

400G SR4 RHS Optical Transceiver

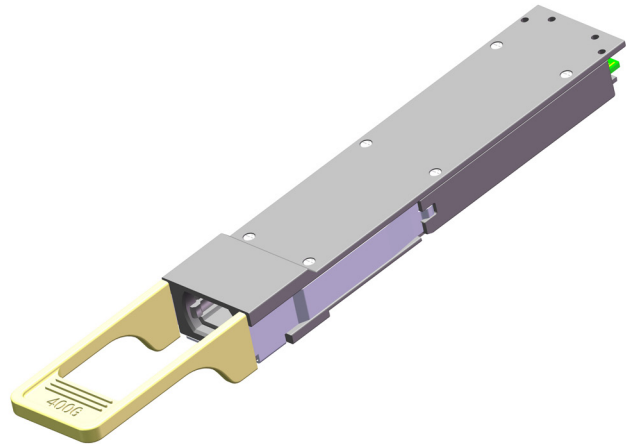
The OS4CS1MOC000PAM is an OSFP optical transceiver for 4x53.125GBaud optical links. Transmission is based on VCSEL 850nm with electrical driver, while Receiver side is based on PIN photodetector and TIA. Module is equipped with DSP to provide channel equalization. The receptacle of the optical type is APC MPO-12.

FEATURES

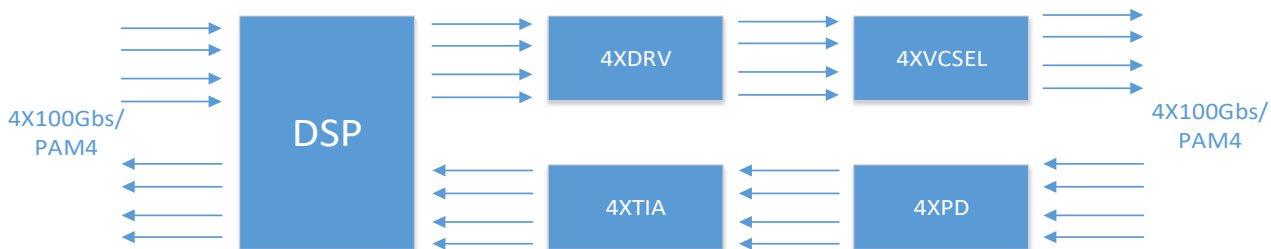
- OSFP MSA compliant
- 4x53.125GBaud electrical interface
- Up to 50m on OM4 with MMF
- MPO-12 APC optical receptacle type
- Commercial case temperature: 0~70°
- Single 3.3V power supply
- Maximum power consumption 9 Watts
- CMIS 5.0 standard interface
- Aligned to IEEE802.3db

APPLICATIONS

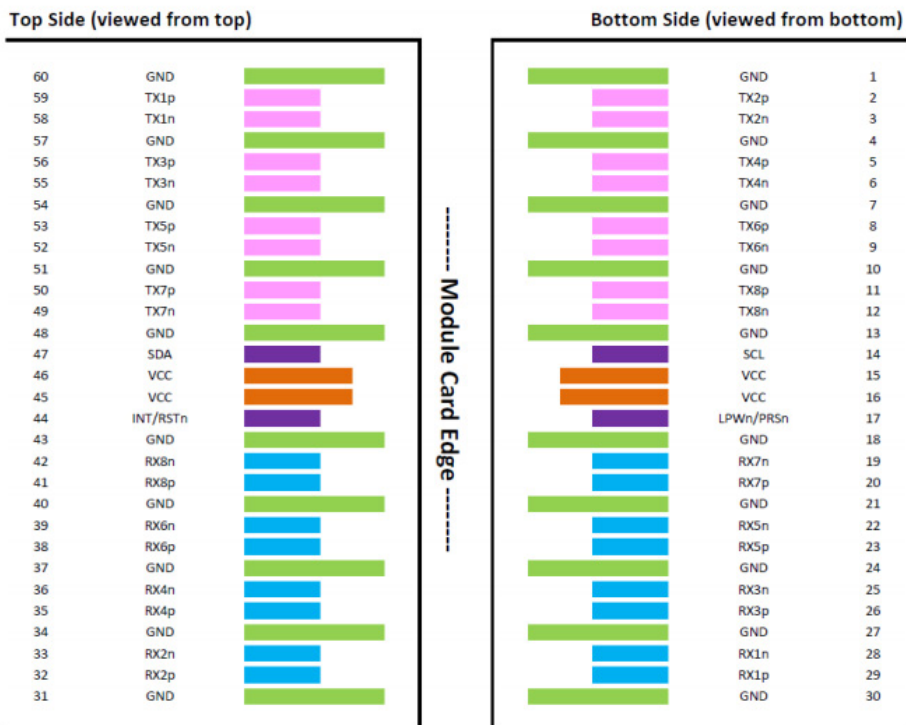
- 400GBASE-SR4 400G Ethernet
- Data Center Interconnect



PRODUCT ARCHITECTURE



OSFP PIN DIAGRAM



OSFP PIN DESCRIPTIONS

NAME	DIRECTION	DESCRIPTION
TX[4:1]p	input	Transmit differential pairs non-inverted from host to module.
TX[4:1]n	input	Transmit differential pairs inverted from host to module.
TX[5:8]P	NC	undefined
TX[5:8]N	NC	undefined
RX[4:1]p	output	Receive differential pairs non-inverted from module to host.
RX[4:1]n	output	Receive differential pairs inverted from module to host.
RX[5:8]p	NC	undefined
RX[5:8]n	NC	undefined
SCL	bidir	2-wire serial clock signal. Requires pull-up resistor to 3.3V on host.
SDA	bidir	2-wire serial data signal. Requires pull-up resistor to 3.3V on host.
PWn/PRSn	bidir	Multi-level signal for low power control from host to module and module presence indication from module to host.
INT/RSTn	bidir	Multi-level signal for interrupt request from module to host and reset control from host to module.
VCC	power	3.3V power for module.
GND	ground	Module Ground. Logic and power return path.

QSFP PIN LIST

PIN	SYMBOL	DESCRIPTION	LOGIC	DIRECTION	PLUG SEQUENCE ²	NOTES
1	GND	Ground			1	
2	TX2p	TX Non-Inverted	CML-I	Input from Host	3	
3	TX2n	TX Inverted	CML-I	Input from Host	3	
4	GND	Ground			1	
5	TX4p	TX Non-Inverted	CML-I	Input from Host	3	
6	TX4n	TX Inverted	CML-I	Input from Host	3	
7	GND	Ground			1	
8	TX6p	NC		undefined		
9	TX6n	NC		undefined		
10	GND	Ground			1	

(1) Open-Drain with pull up resistor on Host.

(2) Plug Sequence specifies the mating sequence of the host connector and module. The sequence is 1, 2, 3.

(3) Not defined.

For additional information, visit jabil.com

PIN	SYMBOL	DESCRIPTION	LOGIC	DIRECTION	PLUG SEQUENCE ²	NOTES
11	TX8p	NC		undefined		3
12	TX8n	NC		undefined		3
13	GND	Ground			1	
14	SCL	2-wire Serial interface clock	LVC MOS-I/O	Bi-directional	3	1
15	VCC	+3.3V Power		Power from Host	2	
16	VCC	+3.3V Power		Power from Host	2	
17	LPWn/ PRSn	Low-Power Mode/Module Present	Multi-Level	Bi-directional	3	
18	GND	Ground			1	
19	RX7n	NC		undefined		3
20	RX7p	NC		undefined		3
21	GND	Ground			1	
22	RX5n	NC		undefined		3
23	RX5p	NC		undefined		3
24	GND	Ground			1	
25	RX3n	RX Inverted	CML-O	Output to Host	3	
26	RX3p	RX Non-Inverted	CML-O	Output to Host	3	
27	GND	Ground			1	
28	RX1n	RX Inverted	CML-O	Output to Host	3	
29	RX1p	RX Non-Inverted	CML-O	Output to Host	3	
30	GND	Ground			1	
31	GND	Ground			1	
32	RX2p	RX Non-Inverted	CML-O	Output to Host	3	
33	RX2n	RX Inverted	CML-O	Output to Host	3	
34	GND	Ground			1	
35	RX4p	RX Non-Inverted	CML-O	Output to Host	3	
36	RX4n	RX Inverted	CML-O	Output to Host	3	
37	GND	Ground			1	

(1) Open-Drain with pull up resistor on Host.

(2) Plug Sequence specifies the mating sequence of the host connector and module. The sequence is 1, 2, 3.

(3) Not defined.

PIN	SYMBOL	DESCRIPTION	LOGIC	DIRECTION	PLUG SEQUENCE ²	NOTES
38	RX6p	NC		undefined		3
39	RX6n	NC		undefined		3
40	GND	Ground			1	
41	RX8p	NC		undefined		3
42	RX8n	NC		undefined		3
43	GND	Ground			1	
44	INT/RSTn	Module Interrupt/Module Reset	Multi-Level	Bi-directional	3	
45	VCC	+3.3V Power		Power from Host	2	
46	VCC	+3.3V Power		Power from Host	2	
47	SDA	2-wire Serial interface data	LVC MOS-I/O	Bi-directional	3	1
48	GND	Ground			1	
49	TX7n	NC		undefined		3
50	TX7p	NC		undefined		3
51	GND	Ground			1	
52	TX5n	NC		undefined		3
53	TX5p	NC		undefined		3
54	GND	Ground			1	
55	TX3n	TX Inverted	CML-I	Input from Host	3	
56	TX3p	TX Non-Inverted	CML-I	Input from Host	3	
57	GND	Ground			1	
58	TX1n	TX Inverted	CML-I	Input from Host	3	
59	TX1p	TX Non-Inverted	CML-I	Input from Host	3	
60	GND	Ground			1	

(1) Open-Drain with pull up resistor on Host.

(2) Plug Sequence specifies the mating sequence of the host connector and module. The sequence is 1, 2, 3.

(3) Not defined.

ABSOLUTE MAXIMUM RATINGS

It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Storage Temperature	T_s	-40		85	°C	
Storage Ambient Humidity	H_A	0		85	%	
Maximum Supply Voltage	V_{CC}	-0.5		3.6	V	

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Operating Case Temperature	T_{case}	0	25	70	°C	
Supply Voltage	VCC	3.135	3.3	3.465	V	
Relative Humidity	RH	5		85	%	
Data Rate (Optical)	DRO		4x106.25		Gbps	
Data Rate (Electrical)	DRE		4x106.25		Gbps	

ELECTRICAL CHARACTERISTICS

(EOL, $T_{case} = 0 \sim 65^\circ$, $V_{CC} = 3.135 \sim 3.465$ V)

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Power Dissipation	P_d			9	W	
TRANSMITTER						
Data Rate, each lane	DRE		106.25		Gbps	
Differential Voltage pk-pk	V_{IN}	40		900	mV	
Input differential impedance	Z_{IN}		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
RECEIVER						
Data Rate, each lane	DRE		106.25		Gbps	
Output differential impedance	Z_{OUT}		100		Ohm	
Differential Termination Resistance Mismatch				10	%	
Differential output voltage	V_{OUT}			1000	mV	

OPTICAL CHARACTERISTICS

(EOL, Tcase= 0~65°, VCC=3.135~3.465 V)

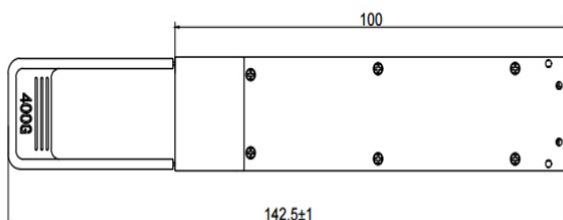
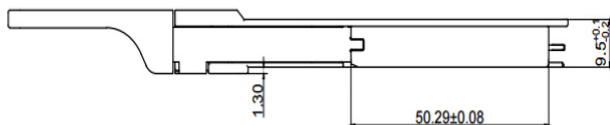
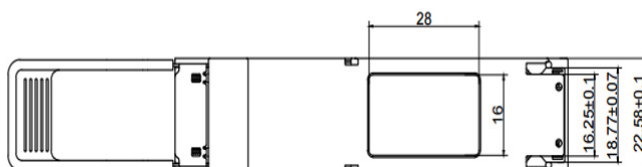
PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Signaling Speed per Lane	DRO		106.25		Gbps	
Center Wavelength	λ		850		nm	
RMS Spectral Width	$\Delta\lambda$			0.6	nm	
Average launch power		-1		4	dBm	
TX TDECQ				4.4	dB	
TX ER		2.5			dB	
Receiver sensitivity (max) For TDECQ \leq 1.8dB For 1.8 < TDECQ \leq 4.4dB			-4.4 -6.2+TDECQ		dBm	

ORDERING INFORMATION

JABIL PART NUMBER	PACKAGE	RATE	REACH	OTHER INFO
OS4CS1MOC00SPAM	OSFP	400G	50m	C-temp

Note: additional cable lengths can be provided on request.

OSFP FORM MECHANICAL SPECIFICATIONS



Unit:mm
Unspecified
Tolerance:±0.1mm

For additional information, visit jabil.com

REGULATORY COMPLIANCE

FEATURE	REFERENCE STANDARDS	PERFORMANCE
ESD-HBM	JESD22-A114-B	1KV high speed Pins, 2KV other Pins
ESD-Air Discharge	IEC 61000-4-2	+/-15KV
ESD-Contact Discharge	IEC 61000-4-2	+/-8KV
EMC-RE	FCC Part 15 Class B	
EMC-RS	IEC 61000 4-3	
ROHS 2.0	2011/65/EU	

For additional information, visit [jabil.com](https://www.jabil.com)

About Jabil

At Jabil (NYSE: JBL), we are proud to be a trusted partner for the world's top brands, offering comprehensive engineering, manufacturing, and supply chain solutions. With over 50 years of experience across industries and a vast network of over 100 sites worldwide, Jabil combines global reach with local expertise to deliver both scalable and customized solutions. Our commitment extends beyond business success as we strive to build sustainable processes that minimize environmental impact and foster vibrant and diverse communities around the globe.