FluxLight
OPTICAL TRANSCEIVERS

Datasheet

QFX-SFP-DAC-1M-FL

10G, SFP+ to SFP+, Passive DAC, Twinax Copper, 30 AWG, 1m

Quick Spec

Rate Category:	10G
Data Rate:	10Gb/s per channel
Standard / Protocol:	SFP+ MSA (SFF-8431)
Cable Class:	Passive DAC (twinax copper)
Connector A:	SFP+
Connector B:	SFP+
AWG:	30 AWG
Length:	1m
DDM:	Not supported (passive)



Overview

The FluxLight QFX-SFP-DAC-1M-FL is a 1 m passive direct attach copper (DAC) twinax cable assembly with an SFP+ connector on each end, for 10 Gigabit Ethernet links between SFP+ ports. It is a cost-effective, low-latency alternative to optical transceivers for short in-rack and adjacent-rack connections between switches, routers, servers, storage arrays and high-performance computing (HPC) clusters.

The passive design has no signal amplification in the cable assembly. Each end is compliant with SFF-8431 (SFP+) and carries an EEPROM for identification. Every FluxLight cable is programmed and tested for compatibility with the target OEM platform and is backed by a lifetime warranty.

Features

- Compliant with SFF-8431 (SFP+ MSA)
- 10 Gb/s per channel transmission
- Passive twinax copper, 30 AWG, 1 m
- EEPROM in cable assembly for identification
- Optimized PCB with automated soldering process
- Stamped EMI ground finger
- Pull-to-release unlatching
- RoHS compliant
- 100% compatible with and programmed for the target OEM platform
- Backed by a FluxLight lifetime warranty

Applications

- 10 Gigabit Ethernet
- Short-reach in-rack and adjacent-rack links between switches, servers and storage

Cable Specifications

Parameter	Value
Connector A	SFP+
Connector B	SFP+
Cable type	Passive twinax copper
Conductor gauge	30 AWG
Cable length	1 m
Differential impedance	100 Ω (typical)

High Speed Characteristics

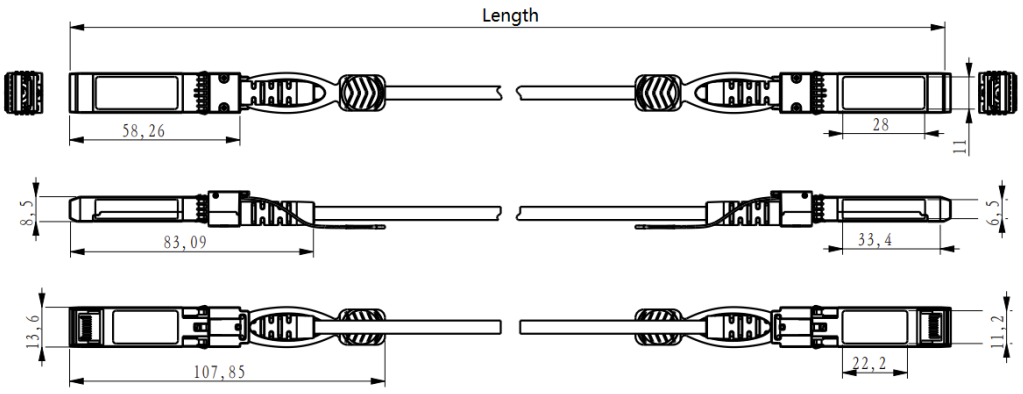
Parameter	Symbol	Min	Typical	Max	Unit	Notes
Differential Impedance	TDR	90	100	110	Ω	
Insertion loss	SDD21	-17.04			dB	At 5.15625 GHz
Differential Return Loss	SDD11 SDD22			See Note 1	dB	At 0.05 to 4.1 GHz
				See Note 2	dB	At 4.1 to 11.1 GHz
Differential to common-mode return loss	SCD11 SCD22			-10	dB	At 0.2 to 11.1 GHz
Common-mode to common-mode output return loss	SCC11 SCC22			-3	dB	At 0.01 to 11.1 GHz

1. Reflection coefficient given by SDD11(dB) < −12 + 2 × √f, with f in GHz.
2. Reflection coefficient given by SDD11(dB) < −6.3 + 13 × log10(f/5.5), with f in GHz.

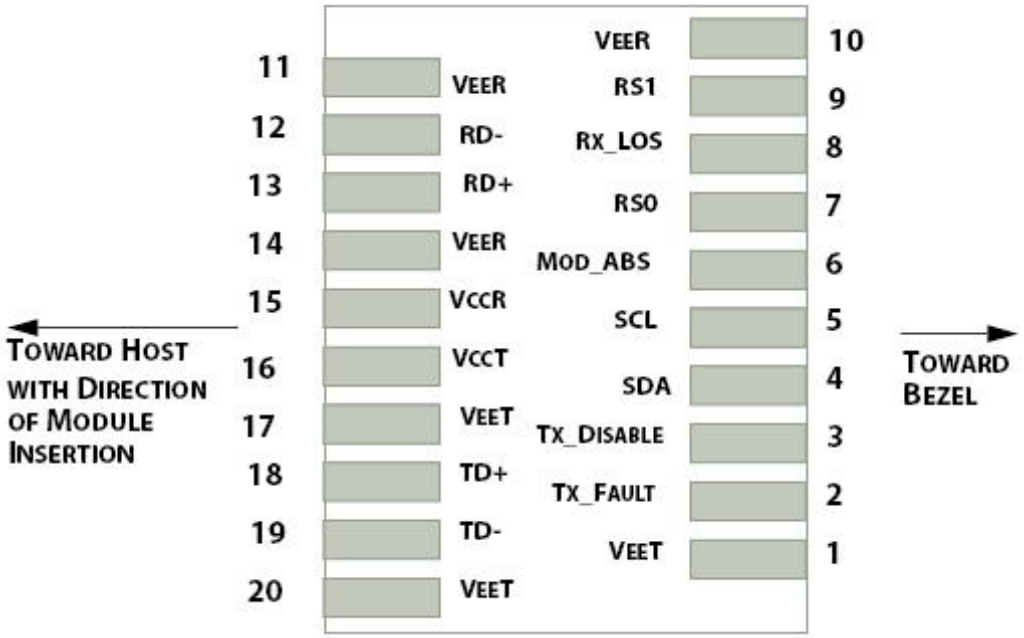
Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1(>2000 Volts)
Electromagnetic Interference(EMI)	FCC Class B	Compliant with Standards
	CENELEC EN55022 Class B	
	CISPR22 ITE Class B	
RF Immunity(RFI)	IEC61000-4-3	Typically shows no measurable effect from a 10 V/m field swept from 80 to 1000 MHz
RoHS Compliance	RoHS Directive 2011/65/EU and its amendment (EU) 2015/863	RoHS (EU) 2015/863 compliant

Mechanical Dimensions

Units: mm



Pin Assignment and Description



PIN #	Symbol	Description	Remarks
1	VeeT	Transmitter Ground	
2	TFAULT	Transmitter Fault	
3	TDIS	Transmitter Disable	
4	SDA	Data line for serial ID	
5	SCL	Clock line for serial ID	
6	MOD_ABS	Module Absent. Grounded within the module	
7	RS0	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	
9	RS1	No connection required	
10	VeeR	Receiver Ground	

Pin Assignment and Description (Continued)

PIN #	Symbol	Description	Remarks
11	VeeR	Receiver Ground	
12	RD–	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	VeeR	Receiver Ground	
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	Transmitter Ground	
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD–	Transmitter Inverted DATA in. AC coupled	
20	VeeT	Transmitter Ground	

ESD

The cable assembly's electrical pins are rated Class 1 (>2000 V) for electrostatic discharge per MIL-STD-883C Method 3015.7. Normal ESD precautions are still required during handling. The cable is shipped in ESD-protective packaging and should be removed from it and handled only in an ESD-protected environment.