ Central offices routers and switches
- ✓ Mass storage systems interconnect
- ✓ Computer cluster cross-connect

Ordering Information

Part Number: DSC-1250CEX-AT60K-XX

Description

CWDM 1470 - 1610 nm 1.0625/1.25 Gb/s 1x9 DSC Transceiver, 60 km reach, 1XX0 nm wavelength, 0-70°C.

Part Number: DSC-1250CEX-AT80K-XX

Description:

CWDM 1470 – 1610 nm 1.0625/1.25 Gb/s 1x9 DSC Transceiver, 80 km reach, 1XX0 nm wavelength, 0-70°C.

XXX specifies the wavelength as below. For example, DSC-1250CEX-AT60K-47 is the 1470 nm module.

XX	Wavelength	XX	Wavelength
47	1470 nm	55	1550 nm
49	1490 nm	57	1570 nm
51	1510 nm	59	1590 nm
53	1530 nm	61	1610 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

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 ¹	ΔV_i	0.65	---	2.0	V
Differential Input Impedance ²	Z		100		ohm
Optical Output Power ³ (DSC-1250CEX-AT60K-XX)	P_o	-4	---	+1	dBm
Optical Output Power ³ (DSC-1250CEX-AT80K-XX)	P_o	0	+2	+5	dBm
Center Wavelength – 1470 nm	λ_c	1464.5	1470	1477.5	nm
Center Wavelength – 1490 nm	λ_c	1484.5	1490	1497.5	nm
Center Wavelength – 1510 nm	λ_c	1504.5	1510	1517.5	nm
Center Wavelength – 1530 nm	λ_c	1524.5	1530	1537.5	nm
Center Wavelength – 1550 nm	λ_c	1544.5	1550	1557.5	nm
Center Wavelength – 1570 nm	λ_c	1564.5	1570	1577.5	nm
Center Wavelength – 1590 nm	λ_c	1584.5	1590	1597.5	nm
Center Wavelength – 1610 nm	λ_c	1604.5	1610	1617.5	nm
Spectral Width (-20 dB)	$\Delta\lambda$	---	---	1	nm
Extinction Ratio	ET	9	---	---	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 μ m SMF.
4. Optical eye diagram is compliant with IEEE 802.3z

Receiver Electro-Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Units
Operating Wavelength	λ_c	1260	---	1610	nm
Receiver Overload	P_{max}	-3	---	---	dBm
Receiver Sensitivity ¹	P_I	---	-26	-24	dBm
Differential Output Voltage	ΔV_o	0.4	---	2.0	V
Differential Input Impedance ²	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, 2⁷ - 1 PRBS data pattern, and > 1x10⁻¹² 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

