

25GBASE-SR SFP Transceiver

P/N: WST-S28-SR-C



Applications:

- 25GBASE-SR Ethernet
- 32G Fibre Channel
- Other optical links

Features:

- Supports 25.78Gb/s bit rate
- 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
- Operating case temperature
- Commercial: 0°C to +70 °C
- +3.3V single power supply
- Power consumption less than 1W
- RoHS compliant
- Password protection for A0h and A2h
- eCPRI Specification V2.0

Absolute Maximum Ratings

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Supply Voltage	V _{cc}	-0.5	-	+3.6	V	
Storage Temperature	T _s	-40	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1

Notes:

1. No condensation

Recommended Operating Conditions

Parameter	Symbol	Min.	Typical	Max.	Unit	Notes
Operating Case Temperature	T _c	0	-	+70	°C	
Power Supply Voltage	V _{cc}	3.135	3.3	3.465	V	
Power Supply Current	I _{cc}	-	-	300	mA	
Power Dissipation	P _d	-	-	1.0	W	
Bit Rate	BR	10.3	25.78125	-	Gbps	

Electrical Characteristics

Parameter		Symbol	Min.	Typ.	Max.	Units	Notes
Transmitter							
Differential Data Input Swing		$V_{in,P-P}$	200	-	1000	mV _{PP}	
Input Differential Impedance		Z_{IN}	90	100	110	Ω	
Tx_Fault	Normal Operation	V_{OL}	$V_{EE}-0.3$	-	0.4	V	
	Transmitter Fault	V_{OH}	2.0	-	$V_{CC}+0.3$	V	
Tx_Disable	Normal Operation	V_{IL}	$V_{EE}-0.3$	-	0.8	V	
	Laser Disable	V_{IH}	2.0	-	$V_{CC}+0.3$	V	
Receiver							
Differential Data Output		V_{out}	200	-	1000	mV	
Output Differential Impedance		Z_D	90	100	110	Ω	
Rx_LOS	Normal Operation	V_{OL}	$V_{EE}-0.3$	-	0.4	V	
	Lose Signal	V_{OH}	2.0	-	$V_{CC}+0.3$	V	

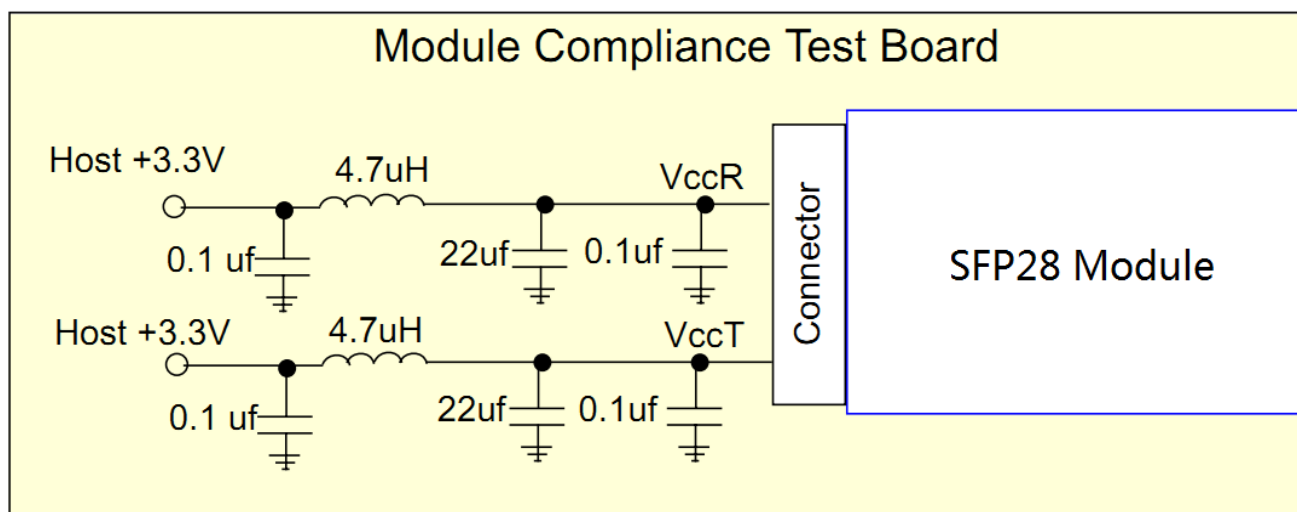
Optical Characteristics

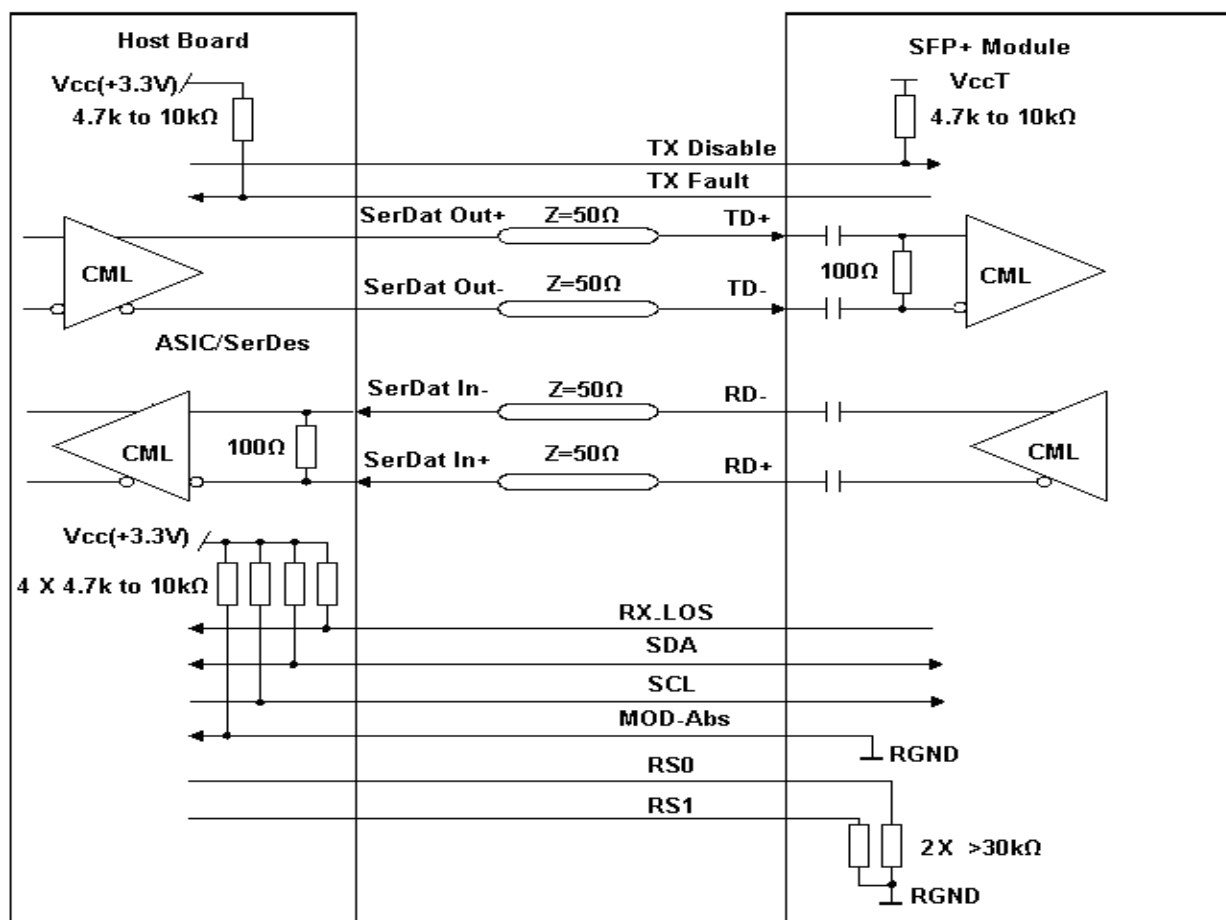
Parameter	Symbol	Unit	Min	Typ	Max	Notes
Optical transmitter Characteristics						
Bit Rate	BR	Gbps	10.3	25.78125	-	1,2
Center Wavelength Range	λ_c	nm	820	850	880	
RMS Spectral Width	$\Delta\lambda$	nm	-	-	0.6	
Average Launch power Tx_off	P _{off}	dBm	-	-	-30	
Average Optical Power	P ₀	dBm	-5.0		2.4	3
Extinction Ratio	ER	dB	2.0	-	-	
Optical return loss tolerance	ORL	dB	-	-	12	
Optical Eye Mask	-	%	5	-	-	4
Optical Receiver Characteristics						
Bit Rate	BR	Gbps	10.3	25.78125	-	1,2
Center Wavelength Range	λ_c	nm	840	-	860	
Damage threshold	DT	dBm	3.4	-	-	
Overload Input Optical Power	P _{IN}	dBm	2.4	-	-	
Receive Sensitivity (OMA)	-	dBm	-	-	-10.3	4
Receive Sensitivity	-	dBm	-	-	-5.2	5

(OMA)						
LOS De-Assert	LOS _D	dBm	-	-	-13	
LOS Assert	LOS _A	dBm	-30	-	-	
LOS Hysteresis	LOS _H	dB	0.5			

Notes:

1. Set low of RS0/RS1 pin and 0 of RS0/RS1 bit. Engine CDR lock at low bit rate.
2. Set high of RS0/RS1 pin and 0 of RS0/RS1 bit. Engine CDR lock at high bit rate.
3. Coupled into 50/125 MMF.
4. BER=5x10⁻⁵; PRBS 2³¹-1 @25.78125Gbps.
5. BER=1x10⁻¹²; PRBS2³¹-1@25.78125Gbps.

Recommended Host Board Power Supply Circuit**Figure 1. Recommended Host Board Power Supply Circuit**

Recommended Interface Circuit**Figure 2. Recommended Interface Circuit**

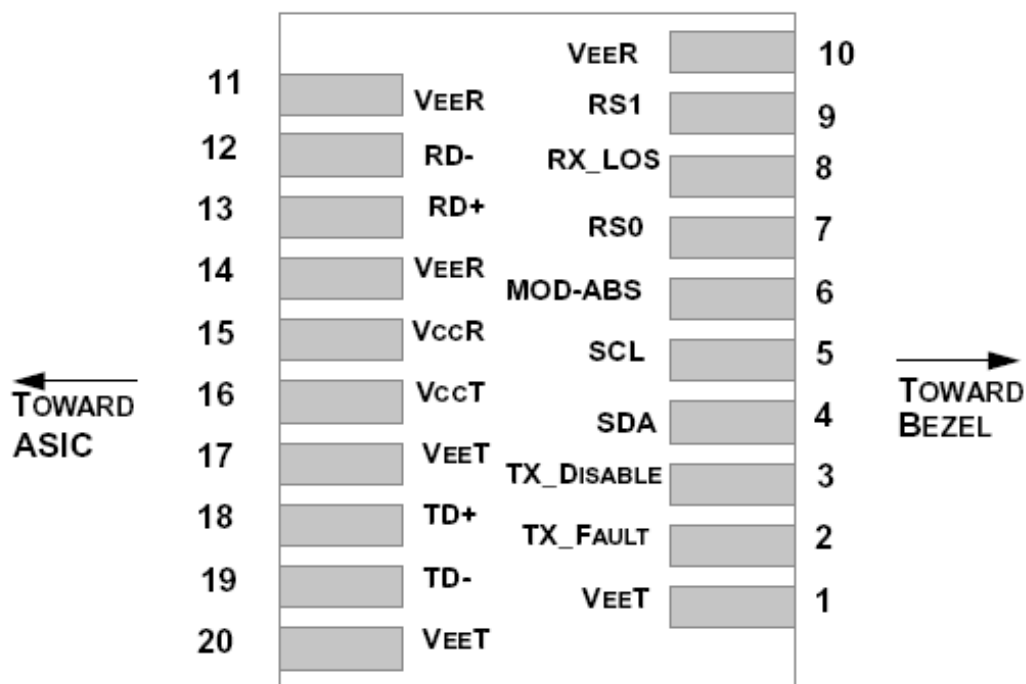


Figure 3. Pin View

Pin Definition

Pin	Symbol	Name/Description	Notes
1	VEET	Module Transmitter Ground	1
2	TX_FAULT	Module Transmitter Fault	2
3	TX_DISABLE	Transmitter Disable; Turns off transmitter laser output	3
4	SDA	2-Wire Serial Interface Data Line (MOD-DEF2)	
5	SCL	2-Wire Serial Interface Clock (MOD-DEF1)	
6	MOD_ABS	Module Absent, connected to VEEt or VEEr in the module	2
7	RS0	Rate Select 0	4
8	RX_LOS	Receiver Loss of Signal Indication (In FC designated as Rx_LOS and in Ethernet designated as Signal Detect)	2
9	RS1	Rate Select 1	4
10	VEER	Module Receiver Ground	1
11	VEER	Module Receiver Ground	1
12	RD-	Receiver Inverted Data Output	
13	RD+	Receiver Non-Inverted 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	V _{EE} T	Module Transmitter Ground	1
18	TD+	Transmitter Non-Inverted Data Input	
19	TD-	Transmitter Inverted Data Input	
20	V _{EE} T	Module Transmitter Ground	1

Notes:

1. The module ground pins are isolated from the module case.
2. The pins shall be pulled up with 4.7K-10Kohms to a voltage between 3.14V and 3.46V on host board.
3. The pin is pulled up to VCCT with a 4.7K-10KΩ resistor in the module.
4. See SFF-8472 Rev12.2 Table 10-2.

Monitoring Specification

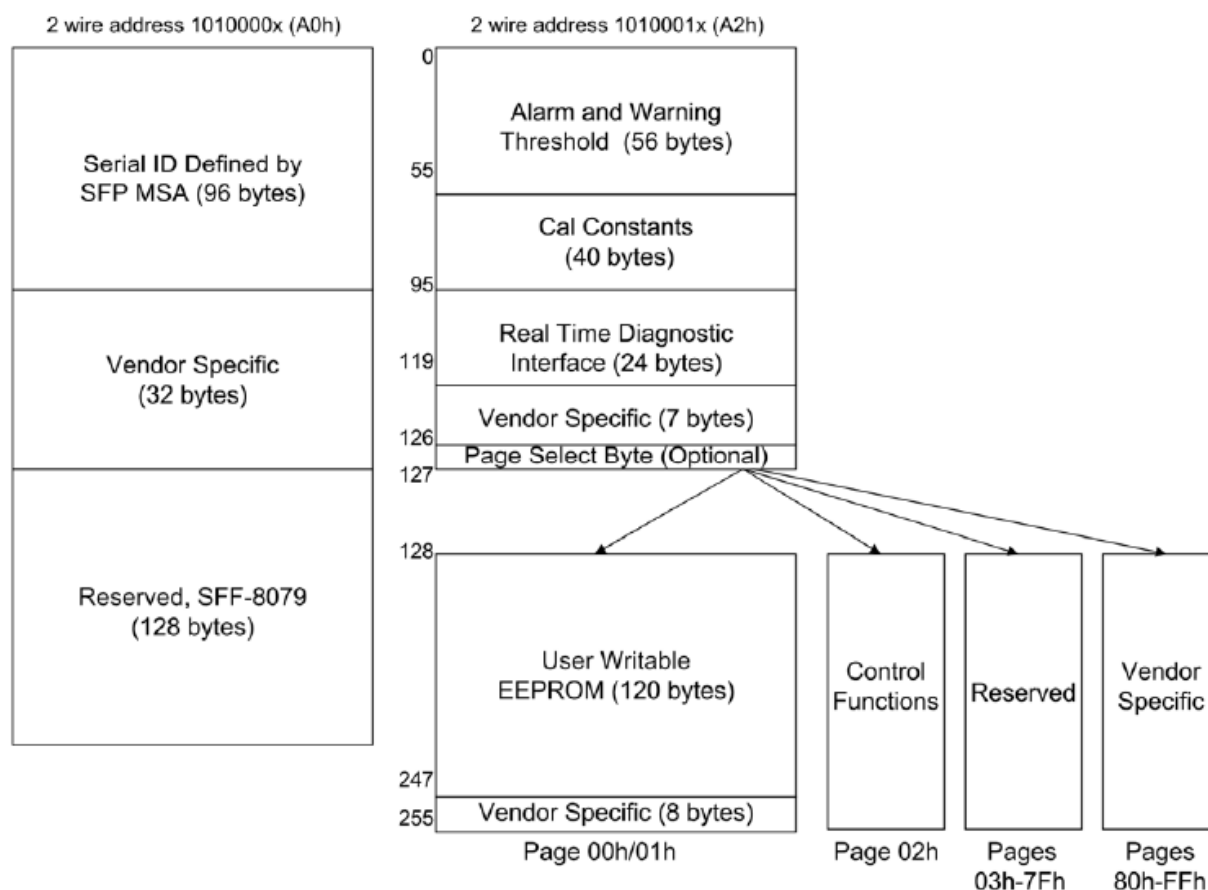
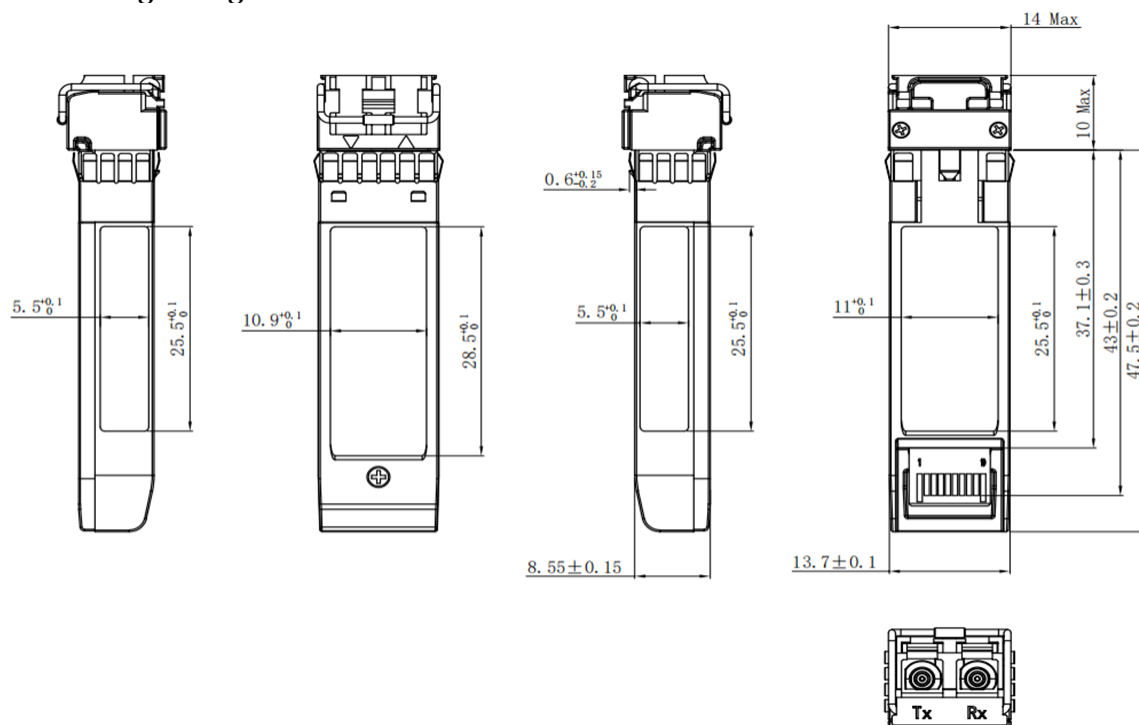


Figure 4. Memory Map

Mechanical Design Diagram

Unit: mm

Ordering Information

Part No	Specification									
	Package	Data rate	Laser	Optical Power	Detector	Max. Receive Sensitivity (OMA)	Temp	Reach	Other	Application code
WST-S28-SR-C	SFP28	25.78 Gbps each Channel	850nm VCSEL	-5~ +2.4	PIN	-10.3dBm	0~70°C	70m on OM3 100m on OM4	DDM RoHS	25GBASE-SR Ethernet

Modification History

Revision	Date	Description	Originator	Review	Approved
V1	30-Apr -2019	New Issue	Ivy Chen	Wayne Liao	Wayne Liao
V1.1	26-Mar-2020	Update Feature	Ivy Chen	Wayne Liao	Wayne Liao
V1.2	16-Oct-2025	Housing change and update parameters	Amy Lee	Wayne Liao	Wayne Liao

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