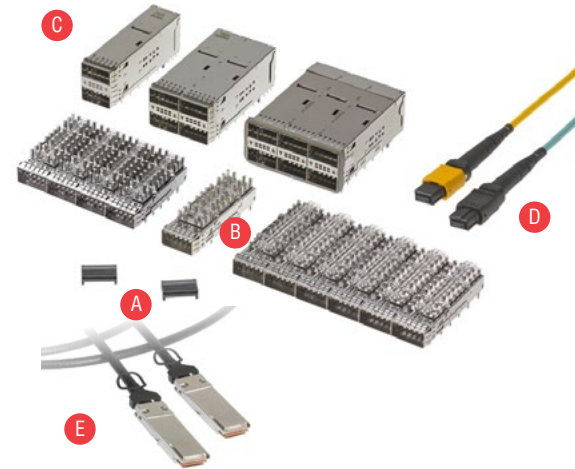


zQSFP+ Interconnect System



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

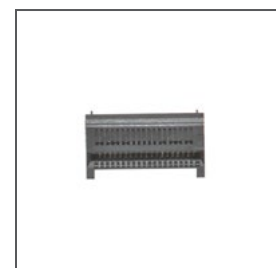
- A. SMT Connectors
- B. Stacked Integrated Connectors and Cages
- C. EMI Cages
- D. Optical MPO/MTP* Cable Assemblies
- E. 28 Gbps TempFlex® Cable Assembly



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



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 +85°C

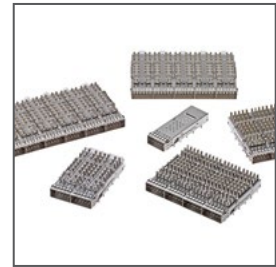
Enables use in higher temperatures and low cooling-cost environments

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)



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

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



Optical Cable Assembly (Series 106283)

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 MTP† Loopback Assembly (Series 106005)

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

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

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

MECHANICAL

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

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

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.