Specification

Small Form Factor Pluggable

Duplex LC Receptacle – SFP28

Optical Transceivers Module

25GBASE-SR, CT



Ordering Information

T A S – A 1 E H 1 – 8 3 1

Model Name	Voltage	Category	Device type	Interface	LOS	Temperature	Distance	Latch Color
TAS-A1EH1-831	3.3V	With DDMI	850 nm VSCEL	AC / AC Coupling	CML	0°C~+70°C	70m/100m OM3/OM4	Black

Features

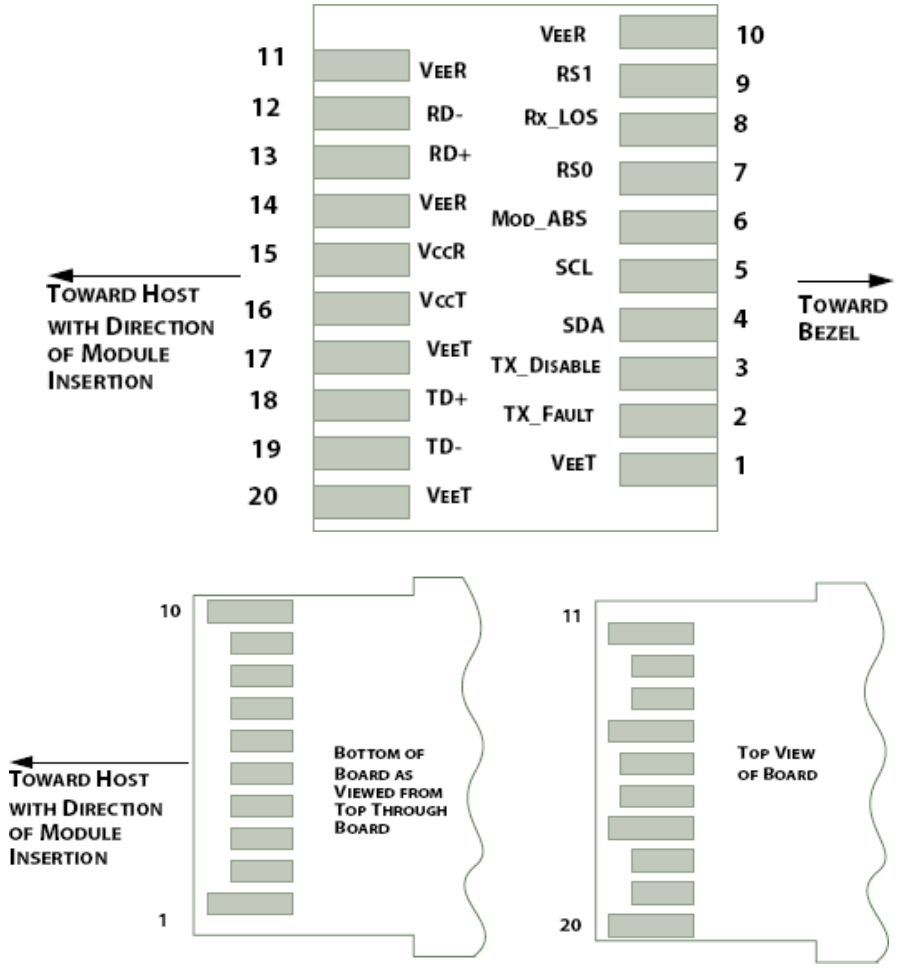
- 25Gb/s serial optical interface.
- 850nm VCSEL transmitter.
- 2-wire interface for management specifications compliant with SFF 8472 digital diagnostic monitoring interface for optical transceivers
- Operating case temperature: 0 to 70°C
- All-metal housing for superior EMI performance
- Low power consumption (Typical: 0.6W, Max: 1.0W)
- Advanced firmware allows customer system encryption information to be stored in transceiver
- Cost effective SFP28 solution, enables higher port densities and greater bandwidth
- RoHS compliant

Applications

- High-speed storage area networks
- Computer cluster cross-connect
- Custom high-speed data pipes
- Inter Rack Connection

Fiber type	850nm OFL Bandwidth	Supported Distances
50µm MMF	OM4 (3500 MHz-km)	Up to 100
50µm MMF	OM3 (2000 MHz-km)	Up to 70

Pin Definition and Descriptions



PIN	Logic	Symbol	Name / Description	Note
1		VeeT	Module Transmitter Ground	1
2	LVTTL-O	TX_Fault	Module Transmitter Fault	
3	LVTTL-I	TX_Dis	Transmitter Disable; Turns off transmitter laser output	
4	LVTTL-I/O	SDA	2-Wire Serial Interface Data Line	2
5	LVTTL-I	SCL	2-Wire Serial Interface Clock	2
6		MOD_ABS	Module Absent, Grounded in the module	
7	LVTTL-I	RS0	NC	
8	LVTTL-O	RX_LOS	Receiver Loss of Signal Indication Active LOW	
9	LVTTL-I	RS1	NC	
10		VeeR	Module Receiver Ground	1
11		VeeR	Module Receiver Ground	1
12	CML-O	RD-	Receiver Inverted Data Output	
13	CML-O	RD+	Receiver Data Output	
14		VeeR	Module Receiver Ground	1
15		VccR	Module Receiver 3.3 V Supply	
16		VccT	Module Transmitter 3.3 V Supply	
17		VeeT	Module Transmitter Ground	1
18	CML-I	TD+	Transmitter Non-Inverted Data Input	
19	CML-I	TD-	Transmitter Inverted Data Input	
20		VeeT	Module Transmitter Ground	1

Note:

1. **Module ground pins GND are isolated from the module case.**
2. **Shall be pulled up with 4.7K-10Kohms to a voltage between 3.15V and 3.45V on the host board.**

Absolute Maximum Ratings

Parameters	Symbol	Min.	Max.	Unit
Power Supply Voltage	V_{CC}	0	3.6	V
Storage Temperature	Ts	-40	85	C
Operating Case Temperature	Tc	0	70	C
Relative Humidity	RH	5	85	%

Recommended Operating Environment

Recommended Operating Environment specifies parameters for which the electrical and optical characteristics hold unless otherwise noted.

Parameters	Symbol	Min.	Typical	Max	Unit
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	V
Power Supply Current	Icc			300	mA

Optical Characteristics

The following optical characteristics are defined over the Recommended Operating Environment unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Transmitter						
Center Wavelength	λt	840	850	860	nm	
Average Optical Power	Pavg	-8.4		2.4	dBm	
Optical Power OMA	Poma	-6.4		3	dBm	1
Transmitter and Dispersion Eye Closure	TDEC			4.3	dB	
Extinction Ratio	ER	2			dB	
Receiver						
Center Wavelength	λr	840	850	860	nm	
Average Receiver Power		-10.3		2.4	dBm	2
Receiver Reflectance				-12	dB	
LOS Assert	LOSA	-30			dBm	
LOS Deassert	LOSD			-12	dBm	
LOS Hysteresis	LOSH	0.5			dB	

Notes:

1. **Even if the TDEC < 0.9dB, the OMA (min) must exceed the minimum value specified here.**
2. **Average receive power (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.**

Electrical Characteristics

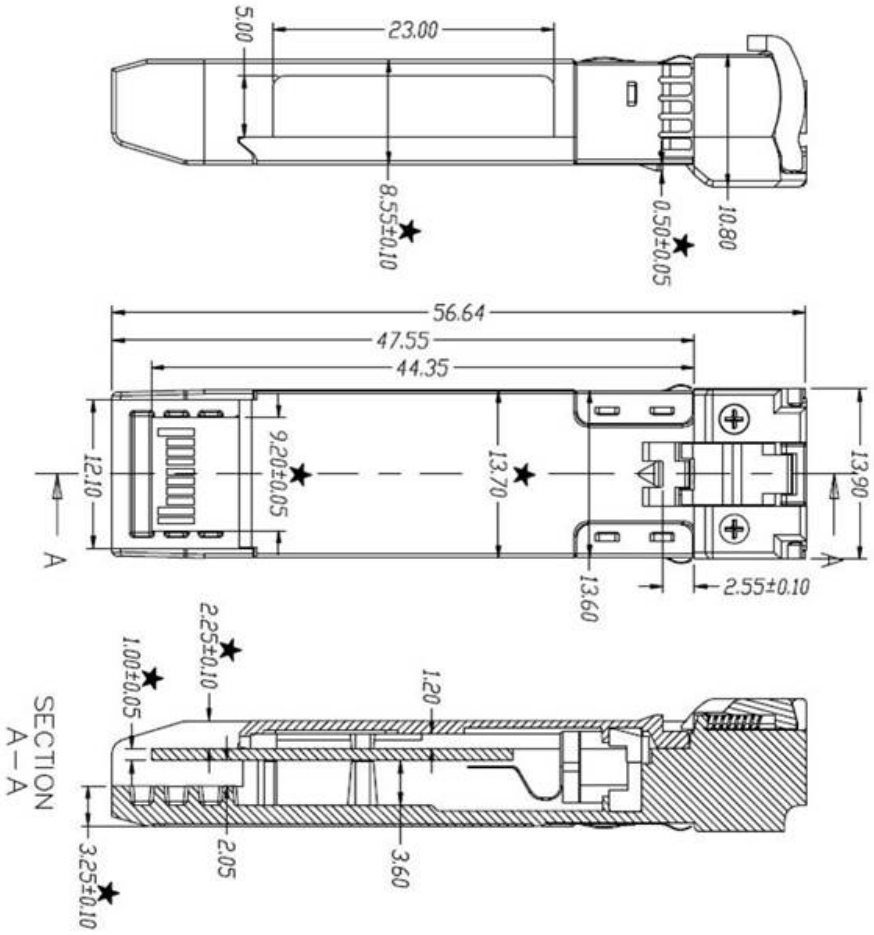
Parameter	Symbol	Min.	Typical	Max	Unit	Notes
Power Consumption			0.6	1.0	W	
Data Rate			25.78		Gbps	

Digital Diagnostic Functions

The following digital diagnostic characteristics are defined over the Recommended Operating Environment unless otherwise specified. It is compliant to SFF8472 Rev11 with internal calibration mode. For external calibration mode please contact our sales.

Parameter	Symbol	Min.	Max	Unit	Notes
Temperature monitor absolute error	DMI_Temp	-3	3	degC	Over house temp
Laser power monitor absolute error	DMI_TX	-3	3	dB	1
RX power monitor absolute error	DMI_RX	-3	3	dB	1
Supply voltage monitor absolute error	DMI_VCC	-3	3	%	Full operating range
Bias current monitor	DMI_Ibias	-10	10	%	

Mechanical



Comply to SFF-8432 rev. 5.0, the improved Pluggable form factor specification.

ESD

Normal ESD precautions are required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Laser Safety

This is a laser class 1 product according to IEC/EN60825-1:2014 (Third Edition). This product complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

Revision History

Date	Version	Description
01/16/2018	1.0	Initial release
01/31/2018	1.1	Modify the description of Laser Safety. Add Caution.
02/23/2018	1.2	Modify the description of Laser Safety.
04/10/2018	1.3	Add Data Rate and Power Consumption in Electrical Characteristics. Adjustment of Tables.
06/06/2018	1.4	Add features and application. Typo correction.
10/26/2018	1.5	1. Cover page update 2. Update on page 2. 3. Delete General Description. 4. Delete Proposed Application Schematic and Transceiver Block Diagram. 5. Update on page 4. 6. Update on page 5. 7. Update on page 6. 8. Update on page 7.