

Active Electrical Cable (AEC) QSFP-DD to QSFP-DD Straight Cable with Broadcom 87850 Re-Timer



AECs use re-timers to efficiently extend the reach of Copper cables. They deliver superior performance and improved design flexibility while simultaneously reducing costs.

PRODUCT FEATURE HIGHLIGHTS

Molex AEC with Broadcom 87850 Re-Timer

- Low-power SerDes supports 22 dB at both host-side and line-side interface
- Supports 8-lane QSFP-DD 112G-PAM4
- Ultra-low latency (<25ns for re-timer)*
- Auto-negotiation and link training when paired with Broadcom ASIC
- Continuous auto-adaptive equalizers
- Line-side and host-side loopback functionality and security

*Pending verification

KEY ADVANTAGES

Achieve Next-Generation Digital Transmission Speeds

As digital transmission speeds continue to increase from 56G PAM4 to 112G PAM4 to 224G PAM4, the reach of traditional, passive, direct-attach cables (DACs) decreases. AECs bridge the gap between retreating DACs and where active optical cables (AOCs) and optical modules begin.

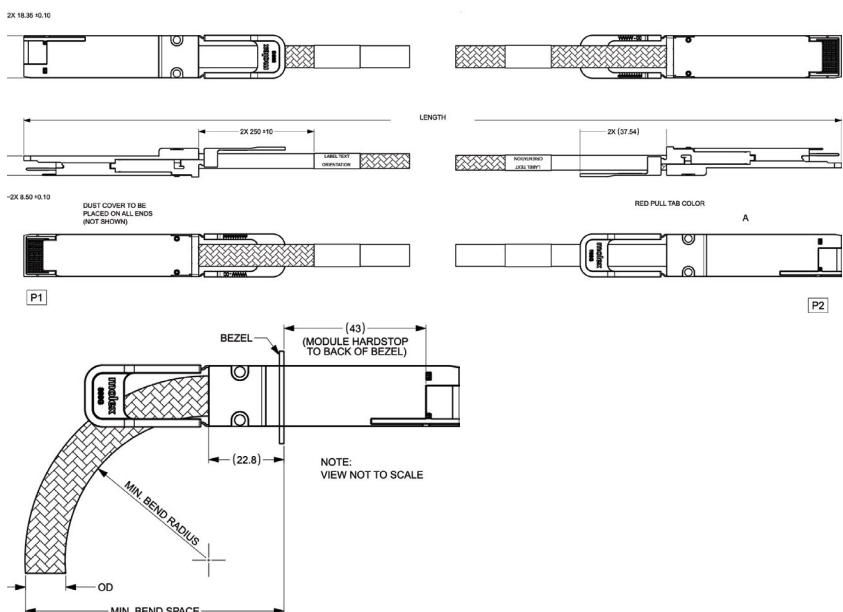
Future-Proof Infrastructure with Active Components

Re-timers in the cable assemblies reset loss and timing planes, regenerating signals and removing noise to deliver superior signal integrity over lengths up to 5+ meters. AECs reduce cable bundle size, bend space, bend radius and airflow impedance. They also have an extended loss budget of up to 40+ dB, depending on the chip.

Maximize Design Flexibility Between the ASIC and I/O

Molex's AEC design allows for a wide variety of physical-layer (PHY)/re-timer integrated circuits to be used. This gives customers the freedom to select the re-timer that best fits their application's needs. Straight, Y and X/H AEC cable configurations support shared Top-of-Rack (TOR) installations and network-managed redundancy and security.

PRODUCT DRAWINGS



Active Electrical Cable (AEC) QSFP-DD to QSFP-DD Straight Cable with Broadcom 87850 Re-Timer

MOLEX AEC SPECIFICATIONS

PHYSICAL	
Operating Temperatures	0 to +55°C ambient (0 to +70°C case)
Storage Temperatures	-40 to +85°C
Module Form Factor	QSFP-DD 800
RoHS Compliant	Yes
Low Smoke Zero Halogen Compliant	No
UL Compliance	E72548
Cable Flammability Rating	VW-1 per UL E61522, AWM Style 22058
Cable Construction	Expando over discrete twinax
OSFP-DD MSA Compliance	Rev. 7.0 pending

ELECTRICAL	
Pre-FEC BER	<1e-8
Post-FEC BER	<1e-15
Default Data Rate	800G: 112G PAM4 (data rate = 106.25 Gbps)
Data Rate Capabilities	800G: 112G PAM4 (data rate = 106.25 Gbps) 400G: 56G PAM4 (data rate = 53.125 Gbps) 200G: 25G NRZ (data rate = 25.78125 Gbps)
Host Max I2C Interface	400 kbps
Number of Data Lanes	8
Impedance	100 Ohms
CMIS Version Compliance	5.0
EMI Shielded	Yes
Full/Half Active	Full
Time to CMIS Ready	100 milliseconds
Time to Link	5 seconds
Hot Swappable/Pluggable	Yes
Power Consumption per End	7W

AEC OPTIONS

Part Number	Length (m)	AWG	Estimated Weight (g)	Cable Outside Diameter (mm)	Bend Radius (mm)	Bend Space (mm)
2178122223	1.0	34	129	6.40	19.00	48.00
2178122224	2.0	34	184	6.40	19.00	48.00
2178122225	3.0	34	239	6.40	19.00	48.00
2178122226	1.5	32	185	8.00	24.00	55.00
2178122227	2.0	32	222	8.00	24.00	55.00
2178122228	3.0	32	296	8.00	24.00	55.00
2178122229	4.0	32	370	8.00	24.00	55.00
2178122230	3.0	30	361	9.50	29.00	61.00
2178122231	4.0	30	469	9.50	29.00	61.00
2178122232	5.0	30	614	9.50	29.00	61.00
2178122233	4.0	28	598	10.90	33.00	67.00
2178122234	5.0	28	729	10.90	33.00	67.00
2178122235	6.0	28	860	10.90	33.00	67.00

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