

**ETU-LINK**

Optical Communication System

25G SFP28 Series

SFP28

ES2A2X-33CDxx

25G SFP28 Active Optical Cable

- Electrical interface compliant to SFF-8431
- 850nm VCSEL laser and PIN photo-detector
- Maximum link length of 70m on OM3 MMF and 100m on OM4 MMF
- Digital diagnostics functions are available via the I2C interface
- RoHS compliant
- Hot Pluggable



Applications

- 25GBASE-SR Ethernet
- InfiniBand QDR, SDR, DDR
- Servers, switches, storage and host card adapters

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	TST	-20	85	°C
Relative Humidity	RH	0	85	%
Case Operating Temperature	TOPC	0	70	°C
Supply Voltage	VCC	-0.3	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit
Operating Case temperature	T _A	0		+70	°C
Supply Voltage	VCC	3.13	3.3	3.47	V
Supply current	I _{CC}			300	mA
Channel Data Rate	D _r		25.78125		Gbps

Transmitter

Measured condition : Channel Data Rate 25.78125Gbps, V_{CC}=3.3V, PRBS31, Case Operating Temperature 0~70°C

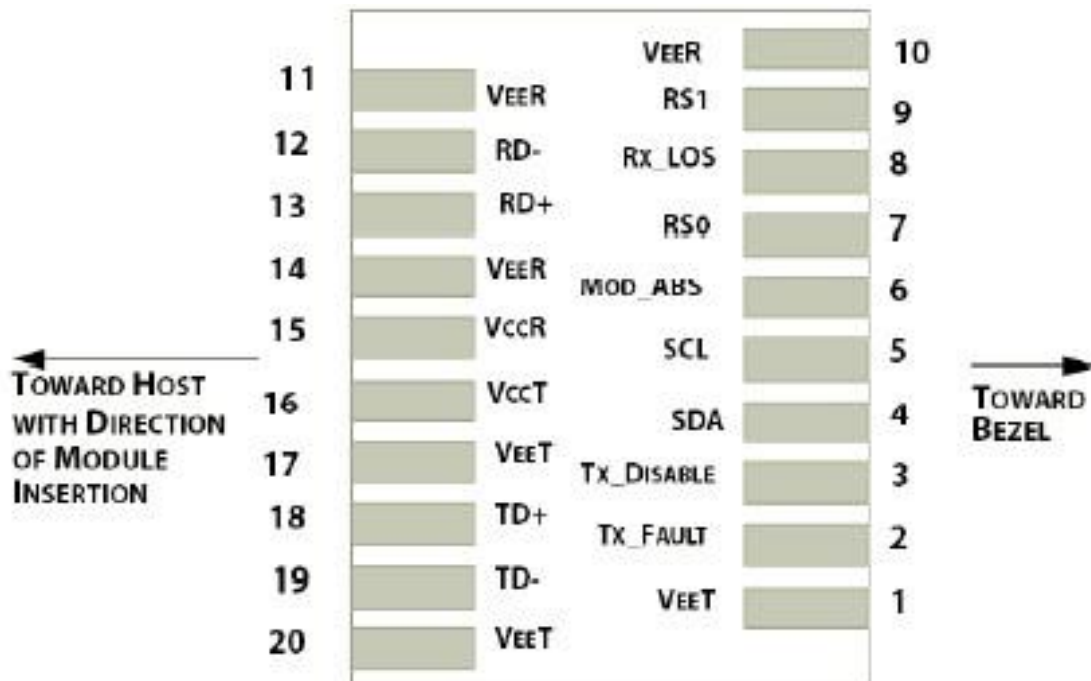
Parameter	Symbol	Min	Typical	Max	Unit
Input differential impedance	Z _{in}	90	100	110	Ω
Differential Data Input Swing	V _{in PP}	300		1100	mV
Transmit Enable Voltage	V _{EN}			0.8	V
Transmit Disable Voltage	V _D	2.0			V
Average launch power	P _{AVG}	-7.5	-1	+2.5	dBm
Extinction Ratio	ER	2.0			dB
Centre Wavelength	λ _C	840	850	860	nm

Receiver

Measured condition: Channel Data Rate 25.78125Gbps, $V_{CC}=3.3V$, PRBS31, Case Operating Temperature 0~70°C

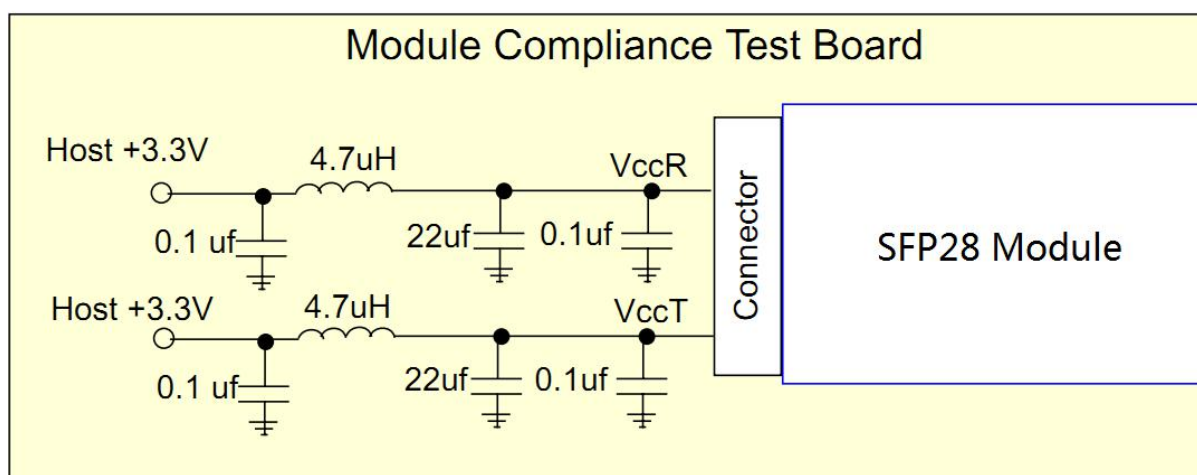
Parameter	Symbol	Min	Typical	Max	Unit
Center Wavelength	λ_c	840	850	860	nm
Differential Data Output Swing	Vout PP	500		800	mV
Bit Error Rate	BER			E-12	
Receiver Overload	PinMAX	2.5			dBm
Output Differential Impedance	Zout	90	100	110	ohm
LOS Fault	V_{OH}	2.4			V
LOS Normal	V_{OL}			0.4	V

Pin Descriptions

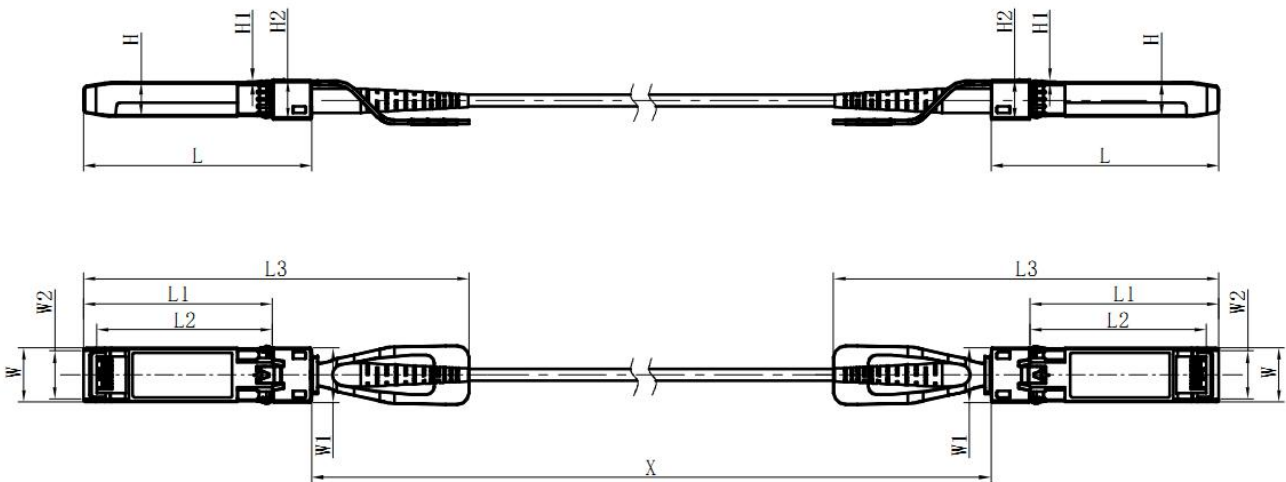


PIN	Name	Function/Description
1	VeeT	Transmitter Ground
2	Tx_Fault	Transmitter Fault - High indicates a fault condition
3	Tx_Disable	Transmitter Disable - High or open disables the transmitter
4	SDA	Two wire serial interface Data Line
5	SCL	Two wire serial interface Clock Line
6	MOD_ABS	Module Absent (Output), connected to VeeT or VeeR in the module
7	RS0	Rx Rate Select, not used
8	RX_LOS	Loss of Signal indication. Logic 0 indicates normal operation
9	RS1	Tx Rate Select, not used
10	VeeR	Receiver Ground
11	VeeR	Receiver Ground
12	RD-	Receiver Inverted DATA out
13	RD+	Receiver Non-inverted DATA out
14	VeeR	Receiver Ground
15	VccR	Receiver Power Supply
16	VccT	Transmitter Power Supply
17	VeeT	Transmitter Ground
18	TD+	Transmitter Non-Inverted DATA in
19	TD-	Transmitter Inverted DATA in
20	VeeT	Transmitter Ground

Module Power Supply Tolerance Filtering:



Mechanical Design Diagram



Unit: mm

	L	L1	L2	L3	W	W1	W2	H	H1	H2
MAX	57.75	48.0	44.65	102.5	13.75	14.0	12.25	8.65	0.55	10.4
Typical	57.55	47.8	44.45	101.5	13.65	13.9	12.15	8.55	0.5	10.2
MIN	57.35	47.6	44.25	100.5	13.55	13.8	12.05	8.45	0.45	10.0

Cable Length (Unit: m)	Tolerant (Unit: cm)
<1.0	+5/-0
1.0~4.5	+15/-0
5.0~14.5	+30/-0
≥ 15.0	+2%/-0

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link...

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc



Cisco Catalyst 3850



HUAWEI S5700



H3C S3100V2



HP J9264AR



Juniper EX 4200



Alcatel 6850E-U24X



Mikrotik CR5226-24G-25+RM



Cisco Catalyst 2960G



Volktek MEN-4110

Product Production Process

Quality Assurance

Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.



**Standardized
Production Line**



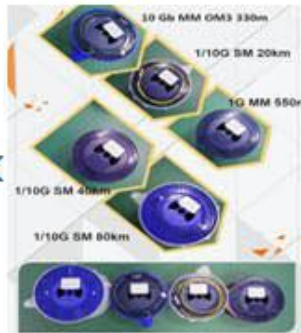
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

Packaging

Individual package.



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