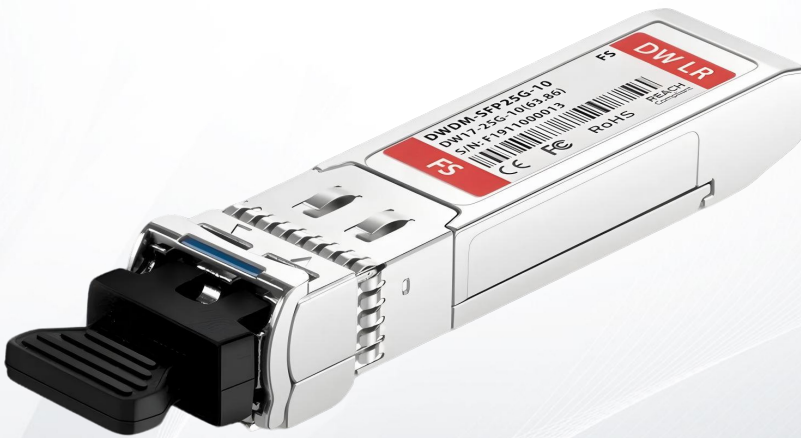


25G DWDM SFP28 C17-C61 100GHz 10km DOM Transceiver

DW-SFP25G10-xx



Application

- 25GE LR
- Data center

Features

- Compliant to SFP28 MSA
- Fully RoHS Compliant
- All Metal Housing for Superior EMI Performance
- Operating Data Rate 9.83Gbps to 25.78125Gbps
- Digital Monitoring SFF-8472 Rev 10.2 Compliant
- Cooled EML DFB Laser
- APD Receiver
- LC Duplex Connector
- Hot Pluggable 20pin Connector
- Low Power Consumption $\leq 2W$
- -40C to 85C Operating Wide Temperature Range
- Single +3.3V $\pm 5\%$ Power Supply
- Real Time Monitoring of:
 - Transmitted Optical Power
 - Received Optical Power
 - Laser Bias Current
 - Temperature
 - Supply voltage

Description

This DWDM-SFP25G-10 SFP28 transceiver provides 25GBase-DWDM throughput up to 10km over single mode fiber (SMF) via an LC duplex connector. It provides 25GBASE Ethernet connectivity option for 25G Ethernet, telecom and data center. It is fully compliant with the SFP28 MSA, CPRI and eCPRI standard.

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature Range	T _s	-40	85	°C
Relative Humidity	RH	0	95	%

II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature Range	T _C	-40		85	°C
Power Supply Voltage	V _{CC}	3.14	3.3	3.46	V
Bit Rate	BR		25.78125		Gb/s
Bit Error Ratio	BER			5E-5	
Max Supported Link Length	L			10	Km

III. Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Transmitter						
Nominal Wavelength	λ_c	1529.55		1561.42	nm	
Center Wavelength Spacing	$\Delta\lambda$		100		GHz	
Wavelength Tolerance	ΔCW	-80		80	pm	
Side Mode Suppression Ratio	SMSR	30			dB	
Spectral Width(-20dB)	$\Delta\lambda$			0.5	nm	
Average Optical Power	P_{avg}	-0.5		4.5	dBm	
Extinction Ratio	ER	6			dB	
Mask Margin 5E-5	Margin	10			%	
Dispersion Penalty	TDP			3	dB	1
Average Optical Power of Transmitter off	P_{off}			-30	dBm	
Receiver						
Center Wavelength	λ_c	1260		1620	nm	
Transmitting Distance	TD			10	km	
Average Receiver Sensitivity	Sens			- 19	dBm	1
Receiver Overload	Rod	-5			dBm	

Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Optical Return Loss	ORL	26		1561.42	dB	
LOS Assert	LOS _A	-35			dBm	
LOS De-assert	LOS _D			- 19	dBm	
LOS Hysteresis	LOS _H	0.5		5	dB	

IV. Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply Voltage	V _{cc}	3.14	3.3	3.46	V
Power Consumption	P _{or}			2	W

Transmitter

Input Differential Impedance	R _{IN}	90	100	110	Ω
Differential Data Input	V _{IN}	190		700	mV _{p-p}
Transmit Disable Voltage	V _{DIS}	2		V _{CCHOST}	V
Transmit Enable Voltage	V _{EN}	V _{EE}		V _{EE} +0.8	V
Transmit Fault Assert Voltage	V _{FA}	2		V _{CCHOST}	V

Transmit Fault De-Assert Voltage	V _{FDA}	V _{EE}		V _{EE} +0.4	V
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Parameter	Symbol	Min.	Typ.	Max.	Unit
Receiver					
Differential Data Output	V_{OO}	350		850	mV _{p-p}
Output Rise Time@20%~80%	t_{RISE}	25			PS
Output Fall Time@20%~80%	t_{FALL}	25			PS
LOS Fault	V_{LOSFT}	2		V_{CCHOST}	V
LOS Normal	V_{LOSNR}	V_{EE}		$V_{EE}+0.4$	V

V. Pin Descriptions

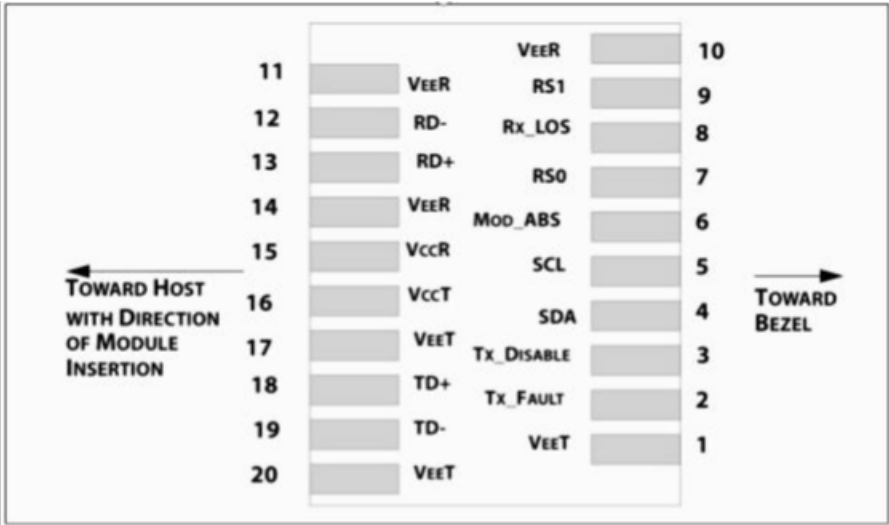


Figure 1. Host PCB SFP+ pad assignment top view

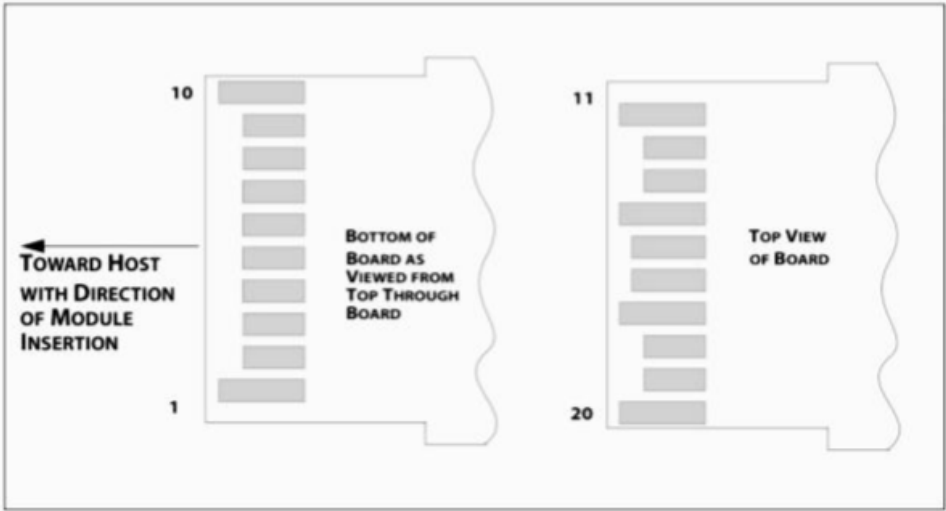


Figure 2. Pin function definitions

VI. Pin Definitions

Pin	Symbol	Name	Description
1,17,20	V _{ee} T	Transmitter Signal Ground	These pins should be connected to signal ground on the host board.
2	TX Fault	Transmitter Fault Out (OC)	Logic "1" Output = Laser Fault (Laser off before t _{fault}) Logic "0" Output = Normal Operation This pin is open collector compatible, and should be pulled up to Host V _{cc} with a 10k Ω resistor.
3	TX Disable	Transmitter Disable In (LVTTTL)	Logic "1" Input (or no connection) = Laser off Logic "0" Input = Laser on This pin is internally pulled up to V _{cc} T with a 10 k Ω resistor.
4	SDA	Module Definition Identifiers	Serial ID with SFF 8472 Diagnostics Module Definition pins should be pulled up to Host V _{cc} with 10 k Ω resistors.
5	SCL		
6	MOD_ABS		
7	RS0	Receiver Rate Select (LVTTTL) Transmitter Rate Select (LVTTTL)	These pins have an internal 30k Ω pull-down to ground. A signal on either of these pins will not affect module performance.
9	RS1		
8	LOS	Loss of Signal Out (OC)	Sufficient optical signal for potential BER < 1x 10 ⁻¹² = Logic "0" Insufficient optical signal for potential BER < 1x 10 ⁻¹² = Logic "1" This pin is open collector compatible, and should be pulled up to Host V _{cc} with a 10k Ω resistor.
10, 11, 14	V _{ee} R	Receiver Signal Ground	These pins should be connected to signal ground on the host board.
12	RD-	Receiver Negative DATA Out (CML)	Light on = Logic "0" Output Receiver DATA output is internally AC coupled and series terminated with a 50 Ω resistor.
13	RD+	Receiver Positive DATA Out (CML)	Light on = Logic "1" Output Receiver DATA output is internally AC coupled and series terminated with a 50 Ω resistor.
15	V _{cc} R	Receiver Power Supply	This pin should be connected to a filtered +3.3V power supply on the host board. See Figure 3.Recommended power supply filter
16	V _{cc} T	Transmitter Power Supply	This pin should be connected to a filtered +3.3V power supply on the host board. See Figure 3.Recommended power supply filter

Pin	Symbol	Name	Description
18	TD+	Transmitter Positive DATA In (CML)	Logic “1” Input = Light on Transmitter DATA inputs are internally AC coupled and terminated with a differential 100Ω resistor.
19	TD-	Transmitter Negative DATA In (CML)	Logic “0” Input = Light on Transmitter DATA inputs are internally AC coupled and terminated with a differential 100Ω resistor.

VII. DDM Accuracy

Parameter	Symbol	Min.	Max.	Unit
Temperature	T _c	-3	3	°C
Voltage	V _{cc}	-3	3	%
Ibias	I _{cc}	-10	10	%
Tx Power	TXPWR	-3	3	dB
Rx Power	RXPWR	-3	3	dB

VIII. Typical Application Circuit

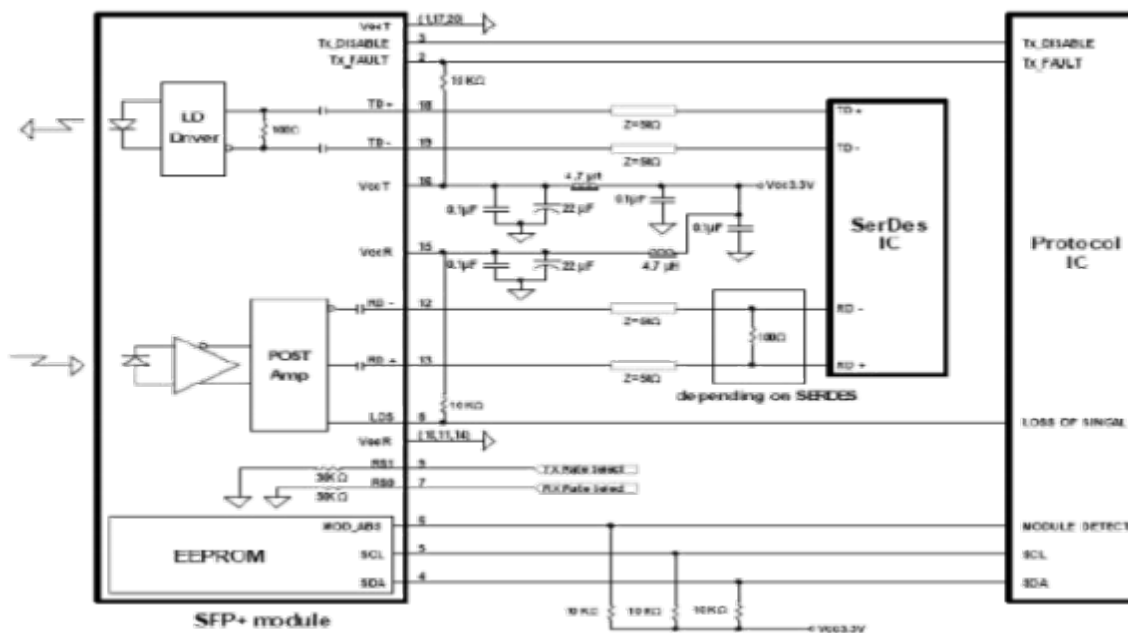


Figure 3. Typical Application Circuit

VX. Package Outline

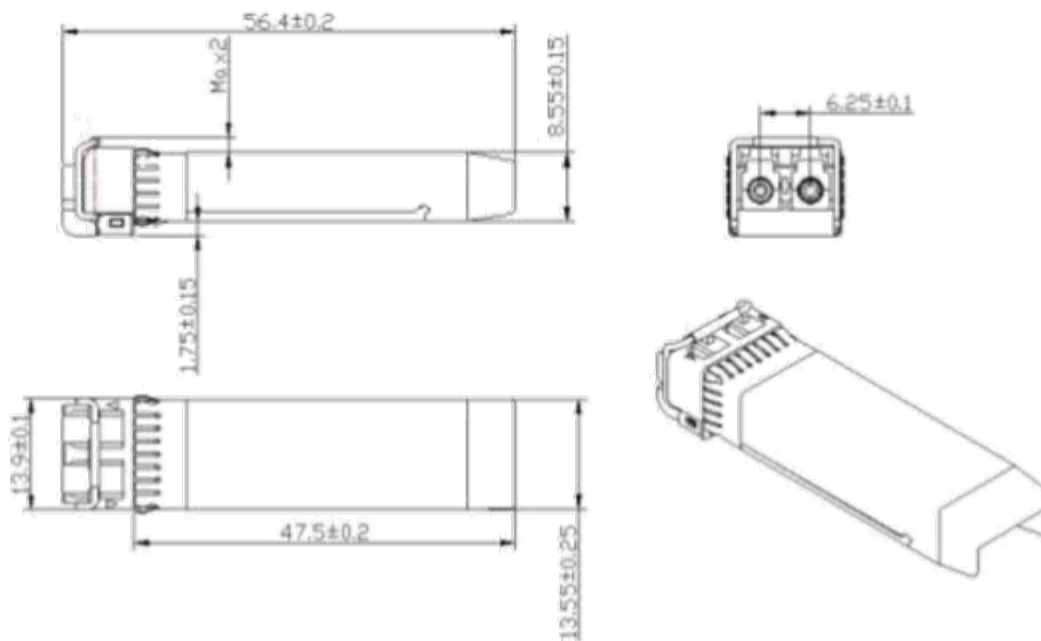


Figure 4. Package Outline

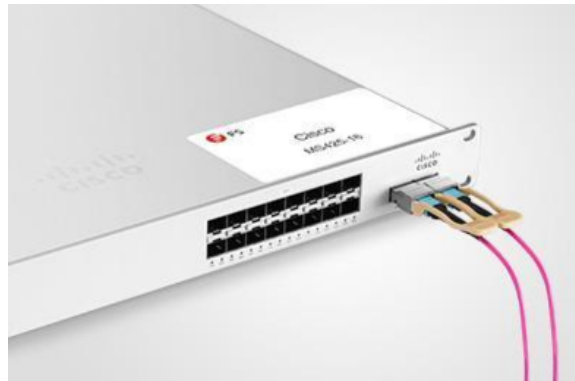
Test Center

I. Compatibility Testing

Each fiber optical transceiver has been tested in host device on site in FS Assured Program to ensure full compatibility with over 200 vendors.



Cisco Catalyst C9500-24Y4C



Cisco MS425-16



Brocade VDX 6940-144S



Dell EMC Networking Z9100-ON



Force@tm S60-44T

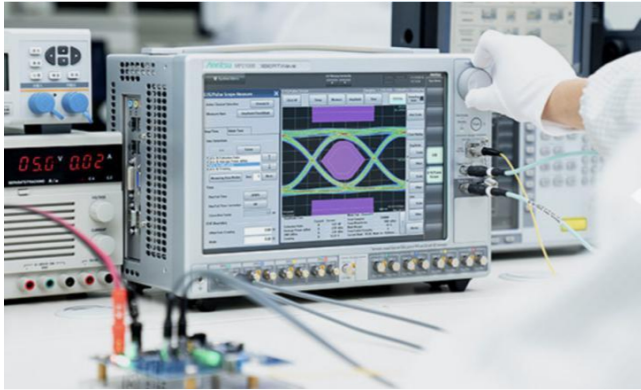


HUAWEI S6720-30L-HI-24S

Above is part of our test bed network equipment. For more information, please click the Test Bed PDF. It will be updated in real time as we expand our portfolio.

II. Performance Testing

Each fiber optical transceiver has been fully tested in FS Assured Program equipped with world's most advanced analytical equipment to ensure that our transceivers work perfectly on your device.



1. TX/RX Signal Quality Testing

Equipped with the all-in-one tester integrated 4ch BERT & sampling oscilloscope, and variable optical attenuator to ensure the input and output signal quality.

- Eye Pattern Measurements: jitter, Mask Margin, etc
- Average Output Power
- OMA
- Extinction Ratio
- Receiver Sensitivity
- BER Curve

2. Reliability and Stability Testing

Subject the transceivers to dramatic changes in temperature on the thermal shock chamber to ensure reliability and stability of the transceivers.

- Commercial: 0 °C to 70 °C
- Extended: -5 °C to 85 °C
- Industrial: -40 °C to 85 °C



3. Transfer Rate and Protocol Testing

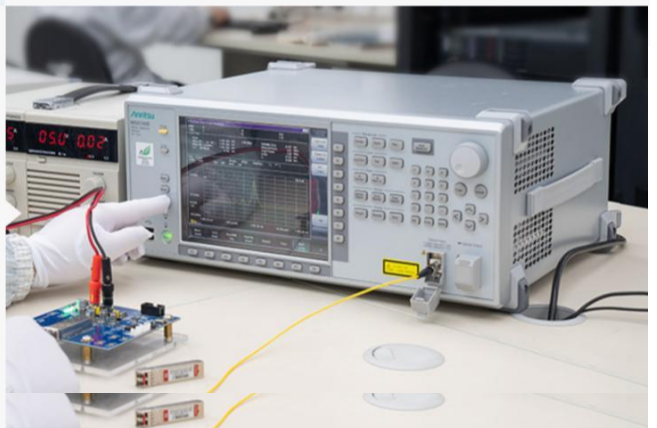
Test the actual transfer data rate and the transmission ability under different protocols with Network Master Pro.

- Ethernet
- Fibre Channel
- SDH/SONET
- CPRI

4. Optical Spectrum Evaluation

Evaluate various important parameters with the Optical Spectrum Analyzer to meet the industry standards.

- Center Wavelength, Level
- OSNR
- SMSR
- Spectrum Width



Order Information

Part Number	Description
DW-SFP25G10-xx	25G DWDM SFP28 Transceiver, C17-C61, DuplexLC, 10km over SMF
DW-SFP25G10-xx-I	25 GDWDM SFP28 Transceiver, C20-C60, DuplexLC, 10km over SMF, Industrial
DW-SFP25G10-T-I	25G DWDM SFP28 Transceiver, C-band Tunable, DuplexLC, 10km over SMF, Industrial
CW-SFP25G10-xx	25G CWDM SFP28 Transceiver, 1270-1570nm, Duplex LC, 10km over SMF
CW-SFP25G30-xx	25G CWDM SFP28 Transceiver, 1270-1370nm, Duplex LC, 30km over SMF
LW-SFP25G40-xx	25G LWDM SFP28 Transceiver, 1286.66-1309.14nm, DuplexLC, 40km over SMF