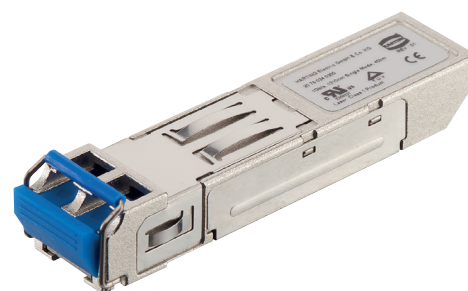


Ha-VIS GbE SFP Transceiver SM L40



Ha-VIS GbE SFP Transceiver SM L40

Gigabit Ethernet

for Duplex LC connector, Singlemode Cable, 40 km

Features

- 1310 nm DFB LD
- 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
- Class 1 FDA and IEC laser safety compliant
- FDA Accession number 0310883

General Description

The Ha-VIS GbE SFP Transceiver SM L40 is the high performance and cost-effective module for serial optical data communication applications specified for single mode of 1.25 Gbit/s. It operates with +3.3 V power supply. The module is intended for single mode fiber, operates at a nominal wavelength of 1310 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 intermediate reach applications. The characteristics are performed in accordance with Telcordia Specification GR-468-CORE.

Identification

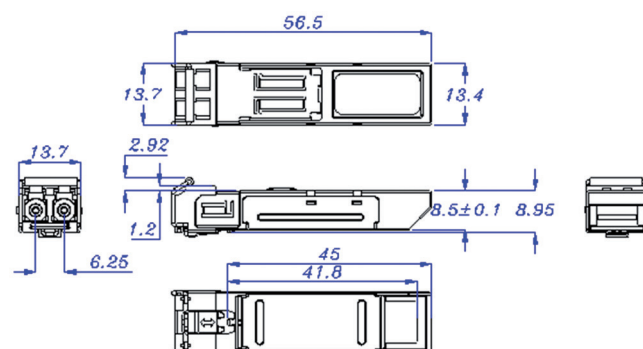
Part number

Drawing

Dimensions in mm

Ha-VIS GbE SFP Transceiver SM L40

20 76 034 0300



All data represent the current state of development at the time of print and are therefore non-binding.

HARTING reserves the right to modify designs without prior notice.

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 Singlemode fibre, 1310 nm; 9 / 125 μ m

Data rate 1.25 Gbit/s

Maximum cable length 40 km

Sensitivity ≤ -23 dBm

Wave length 1310 nm FP

Transmitter

Output power -3 ... +2 dBm

Extinction Ratio (min) 9 dB

Center wave length 1290 ... 1325 nm

Spectral width (FWHM) (max) 1 nm

RIN (max) -117 dB/Hz

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 ... -23 dBm

Operating wave length 1100 ... 1600 nm

Optical return loss (min) 12 dB

Receiver Electrical 3 dB upper cutoff frequency (max) 1500 MHz

Loss of Signal - asserted (P_A) (min) -35 dBm

Loss of Signal - deasserted (max) -22 dBm

Loss of Signal - hysteresis (min) 0.5 dB

Timing characteristics

TX_DISABLE Assert Time (max) 10 μ s

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 μ s

TX_DISABLE time to start reset (min) 10 μ s

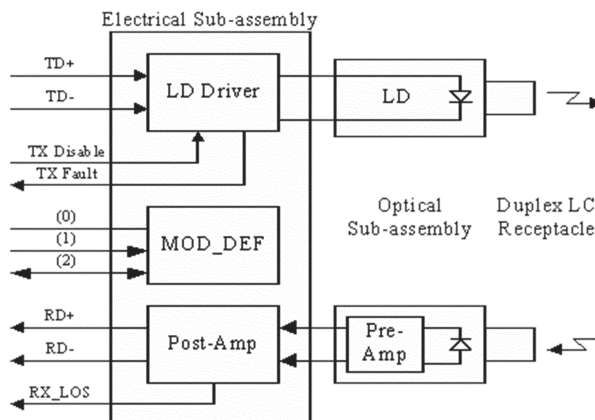
Receiver Loss of Signal Assert Time (max)

off to on 100 μ s

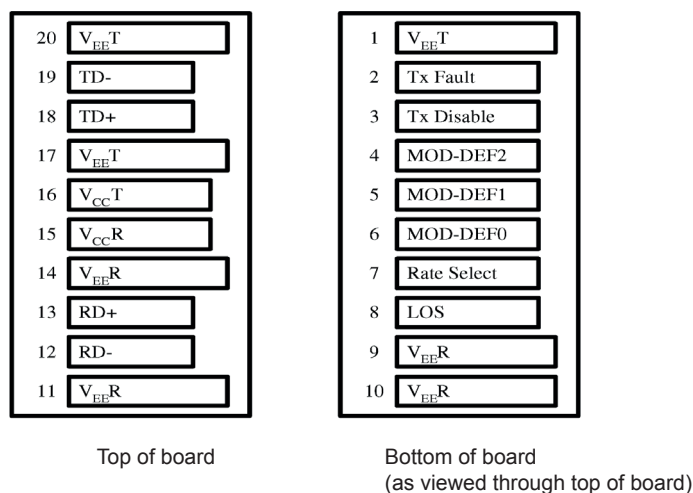
on to off 100 μ s

Technical characteristics

Block diagram of transceiver



Pin assignment diagram of transceiver



Pin	Symbol	Functional description
1	VeeT	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	VeeR	Receiver ground
10	VeeR	Receiver ground

Pin	Symbol	Functional description
11	VeeR	Receiver ground
12	RD-	Inverse received data out
13	RD+	Received data out
14	VeeR	Receiver ground
15	VccR	Receiver Power
16	VccT	Transmitter Power
17	VeeT	Transmitter ground
18	TD+	Transmitter data in
19	TD-	Inverse transmitter data in
20	VeeT	Transmitter ground

Technical characteristics

Power Supply

Power supply (Vcc)	0 ... 6 V DC
Supply current (max)	300 mA
Operating voltage and SD output	3.3 V TTL AC/AC
Permissible range	3.1 V ... 3.5 V
Data input voltage	0 V ... Vcc
Data input voltage swing	300 ... 1860 mV

Transmitter

Transmitter supply current (max)	200 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 ... +85 °C
Storage temperature	-40 °C ... +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.

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