ATGBICS® by APPROVED TECHNOLOGY

Technical Datasheet

DAC-OSFP-800G-xM

800GBase OSFP Direct Attach Cable

Copper, Passive, 0.5m to 2m Lengths, Commercial Temperature

FEATURES

- Products Compliance with CMIS5.0, OSFP_MSA Rev5.0
- Ethernet-Compliance with InfiniBand NDR & IEEE802.3ck
- Support 112G (PAM4) electrical data rates/channel
- Support I2C two-line string interface, CMIS Rev5.0
- Support for hot plugging
- Low crosstalk/Low power
- Maximum Link Length 2 metres
- RoHS Compliance
- Commercial Operating Temperature Range: 0°C to +70°C

APPLICATIONS

- 800G Ethernet
- Data storage and communication
- Data center, cloud server

DESCRIPTION

The 800G OSFP112 Passive Direct Attach Copper Twinax Cable is designed for use in 800G Ethernet. OSFP112 is the module and cage/connector system based on current OSFP, targeting 112Gbps per lane in an 8x lane OSFP system and to enable the OSFP 800G interconnect ecosystem. This will greatly help the legacy OSFP users upgrade the link bandwidth to 800G per port with lower cost and shorter transition time.

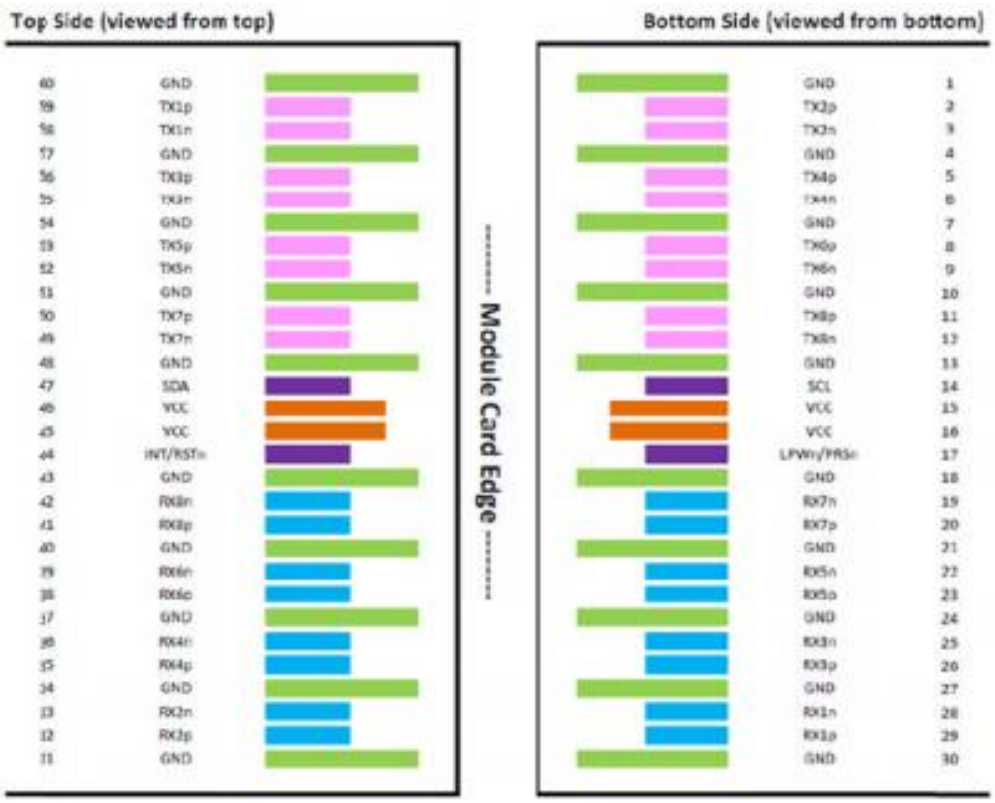
ATGBICS.com | Approved-Technology.com | +44 (0) 1202 424 518 | sales@approved-technology.com

WIRING DIAGRAM

P1			P2	
GND	1		31	GND
TX2+	2	⟷	32	RX2+
TX2-	3	⟷	33	RX2-
GND	4		34	GND
TX4+	5	⟷	35	RX4+
TX4-	6	⟷	36	RX4-
GND	7		37	GND
TX6+	8	⟷	38	RX6+
TX6-	9	⟷	39	RX6-
GND	10		40	GND
TX8+	11	⟷	41	RX8+
TX8-	12	⟷	42	RX8-
GND	13		43	GND
SCL	14		44	INT/RSTn
VCC	15		45	VCC
VCC	16		46	VCC
LPWn/PRSn	17		47	SDA
GND	18		48	GND
RX7-	19	⟷	49	TX7-
RX7+	20	⟷	50	TX7+
GND	21		51	GND
RX5-	22	⟷	52	TX5-
RX5+	23	⟷	53	TX5+
GND	24		54	GND
RX3-	25	⟷	55	TX3-
RX3+	26	⟷	56	TX3+
GND	27		57	GND
RX1-	28	⟷	58	TX1-
RX1+	29	⟷	59	TX1+
GND	30		60	GND

P1			P2	
GND	31		1	GND
RX2+	32	⟷	2	TX2+
RX2-	33	⟷	3	TX2-
GND	34		4	GND
RX4+	35	⟷	5	TX4+
RX4-	36	⟷	6	TX4-
GND	37		7	GND
RX6+	38	⟷	8	TX6+
RX6-	39	⟷	9	TX6-
GND	40		10	GND
RX8+	41	⟷	11	TX8+
RX8-	42	⟷	12	TX8-
GND	43		13	GND
INT/RSTn	44		14	SCL
VCC	45		15	VCC
VCC	46		16	VCC
SDA	47		17	LPWn/PRSn
GND	48		18	GND
TX7-	49	⟷	19	RX7-
TX7+	50	⟷	20	RX7+
GND	51		21	GND
TX5-	52	⟷	22	RX5-
TX5+	53	⟷	23	RX5+
GND	54		24	GND
TX3-	55	⟷	25	RX3-
TX3+	56	⟷	26	RX3+
GND	57		27	GND
TX1-	58	⟷	28	RX1-
TX1+	59	⟷	29	RX1+
GND	30		60	GND

PIN



ENVIRONMENTAL PERFORMANCE

Parameter		Requirement	Test Condition
Differential Impedance	Cable Impedance	100±5Ω	Rise time of 25ps (20 % - 80 %).
	Paddle Card Impedance	100±10Ω	
	Cable Termination Impedance	100±10Ω	
Differential (Input/Output) Return loss S_{DD11}/S_{DD22}		Return_loss(f)≥ $\begin{cases} 16.5-2\sqrt{f} & 0.05 \leqslant f < 4.1 \\ 10.66-14\log_{10}(f/5.5) & 4.1 \leqslant f \leqslant 40 \end{cases}$ Where f is the frequency in GHz Return loss(f) is the return loss at frequency f	10MHz≤f ≤40 GHz
Differential to common-mode (Input/Output) Return loss S_{CD11}/S_{CD22}		Return_loss(f)≥ $\begin{cases} 22-10(f/26.56) & 0.05 \leq f < 26.56 \\ 15-3(f/26.56) & 26.56 \leq f \leq 40 \end{cases}$ Where f is the frequency in GHz Return_loss(f) is the Differential to common-mode return loss at frequency f	50MHz≤f ≤40GHz
Common-mode to Common-mode (Input/Output) Return loss S_{CC11}/S_{CC22}		*Return_loss(f)*≥1.8dB 0.05≤f≤*40* Where f is the frequency in GHz Return_loss(f) is the common-mode to common-mode return loss at frequency f	50MHz≤f ≤40GHz
Differential Insertion Loss (S_{DD21} Max.)		(Differential Insertion Loss Max. For TPa to TPb Excluding Test fixture) Insertion _loss(f)≥-19.75dB 0.05≤f≤26.56 Where f is the frequency in GHz Insertion Loss (f) Differential Insertion Loss at frequency f	50MHz≤f ≤40GHz
Insertion Loss Deviation		-0.176*f - 0.7 ≤ ILD ≤ 0.176* f + 0.7	50MHz≤f ≤26.56GHz
Differential to common-mode Conversion Loss-Differential Insertion Loss (SCD21-SDD21)		Conversion _loss(f) – IL(f)≥ $\begin{cases} 10 & 0.05 \leqslant f < 12.89 \\ 14-0.3108 & 12.89 \leqslant f < 40 \end{cases}$ Where f is the frequency in GHz Conversion loss (f) is the cable assembly differential to common-mode conversion loss IL(f) is the cable assembly insertion loss	50MHz≤f ≤40GHz
MDNEXT (multiple disturber near-end crosstalk)		≥35dB @26.5GHz	10MHz≤f ≤26.5GHz

CONTINUED

Low Level Contact Resistance	70milliohms Max. From initial.	EIA-364-23: Apply a maximum voltage of 20mV and a current of 100 mA
Insulation Resistance	10mOhms (Min.)	EIA364-21: AC 300V 1 minute
Dielectric Withstanding Voltage	NO disruptive discharge.	EIA-364-20: Apply a voltage of 300 VDC for 1 minute between adjacent terminals and between adjacent terminals and ground

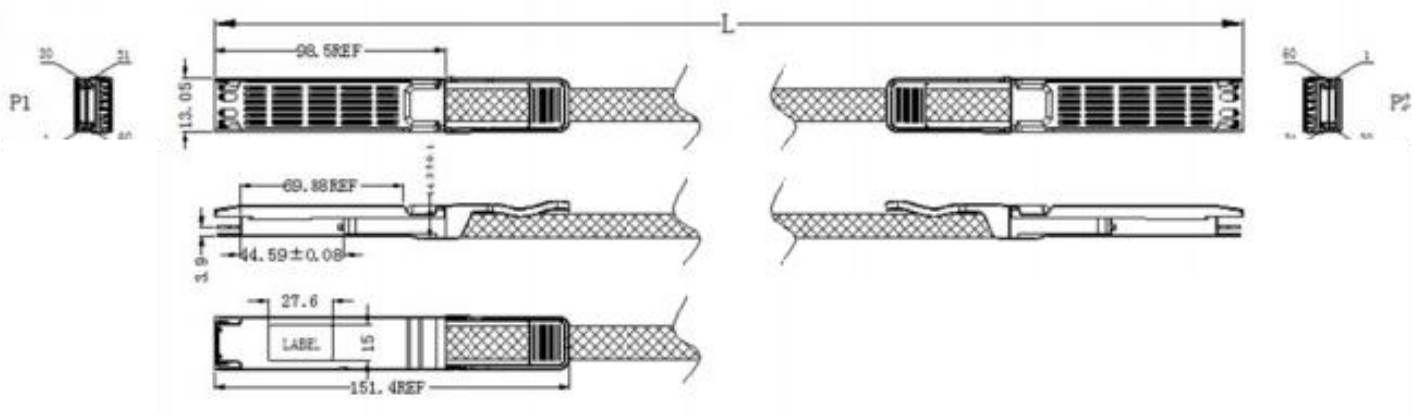
ENVIRONMENTAL PERFORMANCE

Parameter	Requirement	Test Condition
Operating Temperature Range	0°C to +70°C	Cable operating temperature range.
Storage Temperature Range (in packed condition)	-40°C to +80°C	Cable storage temperature range in packed condition.
Thermal Cycling Non-Powered	No evidence of physical damage	EIA-364-32D, Method A, -25 to 85°C, 100 cycles, 15 min. dwells
Salt Spraying	48 hours salt spraying after shell corrosive area less than 5%.	EIA-364-26
Mixed Flowing Gas	Pass electrical tests per 3.1 after stressing. (For connector only)	EIA-364-35 Class II, 14 days.
Temperature Life	No evidence of physical damage	EIA-364-17C w/ RH, Damp heat 85°C at 85% RH for 500 hours then return to ambient
Cable Cold Bend	4H, No evidence of physical damage	Condition: -20°C±2°C, mandrel diameter is 6 times the cable diameter.

MECHANICAL & PHYSICAL CHARACTERISTICS

Parameter	Requirement	Test Condition
Vibration	Pass electrical tests per 3.1 after stressing.	Clamp & vibrate per EIA-364-28E, TC-VII, test condition letter - D, 15 minutes in X, Y & Z axis.
Cable Plug Retention in Cage	125N Min. No evidence of physical damage	No functional damage to module, connector, or cage with latching mechanism activated. Per OSFP_Specification_Rev5_0 5.0
Cable Retention in Plug	90N Min. No evidence of physical damage	Cable plug is fixtured with the bulk cable hanging vertically. A 90N axial load is applied (gradually) to the cable jacket and held for 1 minute. Per EIA-364-38B
Mechanical Shock	Pass electrical tests Per 3.1 after stressing.	Clamp and shock per EIA-364-27B, TC-G, 3 times in 6 directions, 100g, 6ms.
Cable Plug Insertion	40N Max. (55N)	Per OSFP_Specification_Rev5_0 5.0 Module to be inserted into connector and cage with latch mechanism engaged. (55N if the cage has riding heatsink)
Cable plug Extraction	30N Max. (45N)	Per OSFP_Specification_Rev5_0 5.0 Module to be removed from connector and cage with latching mechanism disengaged. (45N if the cage has riding heatsink)
Durability	50 cycles, No evidence of physical damage	Per OSFP_Specification_Rev5_0 5.0, Number of cycles for an individual module, to be tested with cage, connector, and module; latches may be locked out during testing

MECHANICAL DIMENSIONS (UNITS: mm)



GAUGE	OD	BEND RADIUS “R”	MIN. BEND RADIUS “L”
30AWG	9.5mm	19mm	65mm
28AWG	10.2MM	21MM	81MM