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**Product Catalog**

## TRANSCEIVERS

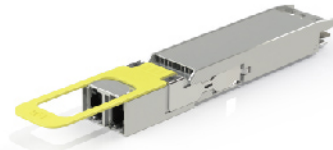
### 1.6T OSFP DR8 (Siph)

#### Features

- OSFP MSA 5.0 compliant
- CMIS 5.2 compliant
- 2xMPO-12 optical interface
- 8x200G PAM4 electrical interface
- SiPh base transmitter
- Power consumption  
LPO < 11W@Tcase = 70°C  
Retimer < 32W@Tcase = 70°C
- Up to 500m transmission on single mode fiber
- Operating case temperature: 0°C~70°C
- RoHS-6 compliant

#### Applications

- 1.6T Ethernet
- Data center



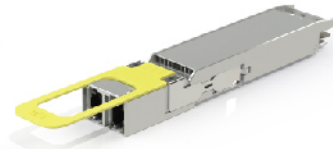
### 1.6T OSFP DR8 (EML)

#### Features

- Up to 500m over single-mode fiber
- Case Operating Temperature: 0°C~70°C
- 3.3V power supply
- Dual MPO-12 APC optical receptacle connector
- 1304.5~1317.5nm EML/PIN
- 8 x 106.25Gbaud PAM4 electrical/optical interface
- IIC rate up to 1MHz
- Very low EMI and excellent ESD protection
- Typical Power: 24W

#### Applications

- High performance computing interconnect
- Data center
- 1600G DR8, 2x800G DR8, 8x200G DR8



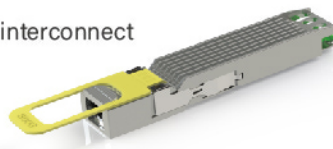
### 800G OSFP 2\*DR4 TRO

#### Features

- Up to 500m over single-mode fiber
- Case Operating Temperature: 0°C~70°C  
3.3V power supply
- Dual MPO-12 APC optical receptacle connector
- 1304.5~1317.5nm EML/PIN
- 8 x 53.125Gbaud PAM4 electrical/optical interface
- IIC rate up to 1MHz
- Typical Power: 8W

#### Applications

- High performance computing interconnect
- Data center
- 1x800G DR8, 2x400G DR8, 8\*100G DR8



### 800G OSFP LPO (Siph)

#### Features

- OSFP MSA 5.0 compliant
- CMIS 5.2 compliant
- 2xMPO-12 optical interface
- 8x100G PAM4 electrical interface
- SiPh base transmitter
- Maximum power consumption : < 8W@ Tcase = 70°C
- Up to 500m transmission on single mode fiber
- Operating case temperature: 0°C~70°C
- RoHS-6 compliant

#### Applications

- 800G Ethernet
- 800G InfiniBand
- Data center



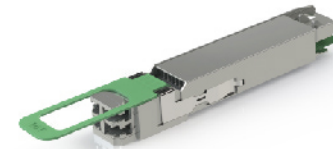
### 1.6T OSFP-XD 2\*FR4

#### Features

- Up to 2km over single-mode fiber
- Case Operating Temperature: 0°C~70°C
- 3.3V power supply
- Dual Duplex LC connector
- 1271nm/1291nm/1311nm/1331nm EML/PIN
- 16 x 53.125Gbaud PAM4 electrical interface
- 8 x 106.25Gbaud PAM4 optical interface
- IIC rate up to 1MHz
- Very low EMI and excellent ESD protection
- Typical Power: 24W

#### Applications

- High performance computing interconnect
- Data center
- 2x800G FR4



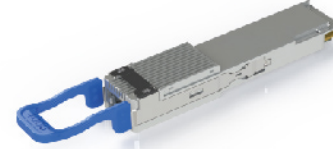
### 400G QSFP112 DR4

#### Features

- Up to 500m over single-mode fiber
- Case Operating Temperature: 0°C~70°C  
3.3V power supply
- MPO-12 APC optical receptacle connector
- 1304.5~1317.5nm EML/PIN
- 4 x 106.25Gb/s PAM4 electrical/optical interface
- IIC rate up to 1MHz
- Very low EMI and excellent ESD protection
- Typical Power: 7W

#### Applications

- High performance computing interconnect
- Data center
- 1x400G DR4, 4x100G DR4



### AEC: 800G OSFP/ QSFP-DD

#### Features

- 800G Active Electrical Cable Module
- CMIS v5.2 compliant
- Power consumption < 10W typical
- 53.125GBd PAM4 x8 channel
- 30AWG cable
- Up to 5m transmitting distance
- Operating case temperature: 0°C~70°C

#### Applications

- 800G Ethernet
- Data center switch



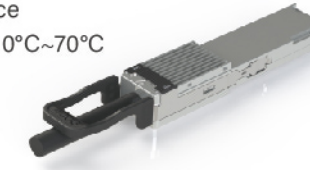
### AEC: 400G QSFP112

#### Features

- 400G Active Electrical Cable Module
- Backward compatible with 200G
- Power consumption < 6W typical
- 53.125GBd PAM4 x4 channel
- 30AWG cable
- Up to 5m transmitting distance
- Operating case temperature: 0°C~70°C

#### Applications

- 400G Ethernet
- Data center switch



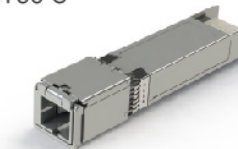
### 25G SFP28 PON OLT N2

#### Features

- SFP28 MSA package transceiver with single mode SC/UPC receptacle connector
- Support data links with 24.8832Gbps upstream
- Support data links with 24.8832Gbps/9.953Gbps downstream
- 1358nm continuous-mode transmitter with EML laser
- 1286nm burst-mode receiver with APD
- Digital diagnostic monitoring interface
- Operating temperature range: -40°C~+85°C
- Power Consumption: < 3W

#### Applications

- Support 25G PON OLT application



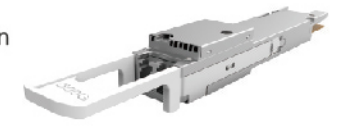
### 800G QSFP-DD/OSFP ZR/ZR+

#### Features

- 800G Coherent ZR/ZR+ transceiver
- 5nm ultra-low power, multi-mode DSP
- QSFP-DD type2B package or OSFP type2 package
- Output power up to +4dBm
- Very low power consumption < 27W typical
- 800ZR 120KM and 800ZR+ up to 480KM over SMF
- Support 800G DP-16QAM modulation
- Support C-band tunable 150GHz Grid spacing
- Operating case temperature: 0°C~75°C
- 1\*800GE/2\*400GE/4\*200GE/8\*100GE

#### Applications

- Data center interconnection
- Metro and Long haul application



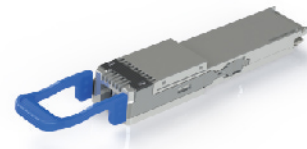
### 50G PON Combo OLT N1 (50G PON+XGSPON+GPON) QSFP112

#### Features

- QSFP112 package transceiver with single mode SC/APC or SC/UPC receptacle connector
- 24.8832Gbps/12.4416Gbps/9.953Gbps/2.488Gbps/1.244Gbps upstream in TDM configuration
- 49.7664Gbps/9.953Gbps/2.488Gbps downstream
- +3.3V separated power supply, low power dissipation
- 1342nm continuous-mode transmitter with EML+SOA laser
- 1577nm continuous-mode transmitter with EML laser
- 1490nm continuous-mode transmitter with DFB laser
- 1286/1270/1310nm burst-mode receiver with APD-TIA
- Power Consumption: < 6.5W
- Operating temperature range: 0°C~70°C

#### Applications

- Support GPON, XG-PON, XGSPON PON, 50G/25G 50G-PON OLT network



	Product Name	Data Rate	Packaging	Part No.	Wavelength(nm)	Reach	Tx	Tx Power (dBm)	Rx	Rx Power (dBm)	Temp(°C)	Dissipation
1.6T	1.6T OSFP DR8	1.6T	OSFP	MTRO-D5F8CB	1310	500m	Sipho	-2.8~4	PIN	-5.8~4	0~70	<30W
	1.6T OSFP DR8 LPO	1.6T	OSFP	MTRO-D5F8CL	1310	500m	Sipho	-2.8~4	PIN	-5.8~4	0~70	<10W
	1.6T OSFP DR8	1.6T	OSFP	/	1310	500m	EML	-2.8~4	PIN	-5.8~4	0~70	<30W
	1.6T OSFP-XD 2*FR4	1.6T	OSFP-XD	/	1271/1291/1311/1331	2km	EML	-1.8~4.9	PIN	-5.6~4.9	0~70	<30W
800G	800G OSFP DR8 LPO	800G	OSFP	MTRO-D5F6CL	1310	500m	Sipho	-2.9~4	PIN	-5.9~4	0~70	<8W
	800G QSFP-DD ZR/ZR+	800G	QSFP-DD	CTR-D1E2C-A CTR-D2E5C-B	191.3-196.1GHz,150GHz Grid	120km/480km	ITLA	-10~+1	ICTR	-20~0	0~75	28W/29W
	800G OSFP ZR/ZR+	800G	OSFP	CTR-E1E2C-A CTR-E2E5C-B	191.3-196.1GHz,150GHz Grid	120km/480km	ITLA	-10~+1	ICTR	-20~0	0~75	28W/29W
	800G QSFP-DD 2*LR4	8x106.25Gbps	QSFP-DD	MQD-G7F6C	1271/1291/1311/1331	10km	EML	0.3~4.4	PIN	-6.8~4.4	0~70	16W
	800G QSFP-DD LR4	800G	QSFP-DD	MQD-77F7C	1295/1300/1304/1309	10km	EML	1.9~5.7	PIN	-6.9~5.7	0~70	16W
	800G QSFP-DD AEC	8x106.25Gbps	QSFP-DD	ETRC-183C	/	5m	/	/	/	/	0~70	12W
	800G OSFP AEC	8x106.25Gbps	OSFP	ETRC-383C	/	5m	/	/	/	/	0~70	12W
	800G OSFP SR8	800G	OSFP	MTRO-12F6C	850	70~100m	VCSEL	-4.6~4	PIN	-4.6~4	0~70	<16W
	800G OSFP DR8	800G	OSFP	MTRO-D5F6C	1310	500m	EML	-2.9~4	PIN	-5.9~4	0~70	<15W
	800G OSFP 2*FR4	800G	OSFP	MTRO-F6F6C	1271/1291/1311/1331	2km	EML	-3.2~4.4	PIN	-7.2~4.4	0~70	<15W
400G	400G QSFP112 DR4 LPO	400G	QSFP112	MQH-23F1CL	1310	500m	Sipho	-2.9~4	PIN	-5.9~4	0~70	<4W
	400G QSFP112 SR4 Linear	400G	QSFP112	MTRQ-4S105-L	850	70~100m	VCSEL	-4.6~4	PIN	-6.4~4	0~70	<3W
	400G QSFP-DD SR4	400G	QSFP-DD	MQD-F2F2C	850	70~100m	VCSEL	-4.6~4	PIN	-6.4~4	0~70	<8W
	400G QSFP112 SR4	400G	QSFP112	MTRQ-4S105	850	70~100m	VCSEL	-4.6~4	PIN	-6.4~4	0~70	<8W
	400G QSFP112 DR4	400G	QSFP112	MTRQ-4D505	1310	500m	EML	-2.9~4	PIN	-5.9~4	0~70	<9W
	400G QSFP-DD SR8	400G	QSFP-DD	MQD-12F1C	850	70~100m	VCSEL	-6.5~4	PIN	-8.4~4	0~70	<8.5W
	400G QSFP-DD AOC	400G	QSFP-DD	ATRE-6XXX	850	1~50m	VCSEL	-6.5~4	PIN	-8.4~4	0~70	<8.5W each end
	400G QSFP-DD DR4/DR4+	400G	QSFP-DD	MQD-35F2C/36F2C	1310	500m/2km	EML	-2.9~4/-2.4~4	PIN	-5.9~4/-6.4~4.5	0~70	<8W
	400G QSFP-DD PLR4	400G	QSFP-DD	MQD-37F2C	1310	10km	EML	-1.9~4.8	PIN	-8.2~4.8	0~70	<8W
	400G QSFP112 FR4	400G	QSFP112	MTRQ-4FF55	1271/1291/1311/1331	2km	EML	-3.2~4.4	PIN	-7.2~4.4	0~70	<9W
	400G QSFP-DD FR4	400G	QSFP-DD	MQD-56F2C	1271/1291/1311/1331	2km	EML	-3.3~3.5	PIN	-7.3~3.5	0~70	<8W
	400G OSFP DR4	400G	OSFP	MTRO-A5F2CR	1310	500m	EML	-2.9~4	PIN	-5.9~4	0~70	<9W
	400G OSFP SR4	400G	OSFP	MTRO-J2F2CR	850	50~100m	VCSEL	-4.6~4	PIN	-6.4~4	0~70	<8.5W
	400G ZR/ZR+	400G	QSFP-DD	CTR-D1F2C CTR-D2F5C-A	191.3-196.1GHz,100/75/50GHz Grid	120km/450km	ITLA	-10~+6	ICTR	-20~0/-22~0	0~75	17@Typ 18@Max 21@Typ 22.5@Max
	400G ZR+ Pro	400G	QSFP-DD	CTR-D2F5C-B	191.3-196.1GHz,100/75/50GHz Grid	450km@DWDM 90km@Gray	ITLA	-10~+6@DWDM -3~+5@Gray	ICTR	-22~0	0~75	21.5@Typ 22.5@Max
	400G QSFP-DD LR4	400G	QSFP-DD	MQD-77F2C	1271/1291/1311/1331	10km	EML	-2.7~5.1	PIN	-6.8~4.4	0~70	<8W
400G QSFP112 AEC	4x106.25Gbps	QSFP112	ETRC-243C	/	5m	/	/	/	/	0~70	<6W	
200G	200G QSFP56 SR4	200G	QSFP56	MTRQ-4S104	850	70~100m	VCSEL	-6.5~4	PIN	-8.4~4	0~70	<4.5W
	200G QSFP56 AOC	200G	QSFP56	ATRQ-7XXX	850	1~50m	VCSEL	-6.5~4	PIN	-8.4~4	0~70	<4.5W each end
	200G QSFP-DD PSM8	200G	QSFP-DD	MQD-K6N3C	1310	2km	DML	-5.8~2.0	PIN	-11~2	0~70	<8W
100G	100G QSFP28 SR4	100G	QSFP28	MTRQ-4S101	850	70~100m	VCSEL	-5.5~2.4	PIN	-8.4~2.4	0~70	<2.5W
	100G QSFP28 AOC	100G	QSFP28	ATRQ-AXXX	850	1~50m	VCSEL	/	PIN	-8.4~2.4	0~70	<2.5W each end
	100G QSFP28 LR4	100G	QSFP28	MTRQ-4LA01-5	1295/1300/1304/1309	10km	EML	-4.3~4.5	PIN	-10.6~4.5	0~70	<3.5W
	100G CWDM4	100G	QSFP28	MTRQ-4CF51	1271/1291/1311/1331	2km	DML	-6.5~2.5	PIN	-11.5~2.5	0~70	<3.5W
	100G QSFP28 PSM4	100G	QSFP28	MTRQ-4P501	1310	500m	DML	-9.4~2	PIN	-12.66~2	0~70	<3.5W
	100G SFP112 LR	100G	SFP112	MTRA-4131A	1310	10km	EML	-1.9~4.8	PIN	-8.2~4.8	-40~85	<3.5W
	100G LR1, Hermetic	100G	QSFP28	MTRQ-1LA01	1310	10km	EML	1.1~5	PIN	-6.1~5	0~70	<4.5W
	100G FR1, Hermetic	100G	QSFP28	MTRQ-1FF51	1310	2km	EML	-3.1~4	PIN	-4.5~4	0~70	<4.5W
	100G LR4 5G	100G	QSFP28	MTRQ-4LA01	1295/1300/1304/1309	10km	DML	-1.3~4.5	PIN	-8.6~4.5	0~70	<4W
	100G ER4/ER4 I-T	100G	QSFP28	MTRQ-4EA41 MTRQ-4EA41	1295/1300/1304/1309	40km	EML	-2.9~2.9	PIN+SOA	-20.9~-3.5	0~70/-40~85	<5W/6W
	100G ER4 Lite	100G	QSFP28	MTRQ-4EA51	1295/1300/1304/1309	30km	EML	-2.5~6.5	APD	-20.5~-3.5	0~70	<5W
100G ZR4/ZR4 I-T	100G	QSFP28	MTRQ-4ZA81-1 MTRQ-4ZA811-1	1295/1300/1304/1309	80km	EML	2~6.5	PIN+SOA	-28~-3.5	0~70/-40~85	<5.5W/6.5W	
50G 40G 32G	50G QSFP28 LR	50G	QSFP28	MTRQ-1LA02	1310	10km	DFB	-4.5~4.2	PIN	-10.8~4.2	0~70	<3.5W
	50G QSFP28 LR BIDI	50G	QSFP28	MTRQ-1LA02-27/33	1270/1330/1330/1270	10km	DFB	-4.5~4.2	PIN	-10.8~4.2	0~70	<3.5W
	50G SFP56 SR	50G	SFP56	MTRA-4AA1A	850	100m	Vcsel	-6.5~4	PIN	-8.4~4	-40~85	<1.8W
	50G SFP56 LR	50G	SFP56	MTRA-4E31A	1310	10km	DFB	-4.5~4.2	PIN	-10.8~4.2	-40~85	<1.8W
	50G SFP56 LR BIDI	50G	SFP56	MBS-AC31-27/33	1270/1330	10km	DFB	-4.1~4.9	PIN	-10.8~4.9	-40~85	<2W
	50G SFP56 LR CWDM	50G	SFP56	MTRA-4C33A-XX	1271/1291/1311/1331/1351/1371	10km	DFB	2~8	PIN	-10.8~4.2	-20~85/-20~75	<2.2W
	40G SR4/eSR4	40G	QSFP+	MTRQ-4S100/4S300	850	70~100m/300m	VCSEL	-5.5~2.4	PIN	-9.5~2.4	0~70	<1.5W
	40G AOC	40G	QSFP+	ATRQ-4XXX	850	1~50m	VCSEL	/	PIN	-9.5~2.4	0~70	<1.5W each end
25G 10G	32G SR	32G	SFP28	MTRA-3A90B	850	70~100m	VCSEL	-3.5~2	PIN	-10.2~2	0~70	<1W
	25G SR	25G	SFP28	MTRA-3A90A	850	70~100m	VCSEL	-5.0~2.4	PIN	-9.5~2.4	0~70	<1W
	25G AOC	25G	SFP28	ATRS-2XXX	850	1~50m	VCSEL	/	PIN	-9.5~2.4	0~70	<1W each end
	25G BASE-LR DSFP	2*25G	DSFP	MBS-9C31-27/33	1270/1330/1330/1270	10km	DFB	-7~2	PIN	-12~2	-40~85	<2.5W
	25G SFP28 LR / LR Lite	25G	SFP28	MTRA-3E31A/3E11A	1310	10km/300m	DFB	-7~2	PIN	-11~2/-10~2	-40~85	<1.2W
	25G LR BIDI	25G	SFP28	MBS-7C31-27/33	1270/1330/1270/1310	10km	DFB	-4~2	PIN	-10.3~2	-40~85	<1.2W
	25G LR CWDM	25G	SFP28	MTRA-3C33C-xx	1271/1291/1311/1331/1351/1371	10km	DFB	0~6	PIN	-12.84~3	-20~85/-20~75	<1.8W
	25G ER	25G	SFP28	MTRA-3E61A	1310	40km	DFB	0~6.5	APD	-19~-5	-40~85	<2W
	25G Tunable 15km	25G	SFP28	MTRA-3T43-CAA	ITU-Grid ch13~ch60,100G Spacing	15km	MZM	0~5	APD	-20.5~-5	-20~85	<2.5W
	10G ER Tunable	10G	SFP28	MTRS-2T60-01	ITU-Grid ch13~ch60,50G Spacing	40km	MZM	-1~3	PIN	-16~-1	0~75	<2.1W
10G ZR Tunable	10G	SFP28	MTRS-2T77-01	ITU-Grid ch13~ch60,50G Spacing	80km	MZM	-1~3	APD	-23~-7	-5~85	<2.5W	
PON	25G SFP28 PON OLT	Down:24.8832Gbps Up:24.8832Gbps/9.953Gbps	SFP28	PLES1-76B	1358/1286	20km	EML	<9	APD	SENS:-26.3 (OMA) @24.88Gbps&BER=10^-2 SENS:-28 (Avg) @9.953Gbps&BER=10^-3	-40~85	<3.2W
	25G SFP28 PON ONU	Down:24.8832Gbps Up:24.8832Gbps	SFP28	PNES1-75B	1286/1358	20km	DFB	4.5~9	APD	SENS:-24.9 @24.88Gbps&BER=10^-2	-40~85	<3W
	50G PON Combo OLT (50G PON+XGSPON+GPON) QSFP112 Class C+	Down:49.7664Gbps/9.953Gbps/2.488Gbps Up:24.8832Gbps/12.4416Gbps/9.953Gbps /2.488Gbps/1.244Gbps	QSFP112	PLGMG-E2A	1342/1577/1490/1286/1270/1310	20km	EML +SOA /EML /DFB	8.5~14 /5~8 /3~7	APD	SENS:-27.5 @24.8832Gbps&BER=10^-2 SENS:-29 @12.4416Gbps&BER=10^-2 SENS:-29 @9.953Gbps&BER=10^-3 SENS:-30.5 @2.488Gbps&BER=10^-4 SENS:-32 @1.244Gbps&BER=10^-4	0~70	<6.5W
	Combo PON OLT (XGSPON+GPON) SFP+ Class D	Down:9.953Gbps/2.488Gbps Up:2.488Gbps/1.244Gbps	SFP+	PLGS3-38B	1577/1490/1270/1310	20km	EML/DFB	8~12/6~10	APD	SENS:-33 @2.488Gbps&BER=10^-4 SENS:-34 @1.244Gbps&BER=10^-4	-40~85	<4W
	Combo PON OLT (XGSPON+GPON) SFP+ Class D	Down:9.953Gbps/2.488Gbps Up:9.953Gbps/2.488Gbps/1.244Gbps	SFP+	PLGS3-48B	1577/1490/1270/1310	20km	EML/DFB	8~12/6~10	APD	SENS:-32 @9.953Gbps&BER=10^-3 SENS:-33.5 @2.488Gbps&BER=10^-4 SENS:-34 @1.244Gbps&BER=10^-4	-40~85	<4W
	Combo PON OLT (XGSPON+GPON) SFP-DD Class D	Down:9.953Gbps/2.488Gbps Up:9.953Gbps/2.488Gbps/1.244Gbps	SFP-DD	PLGD3-48B	1577/1490/1270/1310	20km	EML/DFB	8~11/6~10	APD	SENS:-11~32 @9.953Gbps&BER=10^-3 SENS:-13~33.5 @2.488Gbps&BER=10^-4 SENS:-15~35 @1.244Gbps&BER=10^-4	-40~85	<4W
	XGSPON OLT SFP+ E2	Down:9.953Gbps Up:9.953Gbps/2.488Gbps	SFP+	PLGS1-98B	1577/1270	20km	EML/DFB	8~11	APD	SENS:-11~32 @9.953Gbps&BER=10^-3 SENS:-13~33.5 @2.488Gbps&BER=10^-4	-40~85	<3W
10G EPON OLT PR30 XFP	Down:10.3125Gbps /1.25Gbps Up:10.3125Gbps /1.25Gbps	XFP	PLEX3-01A	1577/1490/1270/1310	20km	EML	2~5/2.5~7	APD	SENS:-28 @10.3125Gbps &BER=10^-3 SENS:-29.78 @1.25Gbps&BER=10^-12	0~70	<3.5W	
GPON OLT SFP Class D	Down:2.488Gbps Up:1.244Gbps	SFP	PLGS1-28B	1490/1310	20km	DFB	6~10	APD	SENS:-35 @1.244Gbps&BER=10^-4	-40~85	<1.7W	