

WTSFP28-SR-C

25Gb/s 850nm SFP28 Transceiver

1.Features

- Hot pluggable SFP28 form factor
- Supports 25Gb/s data rate
- 850nm VCSEL transmitter PIN photo-detector
- Maximum link length of 100m on OM4 MMF
- Operating environment temperature 0 ~ 70°C
- Internal CDR on both Transmitter and Receiver channel
- Duplex LC receptacle
- Single 3.3V power supply
- Power dissipation<1W

2.Application

- 25GBASE-SR Ethernet

3. Compliance

- RoHS -6 complaint
- FDA/CDRH and IEC 60825-1 Class 1 Laser Eye Safety

4.Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Storage Temperature	T _S	-40	-	+85	°C	1
Operating Case Temperature	V _{CC}	-0.5	-	+4.0	V	
Relative Humidity	RH	-	-	+95	%	
Supply Voltage	V _{CC}	0		3.6	V	

Note:

Damage may occur if the transceiver is subjected to conditions beyond the limits.

5.Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _C	-40	-	+85	°C	
Power Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Power Supply Current	I _{CC}	-	-	300	mA	
Maximum Power Dissipation	P _D	-	-	1	W	
Bit Rate	BR			25.78	Gb/s	
Transmission Distance	TD		-	100	m	Over OM4 MMF

6. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter						
Center Wavelength	λ_t	840	850	860	nm	
Average Optical Power, 25GE	P_{avg}	-8.4	-	2.4	dBm	
Optical Modulation Amplitude	OMA	-6.4	-	3	dBm	
Average Power @ Tx_Disable	P_{OFF}	-	-	-30	dBm	
Relative Intensity Noise	RIN_{12OMA}	-	-	-128	dB/Hz	
Extinction Ratio, 25GE	ER	2	-	-	dB	
Transmitter and Dispersion Penalty	TDP	-	-	3.2	dB	
Optical Return Loss Tolerance	ORLT	-	-	12	dB	
Receiver						
Center Wavelength	λ_r	840	850	860	nm	
Stress Receiver Sensitivity	SRS	-	-	-5.2	dBm	
Sensitivity	SENS	-	-	-10.1	dBm	1
Receiver Overload	P_{IN-OL}	2.4	-	-	dBm	
Reflectance	Ref	-	-	-12	dB	
LOS Assert	LOS_A	-30	-	-	dBm	
LOS De-assert	LOS_D	-	-	-12	dBm	
LOS Hysteresis	LOS_H	0.5	-	-	dB	

Notes:

1: Receive Sensitivity measured with a PRBS31 pattern @25.78125Gb/s, BER 5E-5

7. Electrical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Transmitter (Module Input)						
Differential Data Input Amplitude	$V_{IN,P-P}$	120	-	1000	mVpp	
Differential Input Impedance	R_{in}	-	100	-	Ω	
Tx_Fault	Normal Operation	V_{IL}	-0.3	-	0.4	V
	Tx Fault	V_{IH}	2	-	$V_{CC}+0.3$	V
Tx_Disable	Normal Operation	V_{IL}	-0.3	-	0.8	V
	Laser Disable	V_{IH}	2.0	-	$V_{CC}+0.3$	V
Receiver (Module Output)						
Differential Data Output Amplitude	$V_{OUT,P-P}$	400	-	800	mVpp	
Differential Output Impedance	R_{out}	-	100	-	Ω	
Rx_LOS	Normal Operation	V_{OL}	-0.3	-	0.4	V
	Lose Signal	V_{OH}	2	-	$V_{CC}+0.3$	V

Shenzhen Wintop Optical Technology Co.,LTD.

11F~12F, Senhainuo Kechuang Building, Shilongzai Community, Shiyan Street, Baoan District, Shenzhen China

Tel: +86-755-26641737

Fax: +86-755-86555405

E-mail: sales@wintoptec.com

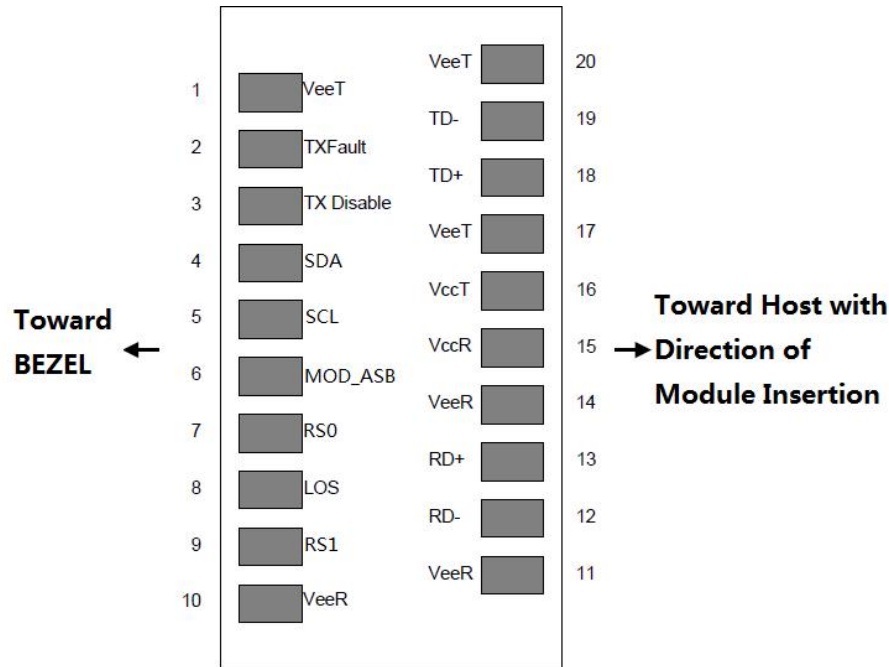
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Rev 1.0

Issued Date: 2019-08-24

8.Pin Definition



Pin	Symbol	Name/Description	Notes
1	VeeT	Transmitter Ground	1
2	Tx_Fault	Transmitter Fault - High indicates a fault condition	2
3	Tx_Disable	Transmitter Disable – High or open disables the transmitter	
4	SDA	2-wire Serial Interface Data Line (MOD-DEF2)	3
5	SCL	2-wire Serial Interface Clock (MOD-DEF1)	3
6	MOD_ABS	Module Absent, connected to VeeT or VeeR in the module	
7	RS0	Rate Select 0 – Not used, Presents high input impedance	5
8	RX_LOS	Receiver Loss of Signal(LVTTL-O). Logic 0 indicates normal operation	4
9	RS1	Rate Select 1 – Not used, Presents high input impedance	5
10	VeeR	Receiver Ground	1
11	VeeR	Receiver Ground	1
12	RD-	Inverse Received Data out (CML-O), AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VeeR	Receiver Ground	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground	1

Notes:

1. Module ground pins GND are isolated from the module case.
2. Tx_Fault is an open collector/drain output, which should be pulled up with a 4.7k – 10k Ohms resistor on Host board.
3. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V.
4. LOS is open collector output. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V.
5. RS0 and RS1 pins are pulled low to GND with a resistor > 30K Ω in module.

9. Outline Dimensions (mm)

