

TITLE 25G SFP28 DWDM Tunable 15km Transceiver	DOC No. RFD-20250402001-003	
	REVISION : 03	AUTHORIZED BY : Albert Lin
	DATE : 2026.06.26	CLASSIFICATION : CONFIDENTIAL

1. DESCRIPTION

25G SFP28 DWDM 15km is a tunable transceiver module designed for 15 km optical communication applications, and it is compliant to SFP28 MSA standard. This module can convert a 25 Gbps electrical data to 25 Gbps optical signals. Similarly, it can convert a 25 Gbps optical input signal to 25 Gbps serial electrical data. It has been designed to meet the harshest external operating conditions including temperature, humidity and EMI interference. The module offers very high functionality and feature integration, accessible via a two-wire serial interface. The module supports auto-tuning, remote-tuning and remote-DDMI.

2. PRODUCT FEATURES

SFP28 MSA compliant
25G electrical interface (OIF CEI-28G-VSR)
48 channels (191.4–196.1 THz)
Wavelength range 1529.55–1567.13nm
100GHz channel spacing
Maximum power consumption 2.5 W
LC duplex connector
Supports 24.33024G, 25.78125 Gbps (with FEC); 9.8304G, 10.1376G, 10.3125Gbps
Wavelength auto-tuning
Up to 15 km transmission on singlemode fiber
Operating case temperature (E-temp): –20°C to+85°C, cold start at –40°C
Single 3.3 V power supply
RoHS 2 compliant

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3. PRODUCT DESCRIPTION

3.1 PRODUCT NAME AND SERIES NUMBER(S)

25G SFP28 DWDM Tunable 15km Transceiver

JPC P/N	Wavelength	Optical Power	Sensitivity	Connector	Temp.
P58**0CREZ15AA	191.4 – 196.1 THz 1529.55–1567.13nm	0 ~ 4 dBm	-19.5 dBm (5e-5FEC)	LC	E

Note-1 : ** Indicates the customer code.

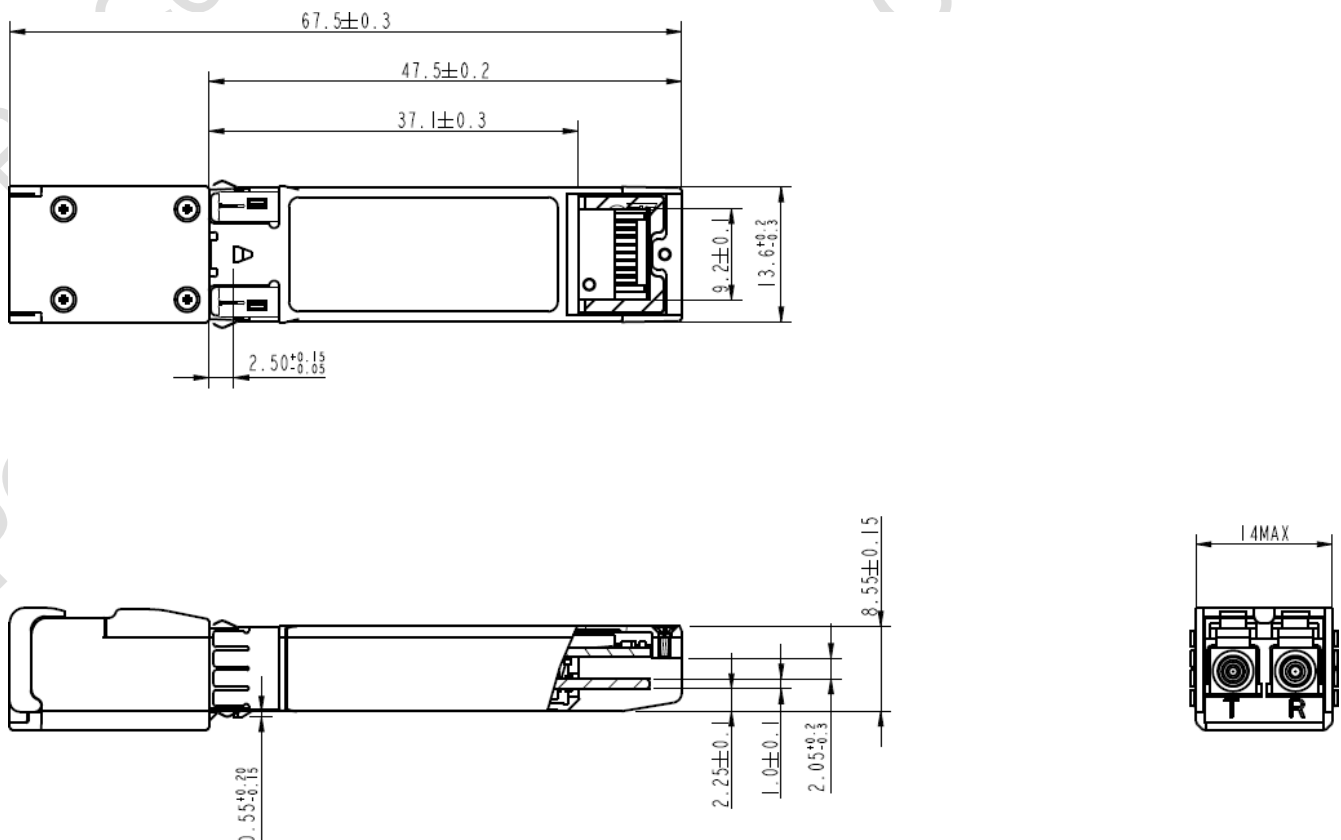
191.4~196.1Thz Wavelength frequency and Channel Mapping

Channel Number(hex)	Channel	Frequency (THz)	Wavelength (nm)	Channel Number(hex)	Channel	Frequency (THz)	Wavelength (nm)
00 01	D14	191.4	1566.314	00 19	D38	193.8	1546.917
00 02	D15	191.5	1565.496	00 1A	D39	193.9	1546.119
00 03	D16	191.6	1564.679	00 1B	D40	194	1545.322
00 04	D17	191.7	1563.863	00 1C	D41	194.1	1544.526
00 05	D18	191.8	1563.047	00 1D	D42	194.2	1543.730
00 06	D19	191.9	1562.233	00 1E	D43	194.3	1542.936
00 07	D20	192	1561.419	00 1F	D44	194.4	1542.142
00 08	D21	192.1	1560.606	00 20	D45	194.5	1541.349
00 09	D22	192.2	1559.794	00 21	D46	194.6	1540.557
00 0A	D23	192.3	1558.983	00 22	D47	194.7	1539.766
00 0B	D24	192.4	1558.173	00 23	D48	194.8	1538.976
00 0C	D25	192.5	1557.363	00 24	D49	194.9	1538.186
00 0D	D26	192.6	1556.555	00 25	D50	195	1537.397
00 0E	D27	192.7	1555.747	00 26	D51	195.1	1536.609
00 0F	D28	192.8	1554.940	00 27	D52	195.2	1535.822

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00 10	D29	192.9	1554.134	00 28	D53	195.3	1535.036
00 11	D30	193	1553.329	00 29	D54	195.4	1534.250
00 12	D31	193.1	1552.524	00 2A	D55	195.5	1533.465
00 13	D32	193.2	1551.721	00 2B	D56	195.6	1532.681
00 14	D33	193.3	1550.918	00 2C	D57	195.7	1531.898
00 15	D34	193.4	1550.116	00 2D	D58	195.8	1531.116
00 16	D35	193.5	1549.315	00 2E	D59	195.9	1530.334
00 17	D36	193.6	1548.515	00 2F	D60	196	1529.553
00 18	D37	193.7	1547.715	00 30	D61	196.1	1528.773

3.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKING



Unit is millimeter. All dimensions are ± 0.1 mm unless otherwise specified.

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4. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- CPRI/eCPRI: 24.33024G/25.78125 Gbps; 9.8304G/10.1376G/10.3125 Gbps
- 10G/25G Ethernet switches and routers

5. Absolute Maximum Ratings & Recommended Operating Conditions

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum supply voltage	Vcc	0	3.6	V
Storage temperature	Ts	-40	85	°C
Relative humidity	RH	0	85	%
Damage threshold, each lane	THd	0		dBm

Recommended Operating Conditions

Parameter	Symbol	Min.	Type	Max.	Unit
Supply voltage	Vcc	3.135	3.3	3.465	V
Case temperature	Top	-20		85	°C
Data rate		24.33024		25.78125	Gbps
		9.8304		10.3125	Gbps
Data rate accuracy		-100		100	Ppm
Link distance with G.652				15	km
Power dissipation				2.5	W

Transmitter Specification Optical/Electrical

Parameter	Symbol	Min.	Typical	Max.	Unit
Output average power		0		4	dBm

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Data rateaccuracy		−100	100	ppm
Wavelength range		191.4	196.1	THz
Wavelength accuracy		−12.5	12.5	GHz
channel spacing			100	GHz
Extinction ratio(ER)		7		dB
Side-mode suppression ratio(SMSR)		30		dB
RIN ₂₀ OMA			−130	dB/Hz
Optical return losstolerance			20	dB
Transmitterreflectance			−26	dB
Transmitter eyemask definition {X1, X2, X3, Y1,Y2, Y3}	{0.31, 0.4, 0.45, 0.34, 0.38, 0.4} Hit ratio 5×10^{-5} hits per sample			
Differential voltage pk-pk	V _{pp}	180	900	mV
Tx differential input impedance	Z _{IN}		100	Ω
Transmitter disable voltage	V _D	2.0	V _{cc} +0.3	V
Transmitter enable voltage	V _{EN}	0	0.8	V

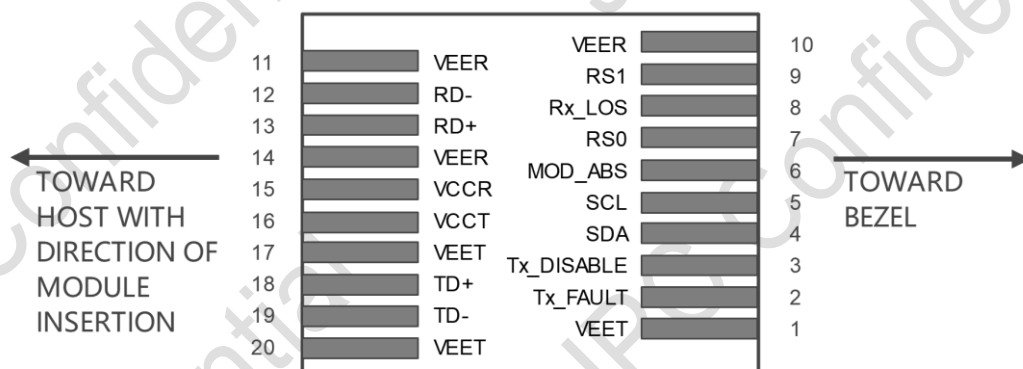
Receiver Optical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Wavelength range		191.4		196.1	THz
Saturation power		−2			dBm
Receiver sensitivity		−19.5 (5e-5FEC)			dBm
Receiver reflectance				−26	dB
LOS assert		−30.5			dBm
LOS deassert				−21.5	dBm
LOS hysteresis		0.5			dB
LOS de-assertvoltage	V _{LOSD}	V _{ee}		V _{ee} +0.4	V

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Eye height	EH15	228		mV
Eye width	EW15	0.57		UI
Vertical eyeclosure	VEC		5.5	dB

6. Applications Note:



Pin Definitions

Pin Assignment

Pin	Symbol	Logic
1	VEET	Transmitter ground
2	TX_FAULT	Transmitter fault indication
3	TX_DISABLE	Disables the transmitter or laser output
4	SDA	Data line for an I2C series interface
5	SCL	Clock line for an I2C series interface
6	MOD_ABS	Indicates the module online state (this pin is connected to the VeeT or VeeR pin)
7	RS0	Selects a rate for the module (this pin is connected to the 33 kilohm resistor)
8	RX_LOS	Indicates a loss of received signals
9	RS1	Selects a rate for the module (this pin is connected to the 33 kilohm resistor)

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10	VEER	Receiver ground
11	VEER	Receiver ground
12	RD-	Inverse received data output
13	RD+	Received data output
14	VEER	Receiver ground
15	VCCR	3.3 V receiver power
16	VCCT	3.3 V transmitter power
17	VEET	Transmitter ground
18	TD+	Transmit data input
19	TD-	Inverse transmit data input
20	VEET	Transmitter ground

7. Modification History

Rev.	Comments	Date	Originator	Approval
01	Initial	2026/05/22	Albert Lin	Mike Sun
02	Add Wavelength range 1529.55–1567.13nm	2026/06/12	Albert Lin	Mike Sun
03	Add Channel Mapping Table	2026/06/26	Coney Wu	Mike Sun

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