

VC-SFP28-25G-CSR

25Gbps SFP28 Transceiver, Multi Mode, 300m Reach

Product Features

- ✓ Support data rate 25.78Gb/s
- ✓ 25G 850nm VCSEL&25G Pin PD
- ✓ I2C interface with DDM compliant with SFF-8472 digital diagnostic monitoring
- ✓ Positive power supply lines: 3.3 V
- ✓ Maximum link length of 300m on OM3 Multimode Fiber(MMF) with FEC
- ✓ Maximum link length of 400m on OM4 Multimode Fiber(MMF) with FEC
- ✓ Power consumption: <1W
- ✓ Operating case temperature range:
- ✓ Commercial: -5 to 70 deg C
- ✓ RoHS 6 compliant
- ✓ Multi Mode operation



Applications

- ✓ 25G Ethernet
- ✓ High-speed storage area networks
- ✓ Inter Rack Connection

Description

The VC-SFP28-25G-CSR is a hot pluggable 3.3V Small-Form-Factor SFP28 SR optical transceiver for used in 25G BASE high-speed communication equipment. It incorporate a 850nm VCSEL Laser transmitter and PIN/TIA receiver. The transmission distance is up to 300m over OM3 Multi-mode fiber with FEC.

Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Units
Storage Temperature	Tstg	-40	-	85	°C
Relative Humidity Operating(Non-condensing)	RHS	0	-	85	%
Power Supply	VCC	0	-	3.6	V

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Case Operating Temperature	Tcase	0	25	70	°C	Temp Range = C
DC Supply Voltage	VCC	3.135	3.3	3.465	V	
Module total power	P	-	-	1	W	
Module Supply Current	IIN	-	-	300	mA	
Data Rate Per Channel	BR	-	25.7812 5	-	Gb/s	+/-100ppm

Transmitter Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Differential Data input Swing	VIN	200	-	900	mV	
Input Differential Impedance	Zin	-	100	-	Ω	
Transmitter Disable Voltage	VD	2.0	-	Vcc	V	
Transmitter Enable Voltage	VEN	0	-	0.8	V	

Receiver Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Differential Data Output Swing	VouT	300	600	900	mV	
Output Differential Impedance	Zout	-	100	-	Ω	

LOS Assert Voltage	VLOSA	2.0	-	Vcc	V	
LOS De-assert Voltage	VLOSD	0	-	0.8	V	

Transmitter Optical Specification

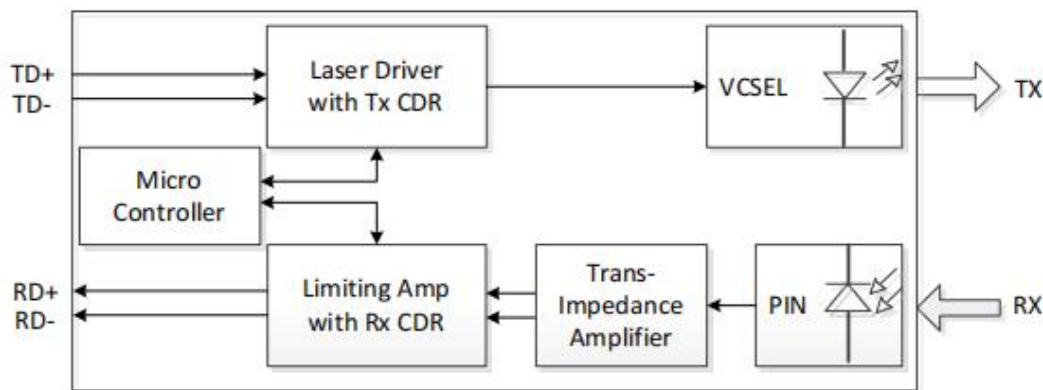
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Transmitter Laser Type		850nm VCSEL				
Average Output Power,each lane	POUT	-8.4	-	2.4	dBm	Average Optical Output
Optical modulation Amplitude,each lane	OMA	-6.4	-	3	dBm	
Extinction ratio	ER	2.5	-	-	dB	
Average Output Power (Laser Off)	POFF	-	-	-30	dBm	
Center Wavelength	λ	840	850	860	nm	
RMS Spectral Width	$\Delta\lambda$	-	-	0.6	nm	
Optical Return Loss Tolerance	ORLT	-	-	12	dB	
Eye Mask Margin, Hit ratio 5E-5hits/sample	-	5	-	-	%	Definition & Template {X1,X2,X3,Y1,Y2,Y3}=0.3:0.38:0.45:0.35:0.41:0.5

Receiver Optical Specifications

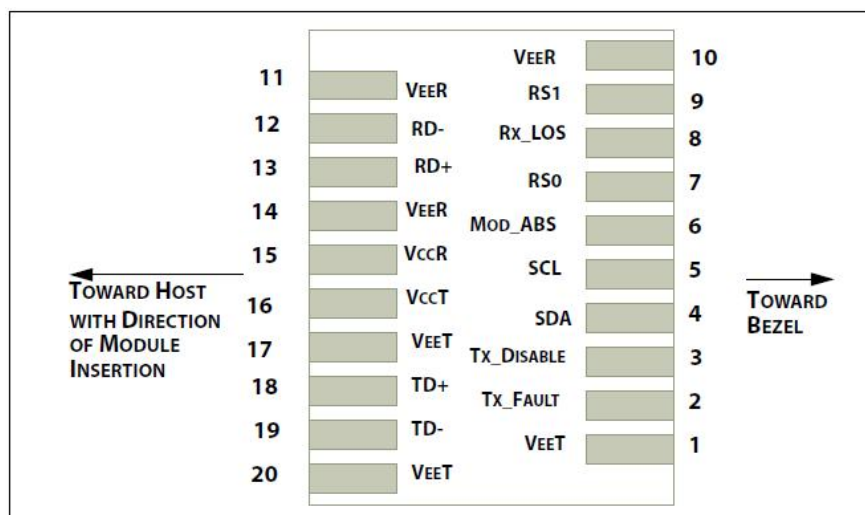
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Receiver Type		850nm PIN/TIA CW Mode				
Average power at receive input,each lane	Pin	-10.5	-	3	dBm	
Unstressed receiver sensitivity, each lane(max)	Sen	-	-	-7.5	dBm	BER:5E-5 Measured with RPBS2^31-1

						test pattern @25.78Gbs
Receiver Damage Threshold,per Lane	PRdmg	3.4	-	-	dBm	
Center Wavelength	λ	840	850	860	nm	
Receiver Reflectance	RFL	-	-	-12	dB	
Rx_LOS of Signal Assert	PA	-30	-	-	dBm	
Rx_LOS of Signal De-assert	PD	-	-	-13	dBm	
Rx_LOS of Signal Hysteresis	PHy	0.5	2	6	dB	

Block Diagram

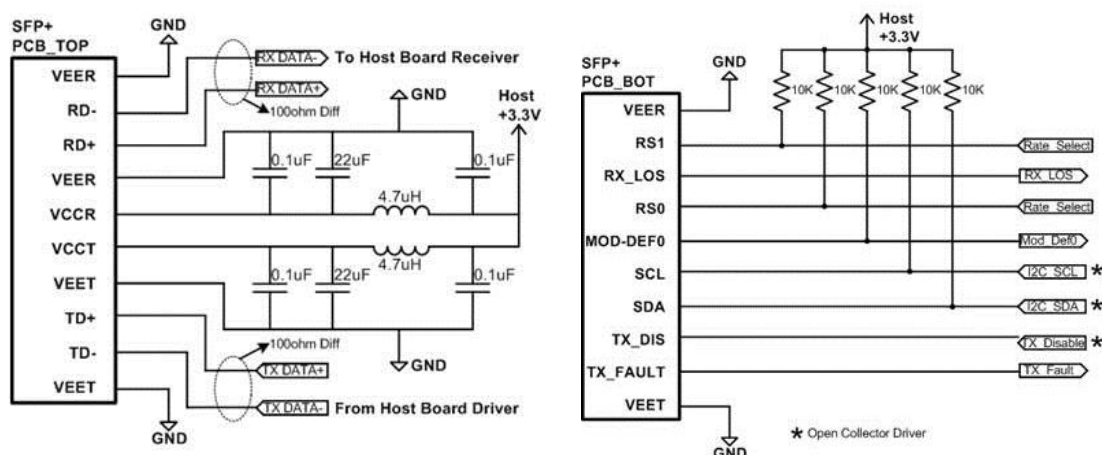


PIN Assignment

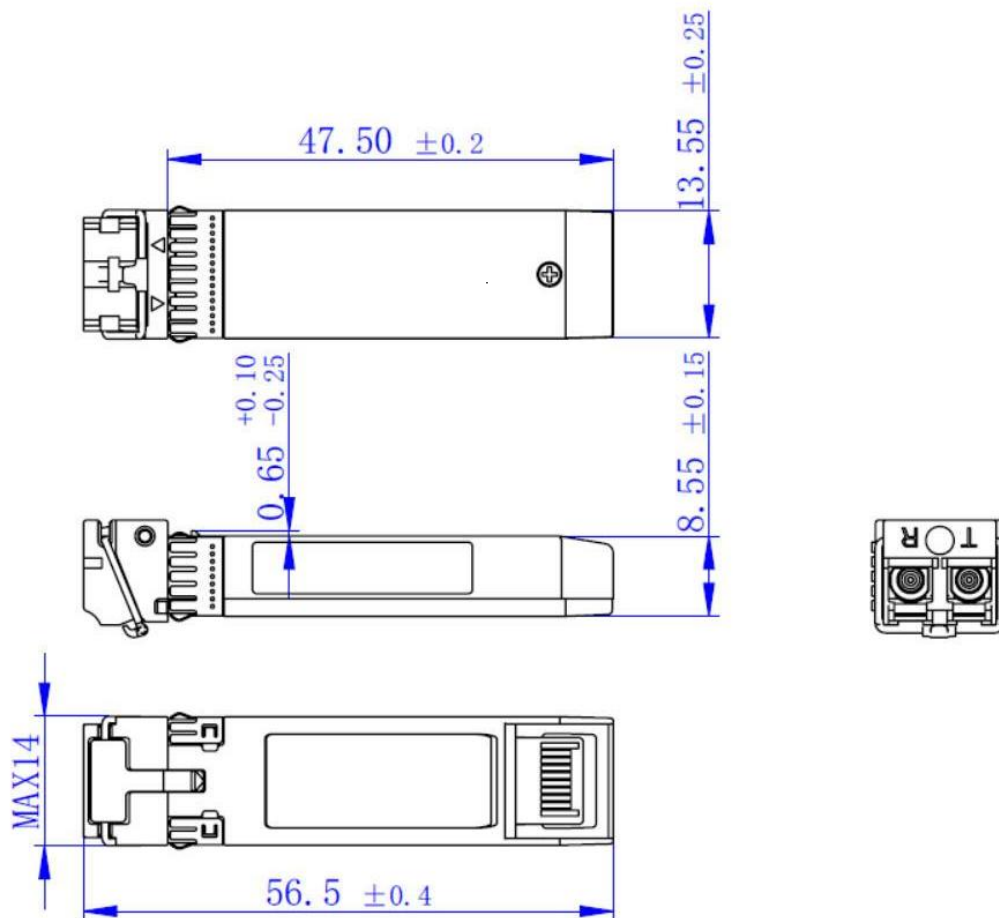


Pin	Symbol	Name/Description	NOTE.
1	Veet	Transmitter Ground (Common with Receiver Ground)	
2	TFault	Transmitter Fault.	
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	
4	SDA	2-wire Serial Interface Data Line	
5	SCL	2-wire Serial Interface Clock Line	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	Rate Select 0	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	RS1	No connection required	
10	VEER	Receiver Ground (Common with Transmitter Ground)	
11	VEER	Receiver Ground (Common with Transmitter Ground)	
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VEER	Receiver Ground (Common with Transmitter Ground)	
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VEET	Transmitter Ground (Common with Receiver Ground)	

Recommended Interface Circuit



Mechanical Dimensions Units: nm



Digital Diagnostic Functions

Parameter	Symbol	Min	Max	Unit
Temperature monitor absolute error	DMI_Temp	-4	4	°C
Supply voltage monitor absolute error	DMI_VCC	-0.1	0.1	V
Channel RX power monitor absolute error	DMI_RX_Ch	-2	2	dB
Channel Bias current monitor	DMI_Ibias_Ch	-10%	10%	mA
Channel TX power monitor absolute error	DMI_TX_Ch	-2	2	dB

ESD

This 25G SR transceiver is specified as ESD threshold 1kV for SFI pins and 2kV for all other electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still 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.

Ordering information

Part Number	Product Description
VC-SFP28-25G-CSR	850nm, 25.78Gbps, LC, OM3-MMF 300m/OM4-MMF 400m, 0°C~70°C