

HSL-70222-xx

1.25Gbps 1310nm 20km SFP Transceiver

Product Description

The 70222-xx is a small form factor pluggable (SFP) transceiver compatible with applicable multi-sourcing agreement (MSA) with extended temp range. Its 1310nm emitter is designed for single-mode fiber (SMF) communication in 1.25Gbps Ethernet and 1 & 2 Gbps Fiber Channel.

Product Features

- Up to 1.25Gbps data links
- 20km in 9/125µm SMF
- 1310nm FP laser
- Duplex LC Connector
- Hot-pluggable
- Single 3.3V power supply
- Industrial temprange -40/85 °C
- Digital Diagnostic Monitor (DDM)



Applications

- 1.25Gbps 1000Base-LX
- 1G/2G Fiber Channel

Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit |
|-----------------------|-----------------|------|------|------|
| Supply Voltage | V _{CC} | -0.5 | 3.6 | V |
| Storage Temperature | T _s | -40 | 85 | °C |
| Operating Temperature | T _c | -40 | 85 | °C |

Recommended Operating Conditions

| Parameter | Symbol | Min. | Typical | Max. | Unit |
|--------------------------------|------------------|------|---------|-------|------|
| Power Supply Voltage | V _{CC} | 3.15 | 3.3 | 3.45 | V |
| Power Supply Current | I _{CC} | | | 250 | mA |
| Data Rate | | | 1.25 | 2.125 | Gbps |
| Max Link Length on 9/125µm SMF | L _{max} | | | 20 | km |

Optical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Unit |
|------------------------|------------------|------|---------|------|------|
| Transmitter | | | | | |
| Centre Wavelength | λ _c | 1260 | 1310 | 1360 | nm |
| Spectral Width (RMS) | σ | | | 3 | nm |
| Average Output Power | P _{out} | -9 | | -3 | dBm |
| Extinction Ratio | EX | 9 | | | dB |
| Optical Rise/Fall Time | tr/ta | | | 1 | ns |
| Receiver | | | | | |
| Centre Wavelength | λ _c | 1200 | 1310 | 1600 | nm |
| Receiver Sensitivity | P _{IN} | | | -20 | dBm |
| Receiver Overload | P _{max} | 1 | | | dBm |
| LOS De-Assert | LOS _D | | | -25 | dBm |
| LOS Assert | LOS _A | -27 | | | dBm |
| LOS Hysteresis | | 0.5 | | 4.5 | dB |

Electrical Characteristics

| Parameter | Symbol | Min. | Typical | Max. | Unit |
|--------------------------------|--------|------|---------|---------|----------|
| Transmitter | | | | | |
| Input Differential Impedance | Zin | 90 | 100 | 110 | Ω |
| Data Input Swing Differential | Vin | 500 | | 2400 | mV |
| Tx-Dis Disable | Vd | 2.0 | | Vcc | V |
| Tx-Dis Enable | Ven | 0 | | 0.8 | V |
| TX-Fault (Fault) | | 2.0 | | Vcc+0.3 | V |
| TX-Fault (Normal) | | 0 | | 0.8 | V |
| Receiver | | | | | |
| Data Output Swing Differential | Vout | 370 | | 2000 | mV |
| Rx-Los Fault | Vlf | 2.0 | | Vcc+0.3 | V |
| Rx-Los Normal | Vln | 0 | | 0+0.8 | V |

DDM Threshold

| | Low Alarm | Low Warn | High Warn | High Alarm |
|-------------|-----------|----------|-----------|------------|
| Temperature | -45°C | -40°C | 90°C | 95°C |
| Voltage | 3V | 3.1V | 3.5V | 3.6V |
| Tx Bias | 15mA | 20mA | 40mA | 45mA |
| Tx Power | -13.5dBm | -9.5dBm | -1dBm | 1dBm |
| Rx Power | -23dBm | -19dBm | -3dBm | 1dBm |

For safety and reliability reasons, please read the following information carefully.

Light Budget is one of the key items for designing fiber optic network. In order to create a product that will meet application requirements. To adequately characterize the budget loss, the following key parameters are generally considered:

- Transmitter: Output power, temperature and aging
- Fiber connections: Active connection and splices
- Fiber Cable: fiber attenuation and temperature effect
- Receiver: Detector sensitivity
- Others: Safety margin and repairs

When one of the above-listed variables fails to meet specifications, the performance of the network can be greatly affected or worse, the degradation can lead to network failure. Unfortunately, not all the variables can be controlled with ease during the deployment of the network or the maintenance stage; however, there exists one component—the connector—that is too-often overlooked, sometimes overused (test jumpers) but that can be controlled using the proper procedure.



This is a Class 1 Laser Product according to IEC 60825-1:2014 compatible with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated (June 24, 2007).



This transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all others electrical input pins, tested per MIL-STD-883G, Method 3015.4 / JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module.



Dirt / debris

The optical ports of the module need to be terminated with an optical connector or with a dust plug in order to avoid contamination. In a study by NTT-Advanced Technology, 98% of installers and 80% of network owners reported that issues with connector contamination were the greatest cause of network failures.

CE EU declaration of conformity

The CE marking is mandatory for this category of products. It is the manufacturer's declaration that the product meets the requirements of the applicable EU directives required to allow free movement and sale of the product throughout the European Economic Area.

Equipment Specific part number extension

-XX*

| | |
|-----|-----------------|
| -51 | Cisco |
| -52 | Ericsson |
| -53 | Huawei |
| -54 | Juniper |
| -55 | Generic (MSA) |
| -56 | HP |
| -57 | Extreme |
| -58 | 3COM (HP) |
| -59 | Alcatel (Nokia) |
| -60 | Combo code |
| -61 | H3C (HP) |
| -62 | Brocade |
| -63 | Arista Networks |
| -64 | Adva |
| -65 | Microsens |