25GBASE-SR SFP28 850nm 100m DDM MMF Transceiver

P/N: QT-SFP28-SR

PRODUCT FEATURES

- Up to 28Gbps Data Links
- Up to 100m transmission on OM4
- Power dissipation < 1W
- VSCEL laser and PIN receiver
- Metal enclosure, for lower EMI
- 2-wire interface with integrated Digital Diagnostic monitoring
- Hot-pluggable SFP+ footprint
- Specifications compliant with SFF 8472
- Compliant with SFP+ MSA with LC connector
- Single 3.3V power supply
- Case operating temperature range: Commercial: 0°C to +70°C Industry：-40℃~85℃
- Compliant to SFF-8431
- RoHS Compliant.

APPLICATIONS

- 25G Ethernet
- Data center and Fiber channel

1. Absolute Maximum Ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	ºC	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.3	-	4	V	
Signal Input Voltage		Vcc-0.3	-	Vcc+0.3	V	

2. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Case Operating Temperature	Tcase	0	-	70	ºC	Commercial
Power Supply Voltage	VCC	3.14	3.3	3.47	V	
Power Supply Current	ICC	-		300	mA	
Data Rate	BR		25.78		Gbps	
Transmission Distance	TD		-	100	m	
Coupled fiber	Multi-mode fiber					50/125um OM4

Note: Low rate is 24~26Gb/s & High rate is 25~28 Gb/s, different rate range has different register setting， not auto-Negotiatio.

3. Optical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Pwr	POUT	-8.4		2.4	dBm	1
Optical Wavelength	λ	840	850	860	nm	
Spectral Width (RMS)	σ			0.6	nm	
Optical Extinction Ratio	ER	3.0			dB	
RIN	RIN			-128	dB/Hz	
Receiver						
Rx Sensitivity	RSENS			-10.3	dBm	2
Input Saturation Power (Overload)	Psat	1			dBm	
Wavelength Range	λ C	770	850	860	nm	
LOS De -Assert	LOSD			-11	dBm	
LOS Assert	LOSA	-22			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety per FDA/CDRH and IEC-825-1 regulations.
2. Measured with a PRBS 2^{31}-1 test pattern, @25.78Gb/s, BER<10^{-5} .

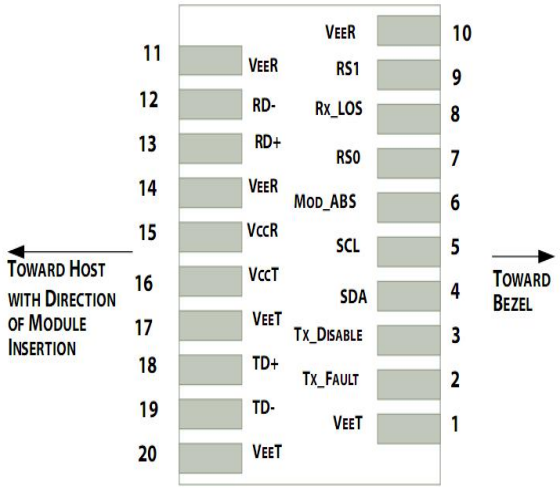
4. Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	NOTE
Supply Voltage	Vcc	3.14	3.3	3.46	V	
Supply Current	Icc			300	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	1
Single ended data input swing	Vin,pp	180		700	mV	
Transmit Disable Voltage	VD	Vcc–1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	2
Receiver						
Differential data output swing	Vout,pp	300		850	mV	3
LOS Fault	VLOS fault	Vcc–1.3		VccHOST	V	4
LOS Normal	VLOS norm	Vee		Vee+0.8	V	4
Power Supply Rejection	PSR	100			mVpp	5

Notes:

1. Connected directly to TX data input pins. AC coupled thereafter.
2. Or open circuit.
3. Into 100 ohms differential termination.
4. Loss of Signal is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
5. Receiver sensitivity is compliant with power supply sinusoidal modulation of 20 Hz to 1.5 MHz up to specifiedvalue applied through the recommended power supply filtering network.

5. Pin Descriptions



Pin out of Connector Block on Host Board

Pin Definition

Pin	Symbol	Name/Description	NOTE
1	VEET	Transmitter Ground (Common with Receiver Ground)	1
2	TFAULT	Transmitter Fault.	2
3	TDIS	Transmitter Disable. Laser output disabled on high or open.	3
4	SDA	2-wire Serial Interface Data Line	4
5	SCL	2-wire Serial Interface Clock Line	4
6	MOD_ABS	Module Absent. Grounded within the module	4
7	RS0	Rate Select 0	5
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	6
9	RS1	No connection required	1
10	VEER	Receiver Ground (Common with Transmitter Ground)	1
11	VEER	Receiver Ground (Common with Transmitter Ground)	1
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)	1
15	VCCR	Receiver Power Supply	
16	VCCT	Transmitter Power Supply	
17	VEET	Transmitter Ground (Common with Receiver Ground)	1
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)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.

2. T_{FAULT} is an open collector/drain output, which should be pulled up with a 4.7kΩ– 10 kΩ resistor on the host board if intended for use. Pull up voltage should be between 2.0V to Vcc + 0.3V.A high output indicates a transmitter fault caused by either the T_X bias current or the T_X output power exceeding the preset alarmthresholds. A low output indicates normal operation. In the low state, the output is pulled to <0.8V.

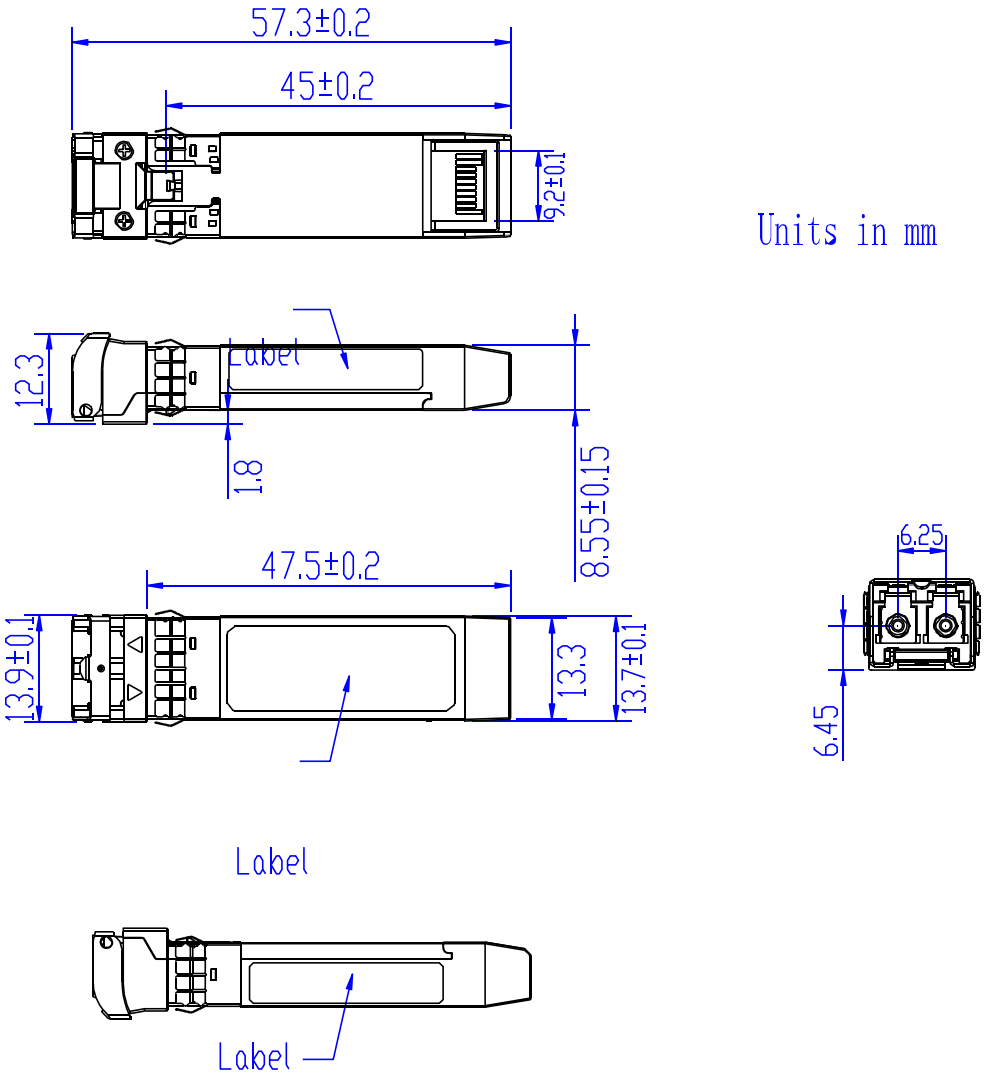
3. Laser output disabled on T_{DIS}>2.0V or open, enabled on T_{DIS}<0.8V.

4. Should be pulled up with 4.7kΩ- 10kΩ on host board to a voltage between 2.0V and 3.6V. MOD_ABS pulls linelow to indicate module is plugged in.

5. Internally pulled down per SFF-8431 Rev 4.1.

6. LOS is open collector output. It should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0Vand 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

6. Outline Dimensions



7. Ordering information

Part Number	Product Description
QT-SFP28-SR	SFP28,28Gb/s,850nm,MMF,100M,LC connector , 0°C to +70°C
QT-SFP28-LR	SFP28,28Gb/s,1310nm,SMF,10KM,LC connector , 0°C to +70°C
QT-SFP28-ER	SFP28,28Gb/s,1310nm,SMF,40KM,LC connector , 0°C to +70°C