

Small Form Pluggable (GBE CWDM SFP EZ DDMI)
1.25Gbps 1270~1610nm CWDM DFB Transceiver
Link Budget: 27 dB (100km)

AB-GLC-CWDM-xx-EZ-DD
Ver. A

Feature

- Compliant with SFP MultiSource Agreement.
- SFF-8472 Digital Diagnostic Monitoring
- 1.0625Gbps Fiber Channel Compliant
- 1.25Gbps Gigabit Ethernet Compliant
- Single 3.3V Power Supply Voltage
- For SMF 100km transmission
- Class 1 laser product
- RoHS Compliance



Application

- Router / Server interface
- Distributed multi-processing
- Switch to switch interface
- High speed I/O for file server

Absolute Maximum Rating

| PARAMETER | SYMBOL | MIN | MAX | UNIT |
|---------------------|----------|------|----------|------|
| Storage Temperature | T_S | -40 | 85 | °C |
| Supply Voltage | V_{CC} | -0.5 | 3.6 | V |
| Input Voltage | V_{IN} | 0 | V_{CC} | V |
| Operating Humidity | | 5 | 95 | % |

Recommended Operating Condition

| PARAMETER | SYMBOL | MIN | MAX | UNIT | NOTE |
|-------------------------------|-------------------|-----|-----|------|------|
| Ambient Operating Temperature | T_{AMB} | 0 | 70 | °C | |
| Supply Voltage | V_{CC} | 3.1 | 3.5 | V | |
| Supply Current (3.3V) | $I_{TX} + I_{RX}$ | | 300 | mA | |

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Absolute Maximum Ratings Transmitter Electro-optical Characteristic

$V_{CC} = 3.1 \text{ V to } 3.5\text{V}$, $T_A = 0^\circ\text{C to } 70^\circ\text{C}$

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|---|---------------------------|-----------------|-------------|---------------|------|------|
| Output Optical Power 9/125 μm fiber | P_{out} | 0 | | 5 | dBm | |
| Extinction Ratio | ER | 8.2 | | | dB | |
| Center Wavelength | λ_C | $\lambda_C-6.5$ | λ_C | λ_C+7 | nm | |
| Spectral Width (-20 dB) | $\Delta\lambda$ | | | 1 | nm | |
| Side Mode Suppression Ratio | SMSR | | | 30 | dB | |
| Rise/Fall Time, (20–80%) | $T_{r, f}$ | | | 260 | ps | |
| Total Jitter | TJ | | | 227 | ps | |
| Output Eye | Compliant with IEEE802.3z | | | | | |
| Differential Data Input Swing | V_{IN} | 400 | | 2000 | mV | |
| Tx_Fault - High | V_{Fault_H} | 2 | | V_{CC} | V | |
| Tx_Fault - Low | V_{Fault_L} | Vee | | Vee+0.5 | V | |
| Tx_Disable - High | $V_{Disable_H}$ | 2 | | V_{CC} | V | |
| Tx_Disable - Low | $V_{Disable_L}$ | Vee | | Vee+0.8 | V | |

Receiver Electro-optical Characteristic

$V_{CC} = 3.1 \text{ V to } 3.5 \text{ V}$, $T_A = 0^\circ\text{C to } 70^\circ\text{C}$

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNIT | NOTE |
|--|-------------|------|------|----------|------|------------------|
| Optical Input Power-maximum | P_{IN} | -3 | | | dBm | $BER < 10^{-12}$ |
| Optical Input Power-minimum (Sensitivity) | P_{IN} | | | -27 | dBm | $BER < 10^{-12}$ |
| Operating Center Wavelength | λ_C | 1100 | | 1600 | nm | |
| Loss of signal -Asserted | P_A | -35 | | | dBm | |
| Loss of signal -Deasserted | P_D | | | -27.5 | dBm | |
| Signal Detect Hysteresis | P_{HYS} | 0.5 | 2 | | dB | |
| Return Loss | ORL | 12 | | | dB | |
| Receiver Loss of Signal Output Voltage-Low | RX_LOS_L | 0 | | 0.8 | V | |
| Receiver Loss of Signal Output Voltage-High | RX_LOS_H | 2.0 | | V_{CC} | V | |

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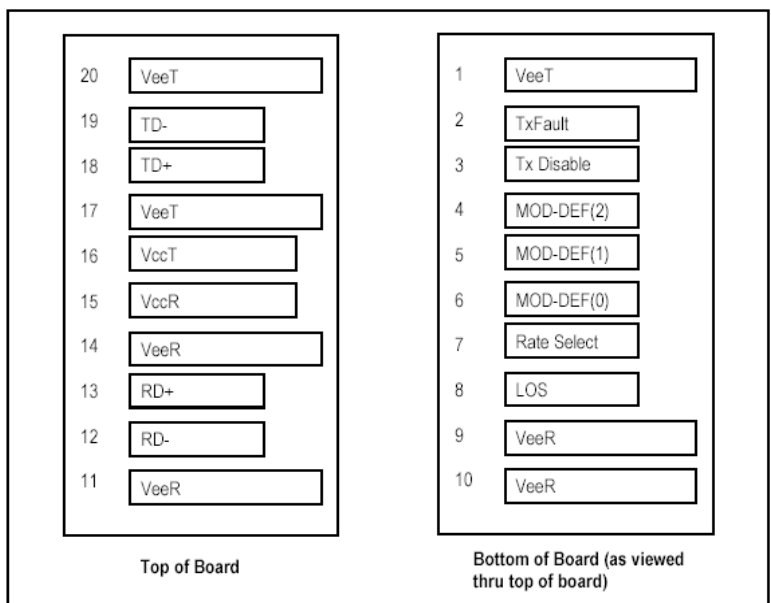
AB-GLC-CWDM-xx-EZ-DD
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Timing Requirement

$V_{CC} = 3.1\text{ V to } 3.5\text{ V}$, $T_A = 0\text{ }^{\circ}\text{C to } 70\text{ }^{\circ}\text{C}$

| PARAMETER | SYMBOL | MIN | TYP. | MAX | UNITS | NOTE |
|---|-----------------------|-----|------|-----|---------------|------|
| TX_DISABLE Assert Time | t_off | | | 10 | μS | |
| TX_DISABLE Negate Time | t_on | | | 1 | ms | |
| Time to initialize, include reset of TX_FAULT | t_init | | | 300 | ms | |
| TX_FAULT from fault to assertion | t_fault | | | 100 | μS | |
| TX_DISABLE time to start reset | t_reset | 10 | | | μS | |
| Receiver Loss of Signal Assert Time (off to on) | t _{A,RX_LOS} | | | 100 | μS | |
| Receiver Loss of Signal Assert Time (on to off) | t _{D,RX_LOS} | | | 100 | μS | |

Pin Assignment



SFP Transceiver Electric Pad Layout

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Pin Function Definition

| Pin Num. | Name | Function | Plug Seq. | Note |
|----------|------------|------------------------------|-----------|--|
| 1 | VeeT | Transmitter Ground | 1 | Note 7 |
| 2 | Tx_Fault | Transmitter Fault Indication | 3 | Note 1 |
| 3 | Tx_Disable | Transmitter Disable | 3 | Note 2 Module disables on high or open |
| 4 | MOD_DEF2 | Module Definition 2 | 3 | Note 3, 2 wire serial ID interface |
| 5 | MOD_DEF1 | Module Definition 1 | 3 | Note 3, 2 wire serial ID interface |
| 6 | MOD_DEF0 | Module Definition 0 | 3 | Note 3, Grounded in Module |
| 7 | NC | NC | 3 | No Connection |
| 8 | Rx_LOS | Loss of Signal | 3 | Note 4 |
| 9 | VeeR | Receiver Ground | 1 | Note 7 |
| 10 | VeeR | Receiver Ground | 1 | Note 7 |
| 11 | VeeR | Receiver Ground | 1 | Note 7 |
| 12 | RD- | Inv. Received Data Out | 3 | Note 5 |
| 13 | RD+ | Received Data Out | 3 | Note 5 |
| 14 | VeeR | Receiver Ground | 1 | Note 7 |
| 15 | VccR | Receiver Power | 2 | 3.3 ± 5%, Note 6 |
| 16 | VccT | Transmitter Power | 2 | 3.3 ± 5%, Note 6 |
| 17 | VeeT | Transmitter Ground | 1 | Note 7 |
| 18 | TD+ | Transmit Data In | 3 | Note 8 |
| 19 | TD- | Inv. Transmit Data In | 3 | Note 8 |
| 20 | VeeT | Transmitter Ground | 1 | Note 7 |

Note 1 : Tx_Fault is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor on the host board. Pull up voltage between 2.0V and VccT, R+0.3V. When high, output indicates a laser fault of some kind. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

Note 2: Tx_Disable is an input that is used to shut down the transmitter optical output. It is pulled up within the module with a 4.7 – 10 KΩ resistor.

Note 3: Mod-Def 0,1,2. These are the module definition pins. They should be pulled up with a 4.7K – 10KΩ resistor on the host board.

Note 4: Rx_LOS (Loss of Signal) is an open collector/drain output, which should be pulled up with a 4.7K – 10KΩ resistor. Pull up voltage between 2.0V and VccT, R+0.3V. When high, this output indicates the received optical power is below the worst-case receiver sensitivity. Low indicates normal operation. In the low state, the output will be pulled to < 0.8V.

Note 5: These are the differential receiver outputs. They are AC coupled 100Ω differential lines which should be terminated with 100Ω (differential) at the user SERDES.

Note 6: VccR and VccT are the receiver and transmitter power supplies. They are defined as 3.3V ±5% at the SFP connector pin. Recommended host board power supply filtering is shown below.

Note 7: VeeR and VeeT may be internally connected within the SFP module.

Note 8: These are the differential transmitter inputs. They are AC-coupled, differential lines with 100Ω differential termination inside the module.

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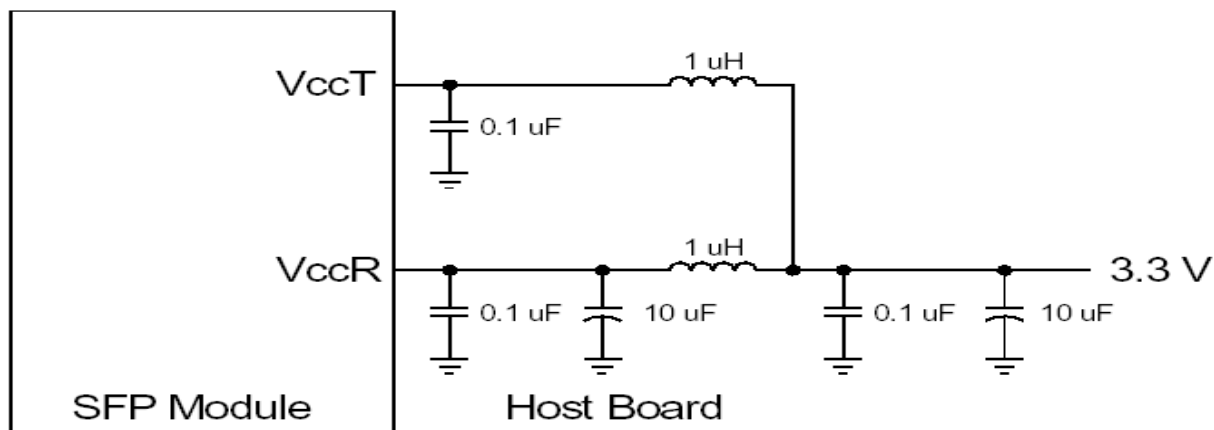


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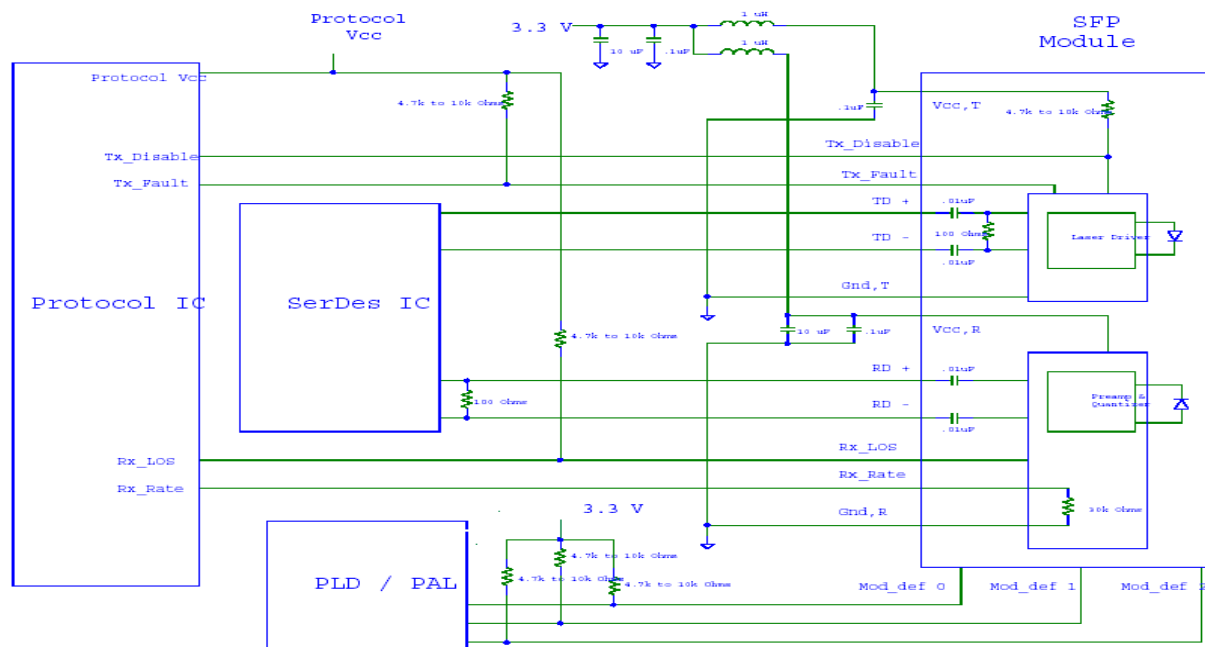
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Recommended Host Board Supply Filtering Network



Suggest Transceiver / Host Interface



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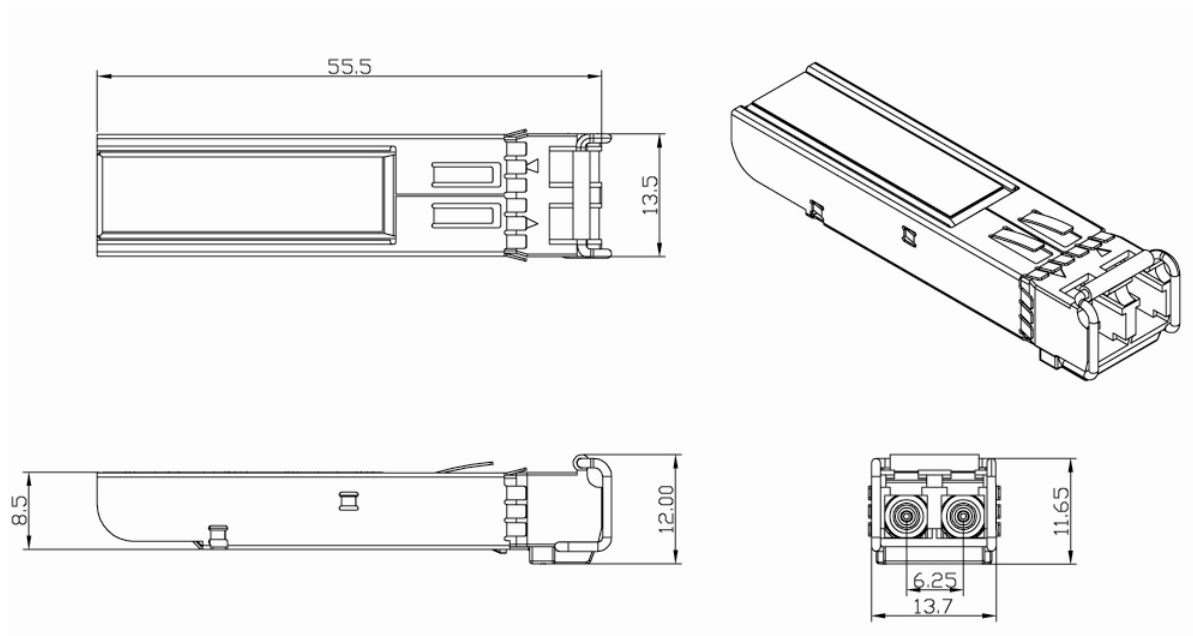
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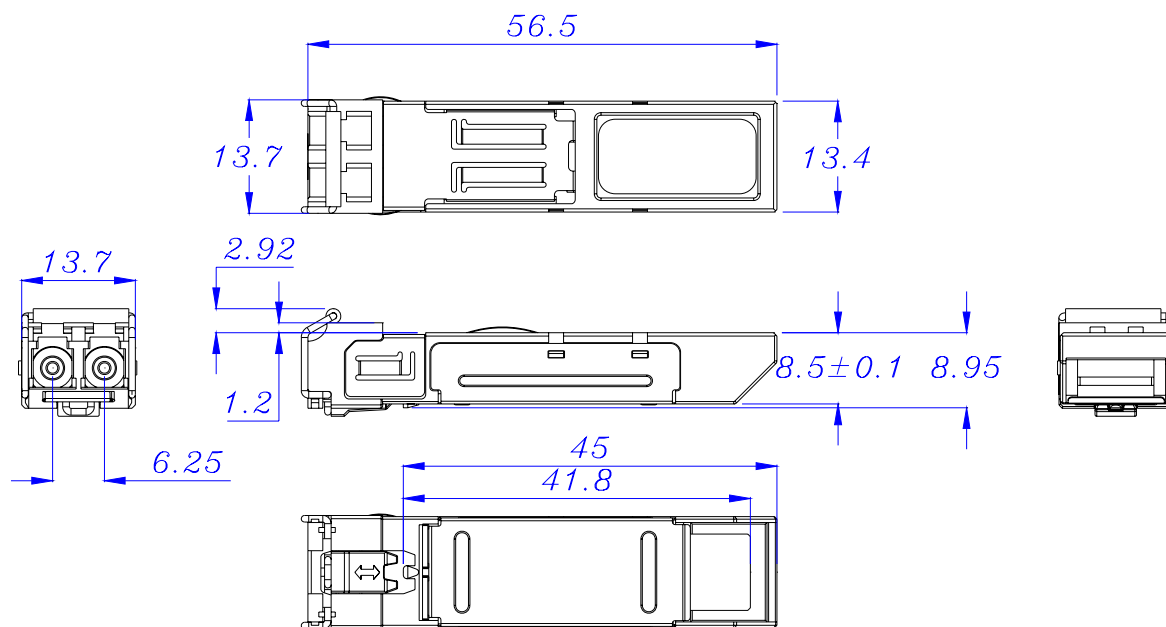
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Dimensions (mm): Housing 1



Dimensions (mm): Housing 2



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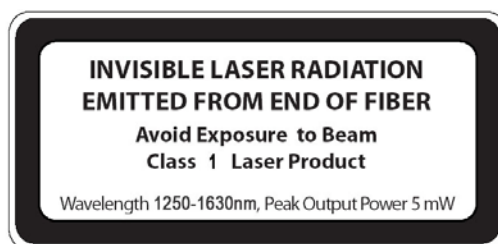
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Order Information

| Aibaotech Part Number | Wavelength & Latch Color | Aibaotech Part Number | Wavelength & Latch Color |
|-----------------------|--------------------------|-----------------------|--------------------------|
| AB-GLC-CWDM-27-EZ-DD | CWDM 1270nm; Blue | AB-GLC-CWDM-47-EZ-DD | CWDM 1470nm; Gray |
| AB-GLC-CWDM-29-EZ-DD | CWDM 1290nm; Blue | AB-GLC-CWDM-49-EZ-DD | CWDM 1490nm; Violet |
| AB-GLC-CWDM-31-EZ-DD | CWDM 1310nm; Blue | AB-GLC-CWDM-51-EZ-DD | CWDM 1510nm; Blue |
| AB-GLC-CWDM-33-EZ-DD | CWDM 1330nm; Blue | AB-GLC-CWDM-53-EZ-DD | CWDM 1530nm; Green |
| AB-GLC-CWDM-35-EZ-DD | CWDM 1350nm; Blue | AB-GLC-CWDM-55-EZ-DD | CWDM 1550nm; Yellow |
| AB-GLC-CWDM-37-EZ-DD | CWDM 1370nm; Blue | AB-GLC-CWDM-57-EZ-DD | CWDM 1570nm; Orange |
| AB-GLC-CWDM-39-EZ-DD | CWDM 1390nm; Blue | AB-GLC-CWDM-59-EZ-DD | CWDM 1590nm; Red |
| AB-GLC-CWDM-41-EZ-DD | CWDM 1410nm; Blue | AB-GLC-CWDM-61-EZ-DD | CWDM 1610nm; Brown |
| AB-GLC-CWDM-43-EZ-DD | CWDM 1430nm; Blue | | |
| AB-GLC-CWDM-45-EZ-DD | CWDM 1450nm; Blue | | |

Safety Information

- All versions of this laser are Class 1 laser products per IEC* 60825-1:2001. Users should observe safety precautions such as those recommended by ANSI** Z136.1-2000, ANSI Z36.2-1997 and IEC 60825-1:2001.
- Caution: use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



classified in accordance with IEC 60825-1:2001-08

*IEC is a registered trademark of the International Electrotechnical Commission

**ANSI is a registered trademark of the American National Standards Institute

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