

1.25 Gb/s, 60 - 80 km CWDM 1470 nm – 1610 nm 1x9 Dual SC Package



Description

OptixCom'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.

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

| <u>XX</u> | Wavelength | <u>XX</u> | 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 |

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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 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

