zQSFP+ Interconnect System

Supporting next-generation 100 Gbps Ethernet and 100 Gbps InfiniBand* Enhanced Data Rate (EDR) applications, Molex's zQSFP+ Interconnect System transmits up to 28 Gbps per-serial-lane data rates with excellent signal integrity (SI) and electro magnetic interference (EMI) protection enhanced by TempFlex® Cable Assemblies

Features and Benefits

SMT Connectors (Series 170432) and Stacked Integrated Connectors and Cages (Series 171565 and 171722)

Preferential coupling design uses a narrow-edge coupled, blanked- and formed-contact geometry and insert molding	Provides superior signal integrity (SI) performance, including extremely low insertion loss (IL) of <0.8dB at frequencies up through 14 GHz
Proven 28 Gbps data rate with potential up to 40 Gbps per lane	Meets or exceeds current requirements for 100 Gigabit Ethernet and InfiniBand* 100 Gigabit (EDR) applications. Supports current 10 Gbps Ethernet, 14 Gbps (FDR) InfiniBand and 16 Gbps Fibre Channel applications
Stacked integrated connectors include an elastomeric EMI gasket (Series 171565) or a metal EMI gasket (Series 171722)	Provides superior EMI containment and suppression
Identical mating interface as the QSFP+ connector for backward compatibility	Protects end user's current QSFP+ infrastructure investment
Surface Mount Technology (SMT) design (series 170432 version only)	Provides the option for placement on both sides of the PCB
0.80mm pitch host connector designed for placement beneath EMI cage	Supports pluggable applications
Stacked integrated connectors and cages are available in three sizes (2-by-1, 2-by-2 and 2-by-3)	Offers design options for high-density applications
Drop-in replacement product from TE Connectivity	Provides a second-source option

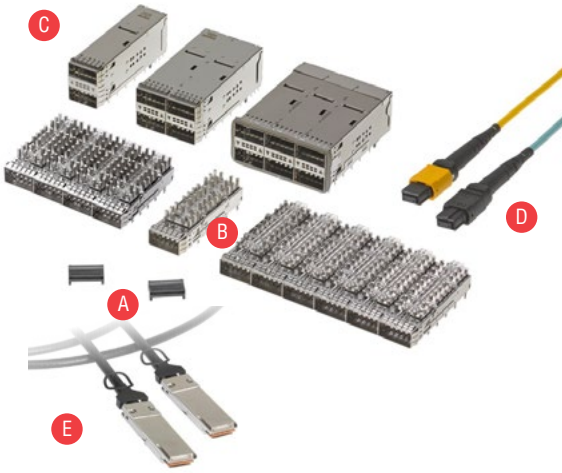
Applications

Telecommunication Equipment

- Hubs
- Servers
- Routers
- Switches
- Central Office
- Cellular Infrastructure
- Multi-Platform Service Systems

Data Networking Equipment

- Servers
- Storage



zQSFP+ Interconnect System
A. SMT Connectors
B. Stacked Integrated Connectors and Cages
C. EMI Cages
D. Optical MPO/MTP* Cable Assemblies
E. 28 Gbps TempFlex® Cable Assembly

zQSFP+ Stacked, Integrated, 2-by-1 Connector and Cagewith Spring-Finger EMI Gasket (Series 171722)

zQSFP+ Stacked, Integrated, 2-by-1 Connector and Cagewith Elastomeric EMI Gasket (Series 171565)

zQSFP+ SMT Connector (Series 170432)

zQSFP+ Interconnect System

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28 Gbps TempFlex® Cable Assemblies (Series 100297)

Fully integrated design	Incorporates all components (backshells, cable, populated PCBs) from Molex. Ensures high-quality components are compiled into a comprehensive solution with a superior cost structure
TempFlex® cable technology	Boosts electrical performance. Provides excellent operational margin, short lead times and minimal end-user cost via manufacturing efficiencies
Meets IEEE 802.3bj, InfiniBand* EDR and SAS 3.0 specifications	Functions across a wide variety of next-generation technologies and applications
Operating temperature of -20 to +85ºC	Enables use in higher temperatures and low cooling-cost environments
32, 30 and 26 AWG cables	Fulfills all industry application needs at lengths up to 5m. Enhances cost structure and lead-time

28 Gbps TempFlex® Cable Assembly (Series 100297)

Sheet-Metal (Stainless Steel) EMI Cages (Series 100014, 100015, 100016, 100017, 100019 and 100086)

Stainless steel cage construction	Offers increased robustness versus copper alloy material
3D-style press-fit pin design	Increased board retention versus typical press pins
Nickel-plated heat sink	Provides increased thermal transfer from module to heat sink
Offers up to four light pipes per port	Enables increased system functionality

zQSFP+ EMI Sheet Metal (Stainless Steel) Cage Assemblies (Series 100014, 100015, 100016, 100017, 100019, 100086)

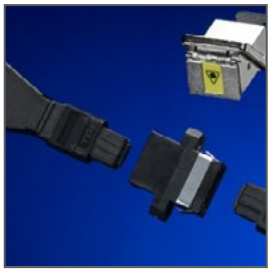
Optical MPO/MTP* Cable Assemblies (Series 106283)

MTP/MPO QSFP+ connector interface	Meets QSFP+ SFF-8665 interface specification
Low-profile round cable	Improved cable management and flexibility for routing
Standard OM3 or OM4 fiber available	Optimized bandwidth for each application
MPO/MTP breakout to duplex LC available	Allows QSFP to SFP connectivity
RoHS compliant design	Meets EU environmental requirements for electronic equipment and accessories

Optical Cable Assembly (Series 106283)

Optical MPO/MTP Loopback Adapters (Series 106005)

Compact housing	Compatible with module spacing
Enclosed fibers	No snagging or breakage of fiber/cable during installation and handling
Loop optical transmit ports to receive ports	Allows loopback testing of modules, cables during burn in and field troubleshooting



Optical MTP† Loopback Assembly (Series 106005)

zQSFP+ Interconnect System

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Specifications

28 Gbps TempFlex® Cable Assemblies

REFERENCE INFORMATION
Packaging: EMI bag

MECHANICAL
Durability:
PL1 – Performance Level 1 - 0.38µm Au – 50 cycles, 5 year life (no FMG)
PL2 – Performance Level 2 – 0.76µm AU – 250 cycles, 10 year life (14 day FMG)

PHYSICAL
Backshells – Zinc Diecast
Pull – Nylon
De-Latch – Stainless Steel

Cable – 8pr, 100 Ohms differential, CL2
RoHS Compliant: Yes
Operating Temperature: -20 to +85°C
Non-Operating Temperature: -40 to +85°C

ELECTRICAL
Frequency Range: 10 MHz to 25 GHz
Number of Points: 3999
If Bandwidth: 1 kHz
Supply Voltage: 3.3V DC +/- 5%
Supply Current (max.): 0.03A at 3.135V
Power Consumption (max.): 0.125W

SMT Connectors

REFERENCE INFORMATION
Packaging: Tape and Reel
UL File No.: E29179
CSA File No.: LR19980
Mates With: Copper Cable Assemblies (Series 74757, 111040)
Designed In: Millimeters

MECHANICAL
Contact Retention to Housing: 4.45N
Mating Force: 1.25N per circuit
Unmating Force: 0.25N per circuit
Durability: 250 cycles for 30µ" Gold (Au) plating

ELECTRICAL
Voltage: 30V
Current (max.): 0.5A; power contacts 1.0A
Contact Resistance (max.): 30 milliohms
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance (min.): 1000 Megohms

PHYSICAL
Housing: High-Temperature Thermoplastic Glass Filled, UL 94V-0, Black
Contact: Copper (Cu) Alloy
Plating:
Contact Area — 15µ" (0.38µm) or 30µ" (0.76µm) Gold (Au)
Solder Tail Area — Tin (Sn)
Underplating — Nickel (Ni)
RoHS Compliant: Yes
Operating Temperature: -40 to +80°C

Stacked Integrated Connectors and Cages

REFERENCE INFORMATION
Packaging: Tray
UL File No.: E29179
Mates With: Copper Cable Assemblies (Series 74757, 111040)
Designed In: Millimeters

MECHANICAL
Mating Force: 0.75N per circuit
Unmating Force: 0.25N per circuit
Durability: 100 cycles for 30µ" Gold (Au) plating

ELECTRICAL
Voltage: 30V
Current (max.): 0.5A; power contacts 1.0A
Contact Resistance (max.): 30 milliohms
Dielectric Withstanding Voltage: 500V AC
Insulation Resistance (min.): 1000 Megohms

PHYSICAL
Housing: High-Temperature Thermoplastic Glass Filled, UL 94V-0, Black
Contact: Copper (Cu) Alloy
Plating:
Contact Area —30µ" (0.76µm) Gold (Au)
Signal Tail Area — Tin / Lead (Sn/Pb)
Underplating — Nickel (Ni)
RoHS Compliant: Yes – By Exemption
Operating Temperature: -40 to +80°C

EMI Sheet-Metal Cages

REFERENCE INFORMATION
Packaging: Tray and Box
Mates With: QSFP+ Cable Assemblies (Series 74757, 111040) QSFP+ Loopback Adapter (Series 74763) zQSFP+ Cables (Series 111114)
Use With: Connector (Series 170432)
Designed In: Millimeters

PHYSICAL
Plating: Nickel (Ni)
Sheet Metal: Stainless Steel
Light Pipe: Polycarbonate
Heat Sink: Aluminum (Al)
Heat Sink Finish: Nickel (Ni)
Operating Temperature: -55 to +105°C

MECHANICAL
Durability:
1 insertion to PCB
1-by-1 Mating Force (max.): 544N in immersion gold
1-by-1 Unmating Force (max.): 88N in immersion gold
1-by-6 Mating Force (max.): 1427N in immersion gold
1-by-6 Unmating Force (max.): 226N in immersion gold

Optical MPO/MTP* Cable Assemblies

REFERENCE INFORMATION
Packaging: Individual pack in a bag
Mates With: QSFP+ Modules (not provided by Molex)

MECHANICAL
Minimum Bend Radius: 31.75mm long-term

OPTICAL
Fiber Specifications:
Multi Mode: 50/125µm
Insertion Loss at Test:
Multi Mode: 0.15dB; Typ.; ≤0.5dB max.
Bandwidth: See table below

PHYSICAL
Fire Rating: OFNP (Plenum)
Operating Temp: 0 to +70°C
Storage Temp: -40 to +70°C
Jacket Dimensions:
1 to 30 Meters: 3.1mm Interconnect Cables
31 to 300 Meters: 4.5mm Distribution Cables

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Ordering Information

28 Gbps TempFlex® Cable Assemblies

Series No.	Data Rate	Wire Gauge	Lengths
100297	28 Gbps	26 AWG	3.0m, 3.5m, 4.0m, 5.0m
		30 AWG	0.5m, 1.0m, 1.5m, 2.0m
		32 AWG	0.5m, 1.0m, 1.5m, 2.0m, 2.5m, 3.0m

SMT Connectors

Order No.	Circuits	Contact Material
170432	38	0.381µm Gold, 0.762µm Gold, Gold Flash

Stacked Integrated Connectors and Cages

Order No.	Port Size	Circuits Per Port	EMI Gasket	Light Pipe
171565	2-by-1, 2-by-2, 2-by-3	38 circuits per port	Elastomeric	Arrow Up and Down
171722			Spring-Finger	

EMI Cages

Series No.	Port Size	Cage Construction	Gasket Style	PCB Interface/Retention	Light Pipes	Heat Sink
100014	1-by-1	Sheet Metal (Stainless Steel)	Spring Finger	3D Press-Fit Pin	Optional	Optional
100015	1-by-2					
100016	1-by-3					
100017	1-by-4					
100019	1-by-5					
100086	1-by-6					

Optical MPO/MTP* Cable Assemblies and Loopback Adapters

Series No.	Component	Length (m)	Bandwidth (See Bandwidth Reference Chart Below)
106283	Cable Assembly	1.00 or 5.00m	Standard or High
106005	Loopback Adapter	N/A	N/A

BANDWIDTH REFERENCE CHART

Fiber Type	Overfilled Launch Bandwidth, Min (MHz-km)		1 Gigabit Ethernet Link Distance, Min (m)		10 Gigabit Ethernet Link Distance, Min (m)	
	850nm	1300nm	850nm	1300nm	850nm	1300nm
Standard Bandwidth	500	500	600	600	86	-
High Bandwidth	1500	500	900	550	300	-

*MTP is a registered trademark of US Conec Ltd.

www.molex.com/link/zqsfp+.html

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