10G BASE-LR SFP+ Module for SMF LC duplex 10km data range, Cisco compatible

\*\*GBIC-, SFP-, XFP-, XENPAK-Transceiver

The tde Small Form Pluggable Optical Transceiver are easy installed for enterprise and telecom applications. The tde SFP modular line provides a fully compatible, highly reliable and volume accessible supply of quality transceiver products with excellent performance for design-in manufacturing and end-user enterprise applications.

\*\*SFP Modules

Agilestar's SFP-10G-LR-AS Transceiver is designed for 10GBASE-LR/LW, and 8.5G/10G Fiber- Channel applications. The transceiver consists of two sections: The transmitter section incorporates an uncooled DFB laser. And the receiver section consists of a PIN photodiode integrated with a TIA. All modules satisfy Class I Laser safety requirements. Agilestar SFP-10G-LR-AS Digital Diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472, which allows real-time access to device operating parameters such as transceiver temperature, laser bias current, transmitted optical power, received optical power and transceiver supply voltage.

\*\*TECHNISCHE\_DATEN

Features
• Compliant with SFF-8413 and IEE802.3ae
• Data rate selectable ≤ 9.95 Gbps to 10.52 Gbps bit rates
• Uncooled DFP-1310 Transmitter and PIN Receiver
• Link length up to 10 km
• Low Power Dissipation 1.0W Maximum
• -5°C to 70°C Operating Case Temperature
• Single 3.3V power supply
• Diagnostic Performance Monitoring of module temperature, supply Voltages, laser bias current, transmit optical power, receive optical power
• RoHS compliant and lead free 
Applications:
• 10G BASE-LR/LW
• 10G Fiber Channel
• Other High Speed Data Connections

|  |  |  |  |
| --- | --- | --- | --- |
| Parameter | Symbol | Min | Max |
| Supply Voltage | Vcc | -0.5 V | 3.8 V |
| Storage Temperature | Tst | -40°C | 85°C |
| Relative Humidty | Rh | 0 % | 85 % |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Symbol | Min | Typical | Max |
| Supply Voltage | Vcc | 3.13 V | 3.3 V | 3.47 V |
| Supply current | Icc |  | 360 mA | 450 mA |
| Operating Case Temperature | Tca | -5°C |  | 70°C |
| Module Power Dissipation | Pm |  | 1.0 W |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Symbol | Min | Typical | Max |
| Center Wavelength | λc | 1260 pm |  | 1355 pm |
| Optical Average Power | Po | -8.2 dBm |  | 0.5 dBm |
| Optical OMA Power | Pom | -5.2 dBm |  |  |
| Side Mode Suppression Ratio | SMSR | 30 dB |  |  |
| Optical Transmit Power (disabled) | PTX\_DISABLE |  |  | -30 dBm |
| Extinction Ratio | ER |  | 3.5 dB |  |
| RIN21OMA1) |  |  |  | -128 dB/Hz |
| Optical Return Loss Tolerance |  |  |  | 12 dB |

1)RIN measurement is made with a return loss at 12 dB.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Symbol | Min | Typical | Max |
| Data Rate | Mra |  | 10.3 Gbps | 11.3 Gbps |
| Input differential impedance | Rim |  | 100 Ω |  |
| Differential data Input | VtxDIFF | 120 mV |  | 850 mV |
| Transmit Disable Voltage | VD | 2.0 V |  | Vcc3+0.3 V |
| Transmit Enable Voltage | Ven | 0 V |  | +0.8 V |
| Transmit Disable Assert Time | Vn |  |  | 100 us |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Symbol | Min | Typical | Max |
| Input Operating Wavelenght | λ | 1260 nm |  | 1355 nm |
| Average receive power |  |  |  | -1.0 dBm |
| Receiver sensitivity in OMA |  |  |  | -12.06 dBm |
| Stressed receiver sensitivity in OMA1) |  |  |  | -10.3 dBm |
| Maximum Input Power | RX-overload |  |  | -1.0 dBm |
| Reflectance | Rrx |  |  | -12 dB |
| Loss of Signal Asserted |  | -25 dBm |  |  |
| LOS De-Asserted |  |  |  |  |
| LOS Hysteresis |  | 0.5 dB |  |  |

1)Measured with conformance test signal for BER = 10–12. The stressed sensitivity values in the table are for system level BER measurements which include the effects of CDR circuits. It is recommended that at least 0.4 dB additional margin be allocated if component level measurements are made without the effects of CDR circuits.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Symbol | Min | Typical | Max |
| Data Rate | Mra |  | 10.3 Gbps | 11.3 Gbps |
| Differential Output Swing | Vout P-P | 350 mV |  | 850 mV |
| Rise/Fall Time | Tr/Tf | 24 ps |  |  |
| Loss of Signal - Asserted | VOH | 2.0 V |  | Vcc3+0.3 V |
| Loss of Signal - Negated | VOL | 0 V |  | +0.4 V |