

Ha-VIS GbE SFP Transceiver MM L550

Ha-VIS GbE SFP Transceiver MM L550
 Gigabit Ethernet
 for Duplex LC connector, Multimode cable 550 m



Features

- 850 nm VCSEL
- Data Rate: 1.25 Gbit/s, NRZ
- Single +3.3 V Power Supply
- RoHS Compliant and Lead-free
- AC/AC Differential Electrical Interface
- Compliant with Multi-Source Agreement (MSA) Small Form Factor Pluggable (SFP)
- Duplex LC Connector
- Compliance with specifications for IEEE 802.3z Gigabit Ethernet at 1.25 Gbit/s
- Compliance with ANSI specifications for Fibre Channel applications at 1.06 Gbit/s
- Eye Safety Designed to meet Laser Class 1 comply with EN 60 825-1

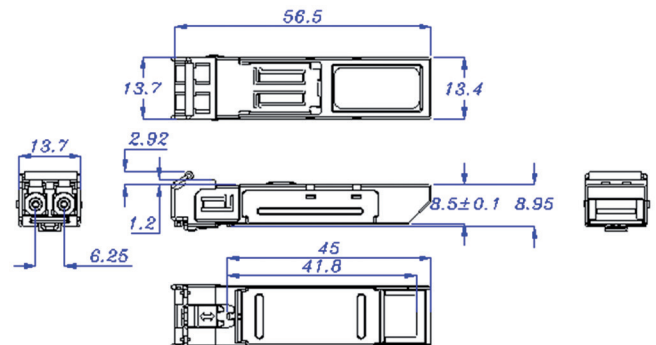
General description

The Ha-VIS GbE SFP Transceiver MM L550 is the high performance and cost-effective module for serial optical data communication applications specified for multimode of 1.25 Gbit/s. It operates with +3.3 V power supply. The module is intended for multimode fiber, operates at a nominal wavelength of 850 nm and complies with Multi-Source Agreement (MSA) Small Form Factor Pluggable (SFP).

The module is a duplex LC connector transceiver designed for use in Gigabit Ethernet applications and to provide IEEE 802.3z compliant link for 1.25 Gbit/s short reach applications. The characteristics are performed in accordance with Telcordia Specification GR-468-CORE.

Identification	Part number	Drawing	Dimensions in mm
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Ha-VIS GbE SFP Transceiver MM L550	20 76 010 0300		
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Technical characteristics

Applications

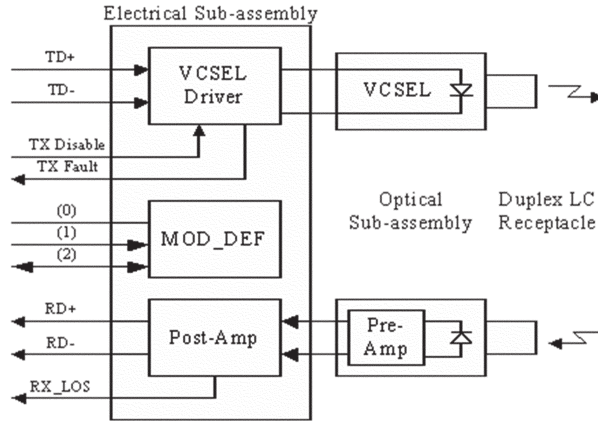
- Gigabit Ethernet Links
- Fibre Channel Links at 1.06 Gbps
- High Speed Backplane Interconnects
- Switched Backbones

Ethernet Interface - Fibre Optic

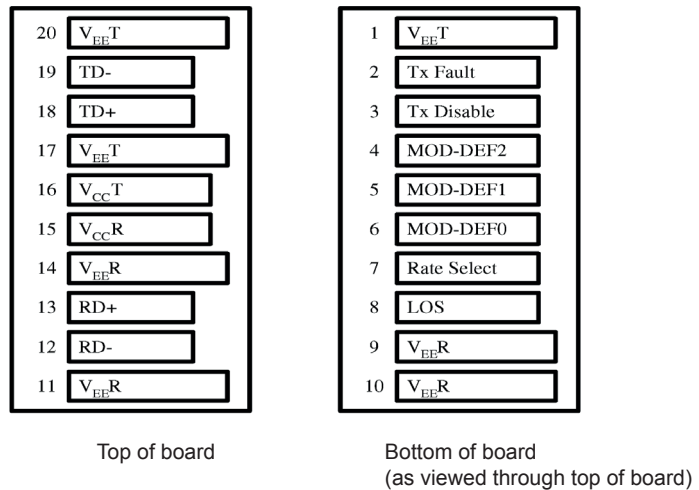
Cable types acc. to IEEE 802.3	Multimode fibre, 850 nm; 50 / 125 µm or 62.5 / 125 µm
Data rate	1.25 Gbit/s
Maximum cable length	
50 / 125 µm	550 m
62.5 / 125 µm	275 m
Sensitivity	≤ -17 dBm
Wave length	850 nm
Transmitter	
Output power	-9.5 ... -4 dBm
Extinction Ratio (min)	9 dB
Center wave length	830 ... 860 nm
Center wave length (typ.)	850 nm
Spectral width (FWHM) (max)	0.85 nm
RIN (max)	-117 dB/Hz
Coupled power ratio (min)	9 dB
Optical rise time (20 % ... 80 %) (max)	260 ps
Optical fall time (20 % ... 80 %) (max)	260 ps
Output eye	compliant with IEEE 802.3z / D5.0
Receiver	
Maximum input optical power	-3 ... -17 dBm
Operating wave length	770 ... 860 nm
Optical return loss (min)	12 dB
Receiver Electrical 3 dB upper cutoff frequency (max)	1500 MHz
Loss of Signal - asserted (P_A) (min)	-30 dBm
Loss of Signal - deasserted (max)	-16 dBm
Loss of Signal - hysteresis (min)	0.5 dB
Timing characteristics	
TX_DISABLE Assert Time (max)	10 µs
TX_DISABLE Negate Time (max)	1 ms
Time to initialize, include reset of TX_FAULT (max)	300 ms
TX_FAULT from fault to assertion (max)	100 µs
TX_DISABLE time to start reset (min)	10 µs
Receiver Loss of Signal Assert Time (max)	
off to on	100 µs
on to off	100 µs

Technical characteristics

Block diagram of transceiver



Pin assignment diagram of transceiver



Pin	Symbol	Functional description
1	V _{EE} T	Transmitter ground
2	Tx Fault	Transmitter Fault Indication (not connected)
3	Tx Disable	Transmitter Disable - module disables on high or open
4	MOD-DEF(2)	Module Definition 2 - two wire serial ID interface
5	MOD-DEF(1)	Module Definition 1 - two wire serial ID interface
6	MOD-DEF(0)	Module Definition 0 - grounded in module
7	Rate Select	Not connected
8	LOS	Loss of signal
9	V _{EE} R	Receiver ground
10	V _{EE} R	Receiver ground

Pin	Symbol	Functional description
11	V _{EE} R	Receiver ground
12	RD-	Inverse received data out
13	RD+	Received data out
14	V _{EE} R	Receiver ground
15	V _{CC} R	Receiver Power
16	V _{CC} T	Transmitter Power
17	V _{EE} T	Transmitter ground
18	TD+	Transmitter data in
19	TD-	Inverse transmitter data in
20	V _{EE} T	Transmitter ground

Technical characteristics

Power Supply

Power supply (Vcc)	0...6 V DC
Supply current (max)	240 mA
Operating voltage and SD output	3.3 V TTL AC/AC
Permissible range	3.1 V to 3.5 V
Data input voltage swing	400 ... 1660 mV

Transmitter

Transmitter supply current (max)	140 mA
Tx Transmitter Disable Input voltage - low	0 ... 0.8 V
Tx Transmitter Disable Input voltage - high	2.0 V ... Vcc
Tx Transmitter Fault Output voltage - low	0 ... 0.8 V
Tx Transmitter Fault Output voltage - high	2.0 V ... Vcc

Receiver

Receiver supply current (max)	100 mA
Receiver Data Output differential voltage	0.4 ... 1.3 V
Rx LOS Output voltage - low	0 ... 0.8 V
Rx LOS Output voltage - high	2.0 V ... Vcc
MOD_DEF (1), MOD_DEF (2) - low	-0.6 V ... Vcc x 0.3
MOD_DEF (1), MOD_DEF (2) - high	Vcc x 0.7 ... Vcc + 0.5

Design features

Housing type	metal housing
Dimensions (W x H x D)	13.7 mm x 8.95 mm x 56.5 mm

Environmental conditions

Operating temperature	-40 °C to +85 °C
Storage temperature	-40 °C to +85 °C

EMC

Most equipment utilizing high-speed transceivers will be required to meet the following requirements:

- 1) FCC in the United States
- 2) CENELEC EN 55 022 (CISPR 22) in Europe

To assist the customer in managing the overall equipment EMC performance, the transceivers have been designed to satisfy FCC class B limits and provide good immunity to radio-frequency electromagnetic fields.

Eye safety

The transceivers have been designed to meet Class 1 eye safety and comply with EN 60 825-1.