800G QSFP-DD to 800G QSFP-DD Active Electrical Cable

QDD-800G-AExxx



Application

- Ethernet

Standards

- QSFP-DD MSA Rev6.3
- IEEE 802.3ck
- CMIS 5.0

Features

- Recognizable, Purple LSZH
- 800G to 800G Data Rate
- CMIS 5.0 Compliant
- Single 3.3V Power Supply
- Low Power Consumption: Typ 10W Power Dissipation Each End
- BER < 10^-15 (post FEC)
- Hot Pluggable
- RoHS2 Compliant
- I^2c Management Interface
- Operating Case Temperature Range: 0 to +70°C

Description

Active Electrical Cable (AEC) is a reliable replacement to Active Optical Cable (AOC) for TOR switch downlink (up to 800Gbps). Powered by FS's best-in-class signal processing technology, AEC enables low-power, high-reliability and high-speed interconnections over very thin copper cables without using any optical components.

FS's 800G AEC Active Electrical Cable is designed for hyper-scale data center use. It can sustain 8 lanes of 106G-PAM4 signal in each direction, providing bi-directional 800Gbps traffic per cable. The use and replacement of 800G AEC AEC is simple and straightforward as it adopts standard QSFP-DD type 2 form factor and complies to MSA specifications.

Product Specifications

I. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature Range	Ts	-10	+85	℃
Relative Humidity	RH	0	80	%
Supply Voltage	V_{CC}	-0.3	3.465	V

II. Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	T_{OPR}	0		+70	℃
Power Supply Voltage	V_{CC}	3.135	3.3	3.465	VDC
Bit Rate	BR		800		Gb/s
Bit Error Ratio	BER			$<10^{-15}$	

III. PIN Definitions for QSFP-DD

PinNo.	Symbol	Description
1	GND	Ground

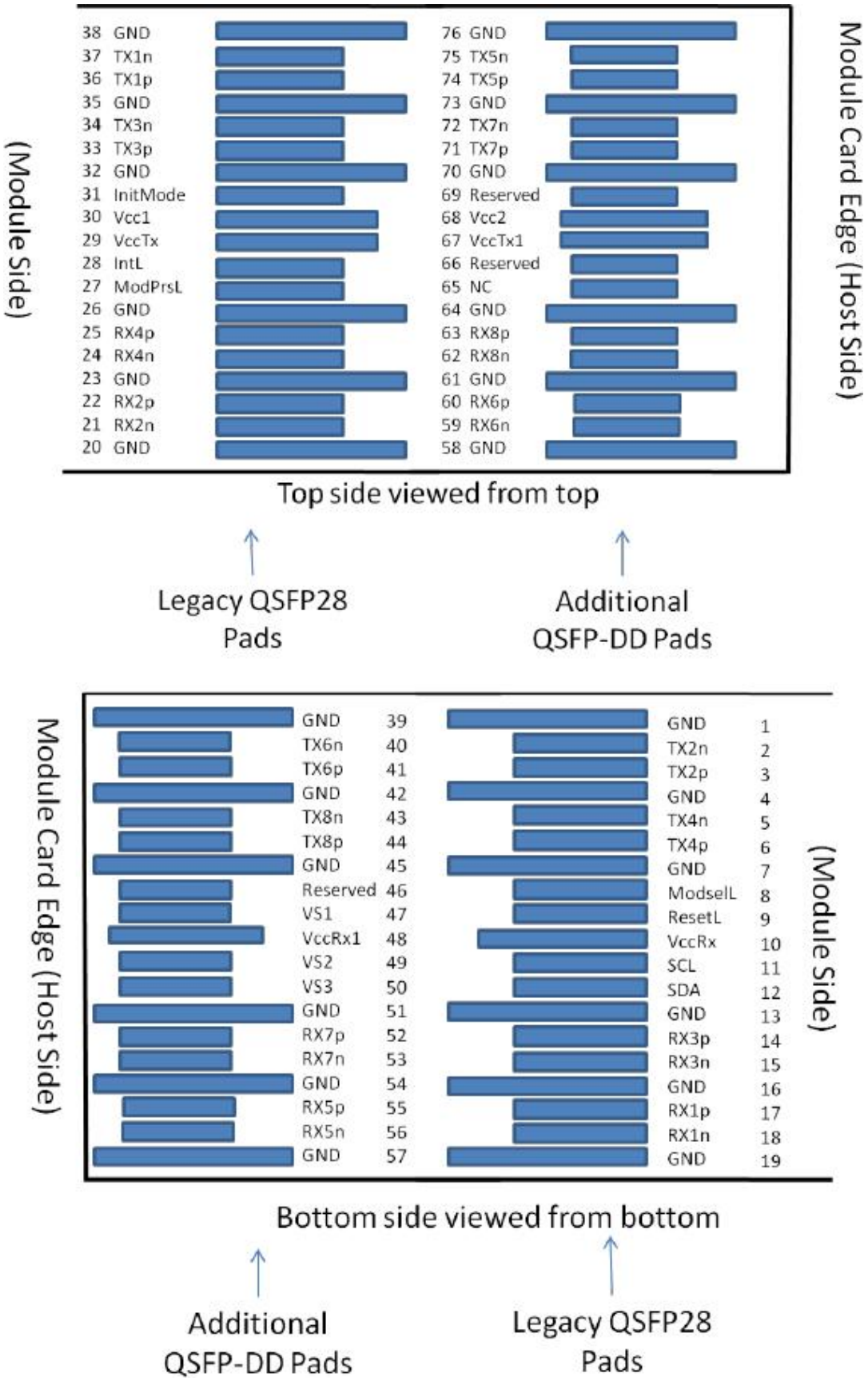
2	Tx2n	Transmitter Inverted Data Input
3	Tx2p	Transmitter Non-Inverted Data Input
4	GND	Ground
5	Tx4n	Transmitter Inverted Data Input
6	Tx4p	Transmitter Non-Inverted Data Input
7	GND	Ground
8	ModSelL	Module Select
9	ResetL	Module Reset
10	VccRx	+3.3V Power Supply for Receiver
11	SCL	2-Wire Serial Interface Clock
12	SDA	2-Wire Serial Interface Data Line
13	GND	Ground
14	Rx3p	Receiver Non-Inverted Data Output
15	Rx3n	Receiver Inverted Data Output
16	GND	Ground
17	Rx1p	Receiver Non-Inverted Data Output
18	Rx1n	Receiver Inverted Data Output
19	GND	Ground
20	GND	Ground
21	Rx2n	Receiver Inverted Data Output

22	Rx2p	Receiver Non-Inverted Data Output
23	GND	Ground
24	Rx4n	Receiver Inverted Data Output
25	Rx4p	Receiver Non-Inverted Data Output
26	GND	Ground
27	ModPrsL	Module Present
28	IntL	Interrupt
29	VccTx	+3.3V Power Supply for Transmitter
30	Vcc1	+3.3V Power Supply
31	InitMode	Initialization mode; In legacy QSFP applications, the InitMode pad is called LPMODE
32	GND	Ground
33	Tx3p	Transmitter Non-Inverted Data Input
34	Tx3n	Transmitter Inverted Data Input
35	GND	Ground
36	Tx1p	Transmitter Non-Inverted Data Input
37	Tx1n	Transmitter Inverted Data Input
38	GND	Ground
39	GND	Ground
40	Tx6n	Transmitter Inverted Data Input
41	Tx6p	Transmitter Non- Inverted Data Input

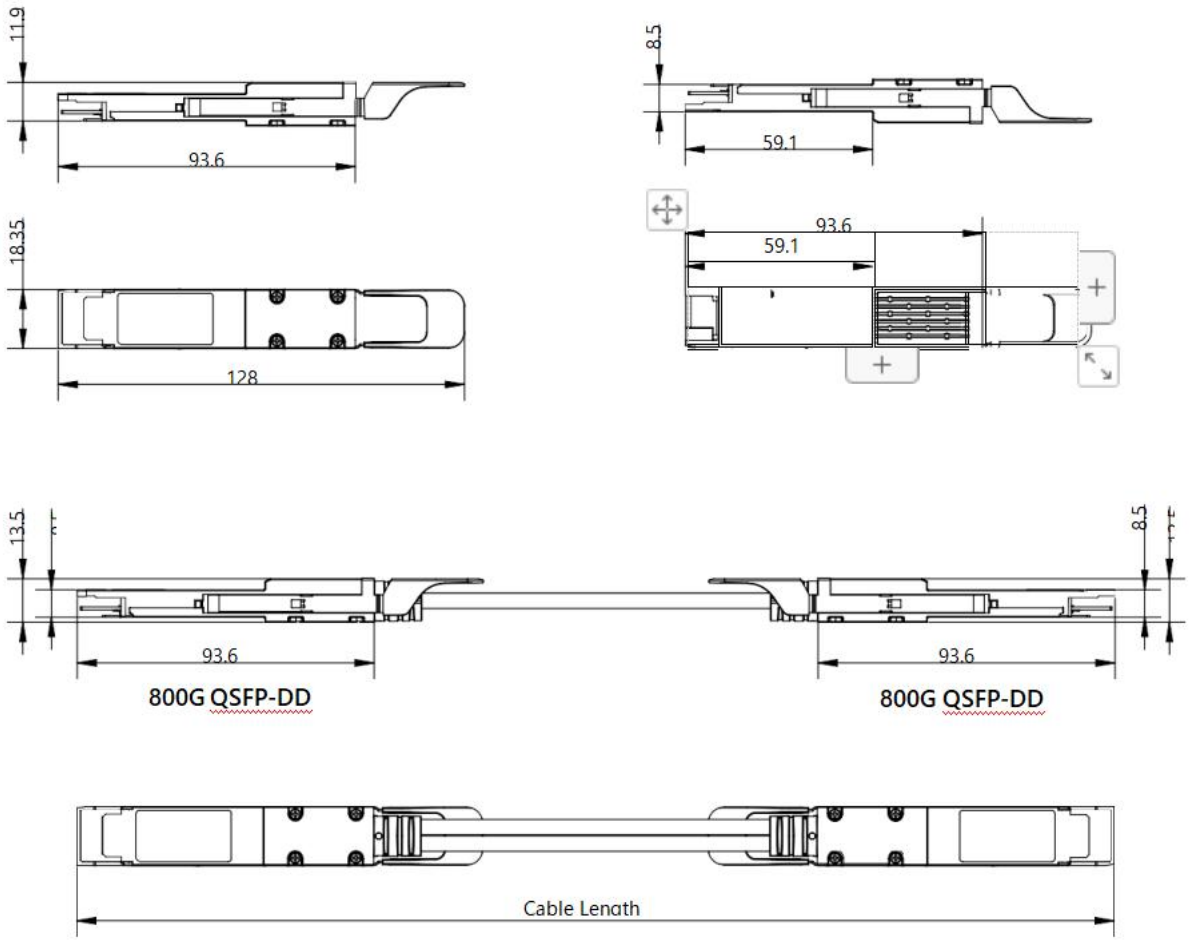
42	GND	Ground
43	Tx4n	Transmitter Inverted Data Input
44	Tx4p	Transmitter Non- Inverted Data Input
45	GND	Ground
46	Reserved	For future use
47	VSI	Module Vendor Specific 1
48	VccRx 1	3.3V Power Supply
49	VS2	Module Vendor Specific 2
50	VS3	Module Vendor Specific 3
51	GND	Ground
52	Rx7p	Receiver Non- Inverted Data Output
53	Rx7n	Receiver Inverted Data Output
54	GND	Module Ground
55	Rx5p	Recelver Non- Inverted Data Output
56	Rx5n	Recelver Inverted Data Output
57	GND	Module Ground
58	GND	Module Ground
59	Rx6n	Receiver Inverted Data Output
60	Rx6p	Recelver Non- Inverted Data Output
61	GND	Ground

62	Rx8n	Receiver Inverted Data Output
63	Rx8p	Receiver Non- Inverted Data Output
64	GND	Ground
65	NC	No C onnect
66	Reserved	For future use
67	VccT1x	3.3V Power Supply
68	Vcc2	3.3V Power Supply
69	Reserved	For future use
70	GND	Ground
71	Tx7p	Transmitter Non-Inverted Data Input
72	Tx7n	Transmitter Inverted Data Input
73	GND	Ground
74	Tx5p	Transmitter Non-Inverted Data Input
75	Tx5n	Transmitter Inverted Data Input
76	GND	Ground

IV. Electrical Pad Layout of QSFP-DD



V. Mechanical Outlines



VI. Order Information

Part Number	Data Rate	Length	Wire Gauge	Connector Type	Temp. Range	Cable Jacket
QDD-800G-AE01	800G	1m (3ft)	32 AWG	Active Copper	0-70℃	PET
QDD-800G-AE02	800G	2m (7ft)	32 AWG	Active Copper	0-70℃	PET
QDD-800G-AE03	800G	3m (10ft)	32 AWG	Active Copper	0-70℃	PET
QDD-800G-AE05	800G	5m (10ft)	328AWG	Active Copper	0-70℃	PET