ATGBICS®

Technical Datasheet

AOC-OSFP800G-xM

800GBase OSFP Active Optical Cable

Hot Pluggable, 0.5m to 50m Lengths, Commercial Temperature

FEATURES

- Hot-pluggable OSFP form factor
- VCSEL transmitter and PIN PD receiver
- Support 850Gb/s aggregate bit rate
- Compliant with IEEE 802.3ck-2022:
- 8x100GAUI-1 C2M electrical interface
- Compliant with OSFP MSA Specification Rev 5.0 Type 2 housing
- Support 0.5m - 50m transmission with OM4 MMF
- Compliant with CMIS Rev 5.0
- Commercial Operating Temperature Range: 0°C to 70°C
- Two wire serial Interface with digital diagnostic monitoring
- Complies with EU Directive 2011/65/EU (RoHS compliant)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min.	Typical	Max.	Unit
Storage Temperature	T_S	-40	-	85	°C
Supply Voltage	V_{CC}	-0.5	-	3.6	V
Relative Humidity (non-condensing)	RH	5	-	85	%
Data Input Voltage Differential	$\|V_{DIP}-V_{DIN}\|$	-	-	1	V
Control Input Voltage	V_I	-0.3	-	V_{CC}+0.5	V
Control Output Current	I_O	-20	-	20	mA

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RECOMMENDED OPERATING ENVIRONMENT

Parameter	Symbol	Min.	Typical	Max.	Unit	Note
Operating Case Temperature	To	0	-	70	ºC	
Power Supply Voltage	VCC	3.135	3.3	3.465	V	
Instantaneous peak current at hot plug	ICC_IP	-	-	6400	mA	
Sustained peak current at hot plug	ICC_SP	-	-	5328	mA	
Maximum Power Dissipation	PD	-	-	16	W	
Maximum Power Dissipation, Low Power Mode	PDLP	-	-	2	W	
Signaling Speed per Lane	DRL	-	53.125	-	GBd	
Control Input Voltage High	VIH	VCC*0.7	-	VCC+0.3	V	
Control Input Voltage Low	VIL	-0.3	-	VCC*0.3	V	
Two Wire Serial Interface Clock Rate		-	-	400	kHz	
Power Supply Noise 1 kHz - 1 MHz (p-p)		-	-	66	mVpp	
Operating Distance	L	0.5	-	50	m	1

Note:

1. 0.5m to 30m for OM3, 0.5m to 50m for OM4 and OM5 with FEC

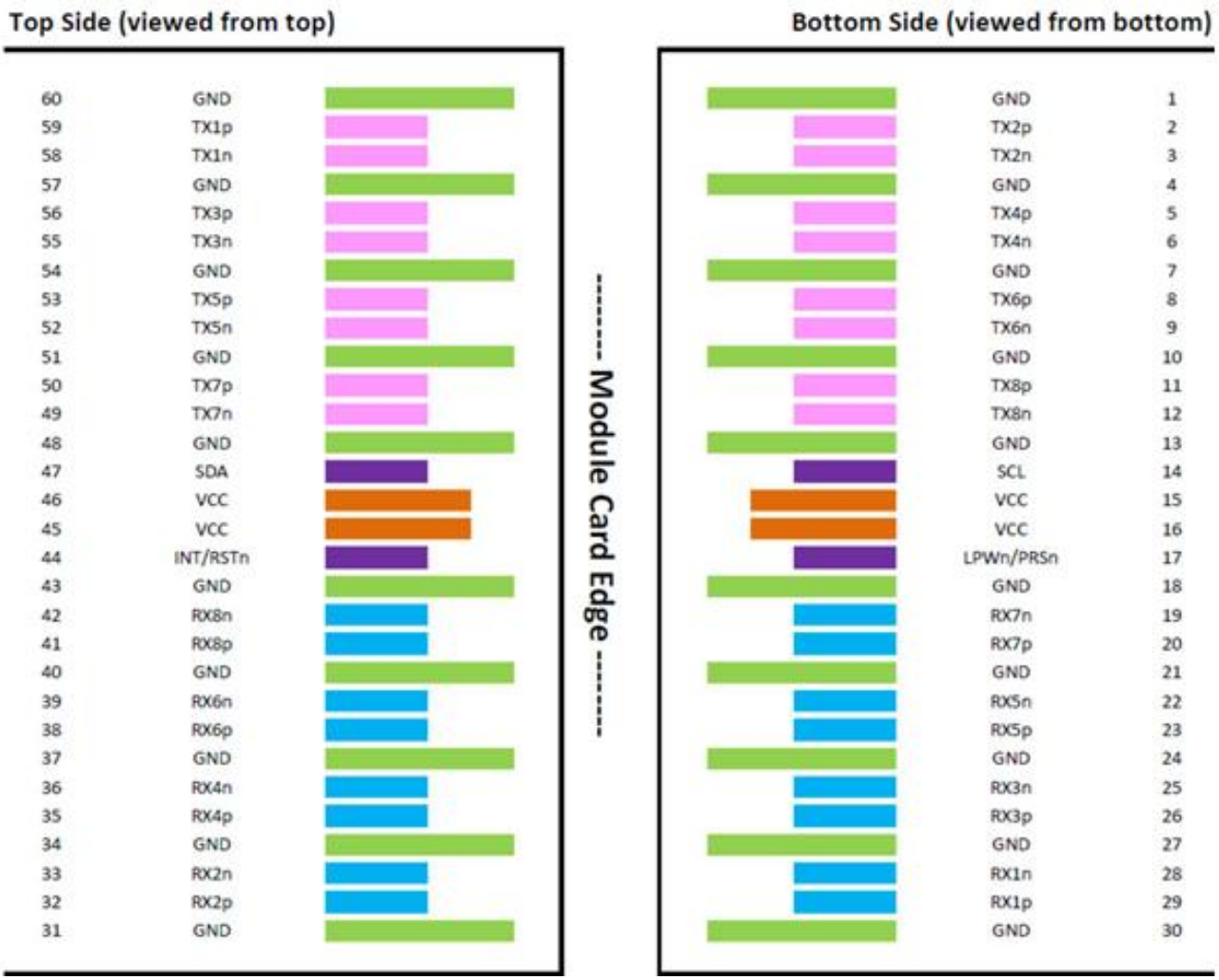
ELECTRICAL CHARACTERISTICS – HIGH SPEED SIGNAL

Parameter	Symbol	Min.	Typical	Max.	Unit
RECEIVER (Module Output, TP4)					
Peak-to-peak AC common-mode voltage **Low-frequency, VCMLF** **Full-band, VCMFB**	-	-	-	 32 80	mV
Differential peak-to-peak output voltage **Short mode** **Long mode**	-	-	-	 600 845	mV
Eye height	EH	15	-	-	mV
Vertical eye closure	VEC	-	-	12	dB
Common-mode to differential-mode return loss	RLDc	802.3ck 120G-1			dB
Effective return loss	ERL	8.5	-	-	dB
Differential termination mismatch	-	-	-	10	%
Transition time	-	8.5	-	-	ps
DC common-mode voltage tolerance	-	-0.35	-	2.85	V

ELECTRICAL CHARACTERISTICS – LOW SPEED CONTROL & SENSE SIGNALS

Parameter	Symbol	Min.	Max.	Unit
Module output SCL and SDA	V_{OL}	0	0.4	V
Module Input SCL and SDA	V_{IL}	-0.3	V_{CC}*0.3	V
	V_{IH}	V_{CC}*0.7	V_{CC}+0.5	V
INT/RSTn	Comply with OSFP MSA 5.0 Table 13-4			

PIN ASSIGNMENT



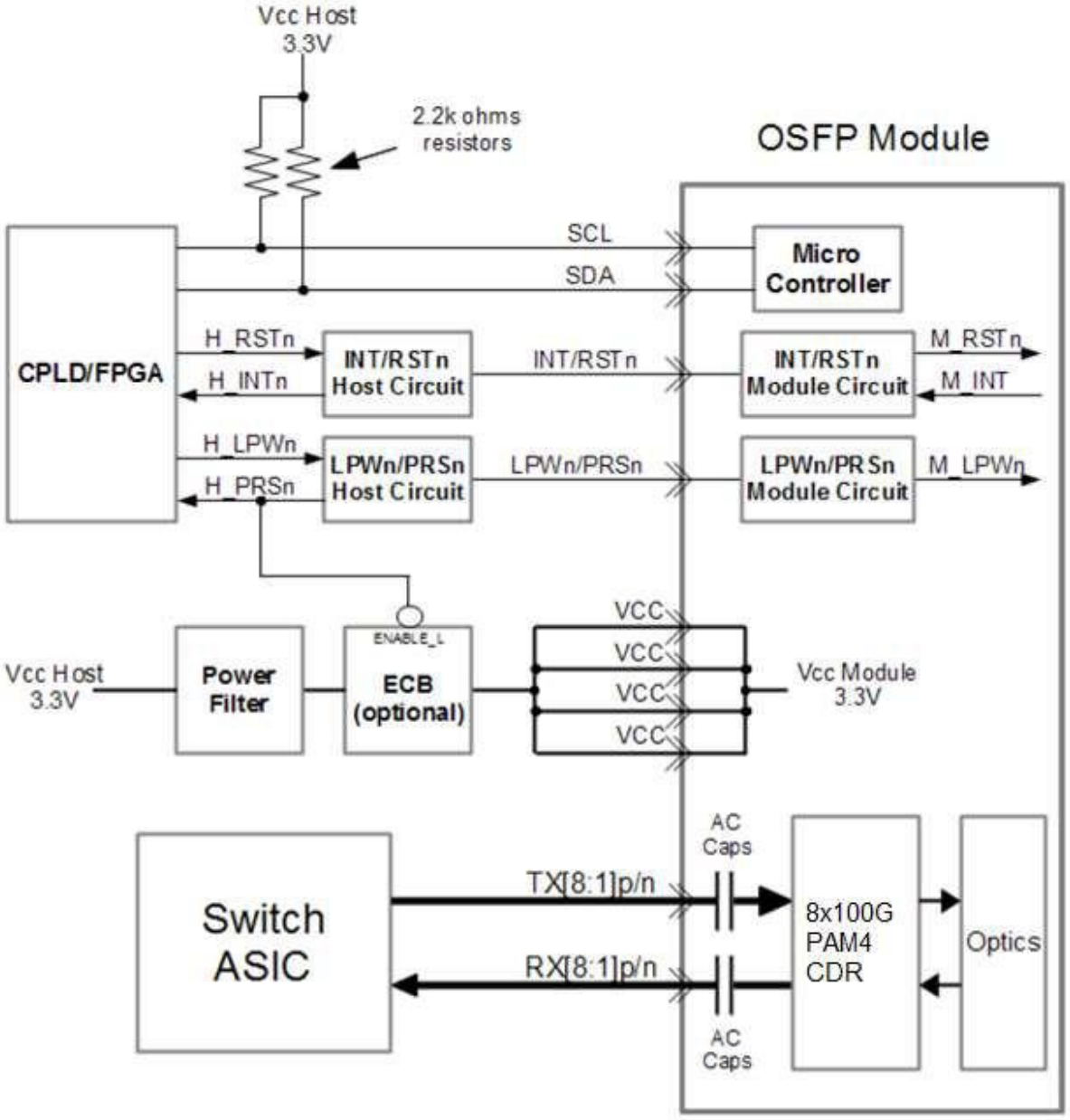
Pinout definitions of OSFP module inputs/outputs

Pin	Logic	Symbol	Definition	Pin	Logic	Symbol	Definition
1		GND	Ground	**31**		GND	Ground
2	CML-I	TX2p	Transmitter Data Non-Inverted	**32**	CML-O	RX2p	Receiver Data Non-Inverted
3	CML-I	TX2n	Transmitter Data Inverted	**33**	CML-O	RX2n	Receiver Data Inverted
4		GND	Ground	**34**		GND	Ground
5	CML-I	TX4p	Transmitter Data Non-Inverted	**35**	CML-O	RX4p	Receiver Data Non-Inverted
6	CML-I	TX4n	Transmitter Data Inverted	**36**	CML-O	RX4n	Receiver Data Inverted
7		GND	Ground	**37**		GND	Ground
8	CML-I	TX6p	Transmitter Data Non-Inverted	**38**	CML-O	RX6p	Receiver Data Non-Inverted
9	CML-I	TX6n	Transmitter Data Inverted	**39**	CML-O	RX6n	Receiver Data Inverted
10		GND	Ground	**40**		GND	Ground
11	CML-I	TX8p	Transmitter Data Non-Inverted	**41**	CML-O	RX8p	Receiver Data Non-Inverted
12	CML-I	TX8n	Transmitter Data Inverted	**42**	CML-O	RX8n	Receiver Data Inverted
13		GND	Ground	**43**		GND	Ground
14	LVCMOS-I/O	SCL	2-wire Serial interface clock	**44**	Multi-Level	INT/RSTn	Module Interrupt / Module Reset
15		VCC	+3.3V Power	**45**		VCC	+3.3V Power
16		VCC	+3.3V Power	**46**		VCC	+3.3V Power
17	Multi-Level	LPWn/PRSn	Low-Power Mode / Module Present	**47**	LVCMOS-I/O	SDA	2-wire Serial interface data
18		GND	Ground	**48**		GND	Ground
19	CML-O	RX7n	Receiver Data Inverted	**49**	CML-I	TX7n	Transmitter Data Inverted
20	CML-O	RX7p	Receiver Data Non-Inverted	**50**	CML-I	TX7p	Transmitter Data Non-Inverted
21		GND	Ground	**51**		GND	Ground
22	CML-O	RX5n	Receiver Data Inverted	**52**	CML-I	TX5n	Transmitter Data Inverted
23	CML-O	RX5p	Receiver Data Non-Inverted	**53**	CML-I	TX5p	Transmitter Data Non-Inverted
24		GND	Ground	**54**		GND	Ground
25	CML-O	RX3n	Receiver Data Inverted	**55**	CML-I	TX3n	Transmitter Data Inverted
26	CML-O	RX3p	Receiver Data Non-Inverted	**56**	CML-I	TX3p	Transmitter Data Non-Inverted
27		GND	Ground	**57**		GND	Ground
28	CML-O	RX1n	Receiver Data Inverted	**58**	CML-I	TX1n	Transmitter Data Inverted
29	CML-O	RX1p	Receiver Data Non-Inverted	**59**	CML-I	TX1p	Transmitter Data Non-Inverted
30		GND	Ground	**60**		GND	Ground

DIGITAL DIAGNOSTIC MONITOR

Parameter	Range	Accuracy	Unit	Calibration
Temperature	0 to 70	±3	ºC	Internal
Voltage	3.135 to 3.465	±3%	V	Internal

RECOMMENDED HOST BOARD



Recommended OSFP host board schematic

MECHANICAL DIMENSIONS (UNITS: mm)