Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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MICRO SFP+ CONNECTOR & CABLE ASSEMBLY

micro SFP+ Connector and Cable Assembly

TE Connectivity's (TE) micro SFP+ connector and cable assembly empower you to dream big when designing your communication system. Through a footprint that's up to 50% smaller than current SFP+ interconnects, the micro SFP+ interconnects allow you to increase faceplate density while freeing up additional PCB space due to the board connector's shortened length. The products' designs have also been enhanced to improve signal routing, minimize EMI and optimize automated manufacturing processes.

- **Increases Faceplate Density / Saves PCB Space:** micro SFP+ is up to 50% smaller than current SFP+ connectors, in width and length, taking up as little as 15mm board space. One micro SFP+ frees up 19% more faceplate space than 1 SFP+ connector.
- **Improves Signal Integrity:** The cable assembly and connector were designed with a staggered contact configuration that improves signal routing. Additionally, the bottom and top contacts have been further optimized for speed.
- **Reduces EMI:** EMI is minimized through a die cast housing, cable shield crimped at 360 degrees, and an extended EMI shield over the cable's plug.
- **Optimizes Manufacturing Processes:** For manufacturing automation, the board interconnect combines the connector & cage into one finished product for automated of board placement. High temperature pin in paste soldering can be achieved as the product withstands up to 265 degrees Celsius.

Applications

- Telecommunications: Cellular infrastructure, hubs servers and switches
- Data communication: servers and storage equipment
- Medical diagnostic equipment
- Networking: Network interface, storage, power supplies and test and measurement equipment

Specifications / Protocols

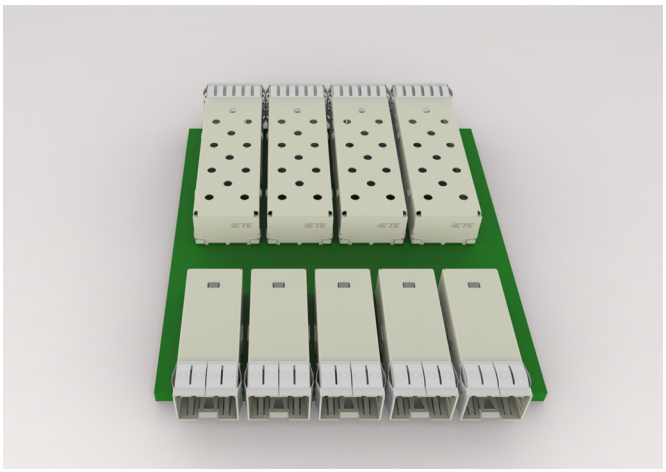
- Electrically compliant to SFF-8431
- 10 Gigabit Ethernet and Gigabit Ethernet (IEEE802.3ae)
- Fibre channel: 1, 2, 4 and 8 GFC
- InfiniBand standard (10Gbps)
- Fibre Channel over Ethernet (FCoE)
- Serial data transmission

Parts Reference Guide

Part	Configuration	Data Rate	AWG	Minimum Cable Length	Maximum Cable Length	Equalization
2142969	micro SFP+ to micro SFP+	10 Gbps	26	0.5m	6.0m	unEQ
2142970	micro SFP+ to SFP+	10 Gbps	26	0.5m	6.0m	unEQ

Connector

Part Number	Configuration	EMI Spring Finger Design	Solder Tail	Lightpipe
2246040-1	micro SFP	Yes	Yes	No
2246041-1	micro SFP+	Yes	Yes	No

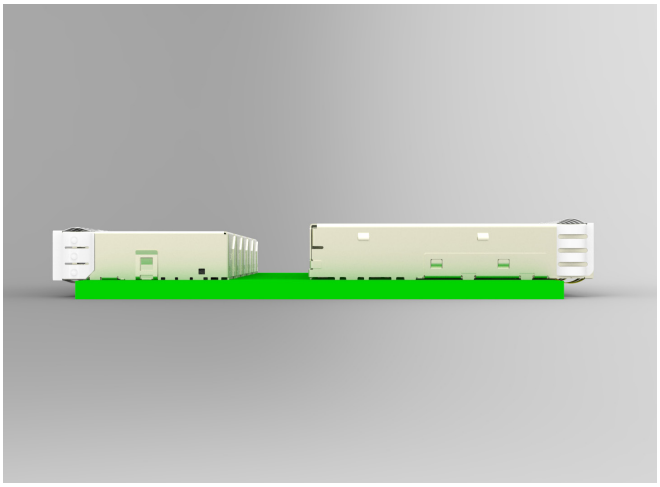


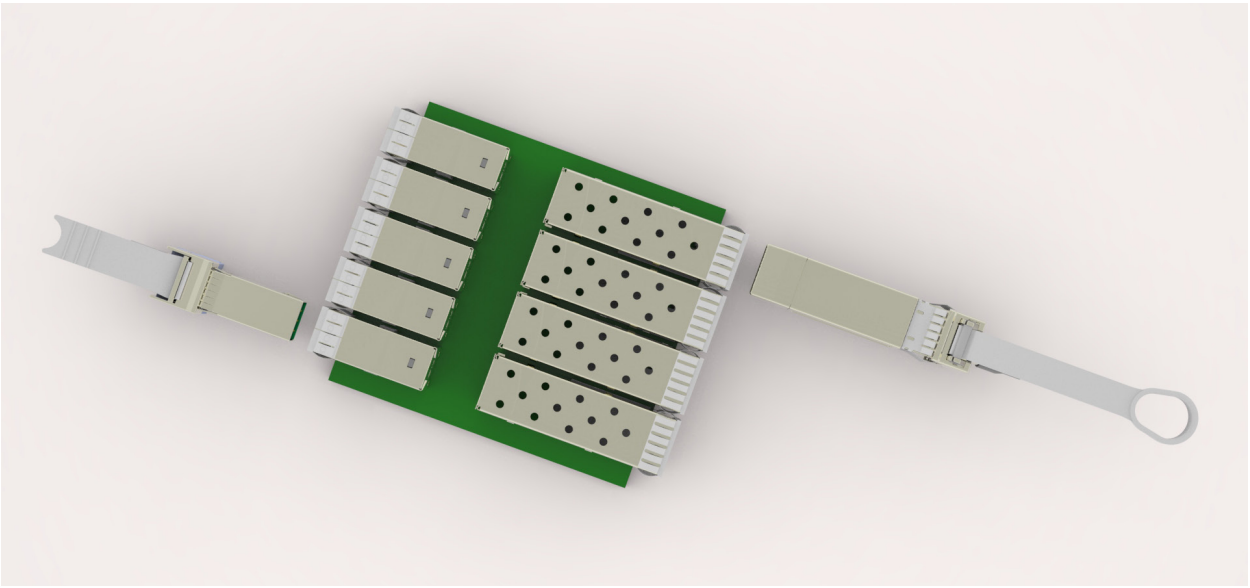
Faceplate Space Savings

Achieve more speed in the same space. Figure to the left shows four SFP+ connectors can be replaced with five micro SFP+ assemblies.

PCB Space Savings

The micro SFP+ is a little more than half the size of traditional SFP+ connectors. See figure on the right.





Smaller Connector + Smaller Cable Assembly

Overall footprint is up to 50% smaller than current SFP+ products

Micro SFP+ Board Connector

Electrical

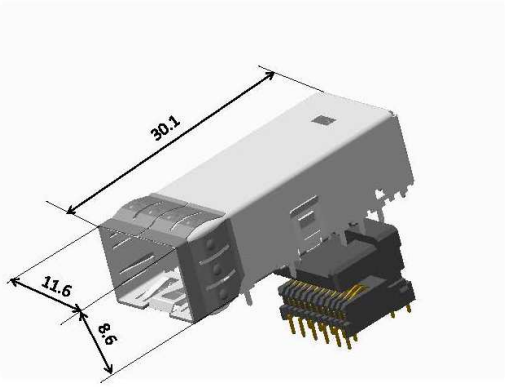
- Board connector uses approximately 50% less PCB space
- Connector height fits 15 mm board spacing practice

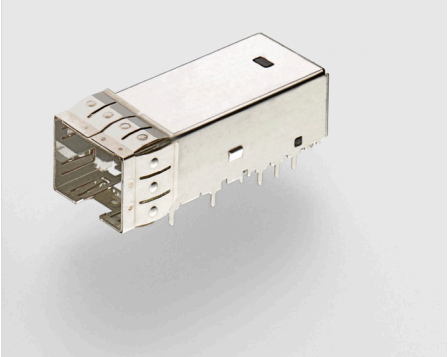
Mechanical

- Retention force: 90N maximum
- Durability: 100 cycles minimum
- Latch: Retractable pin

Material

- Cage design with EMI metal spring fingers
- Cage features a solder tail design





Features

- **Speed:** 22 position connector supporting data rates up to 10 Gbps
- **Increased Faceplate Density / Saves PCB Space:**
  - Board connector saves approximately 50% more PCB space
  - Connector height fits 15 mm board spacing practice
- **Improved Signal Integrity:** Connector designed with staggered contact configuration for improved signal routing
- **Supports Manufacturing Automation**
  - Integrated connector and cage design for one-step placement on to PCB
  - Connector withstands up to 265 degrees Celsius for high temperature pin in paste soldering
  - Cage features solder tail design
- **EMI Reduction:** Cage designed with EMI metal springs
- Compliant pin version optional

Micro SFP+ Cable Assembly

Electrical

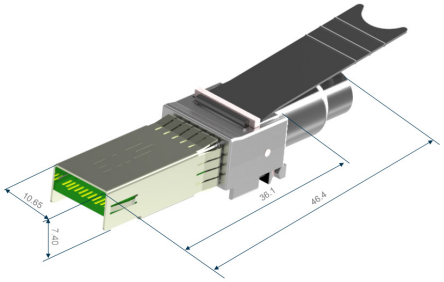
- UL rated 80°C: AWM Style 20626 80°C 30V VW-1
- Differential impedance: 100 ± 5 Ohms @ TDR
- Mutual capacitance: 14 pF/ft nominal
- Time delay: 1.35 ns/ft nominal
- Time delay skew (within pair): 70 ps/8.5 m maximum
- Time delay skew (between pair): 350 ps/8.5 m maximum
- Attenuation (SDD21)2: 10 dB/8.5 m maximum @ 1.25 GHz
- Conductor DC Resistance: 0.040 Ohms/ft nominal @ 20°C
- Tested / functional to 10 GHz

Mechanical

- Operating temperature: 0 to +70 degrees Celsius
- Storage temperature: -40 to +80 degrees Celsius
- Bend radius: 3x outer diameter static / 5x outer diameter dynamic
- Cable outer diameter: 26 AWG = 0.205 inches

Material

- Inner shield: Aluminum / poly tape
- Outer shield: Tin plated copper braid
- Jacket material: Low Smoke Zero Halogen (LSZH)
- Safety: UL recognized, CSA certified, RoHS compliant amd REACH 2010 compliant
- Interface: PCB paddle card
- Contact material: 30 µ Gold plated contact pads
- Backshell material: Tin plated Zinc die cast
- EMI spring: Tin plated copper alloy
- Latch release: Molded thermoplastic pull tab



Features

- **Speed:** Designed with Madison Cable brand TurboTwin parallel pair cable, the cable assembly supports data rates up to 10 Gbps; the cable assembly is direct attach for short reach applications
- **Improved Signal Integrity:** Staggered contact configuration for improved signal routing
- **EMI Reduction:**
  - Cable features a 360 degree braid crimp to minimize EMI
  - Extended EMI shield over the cable's connector further reduces EMI
- **Flexibility:** Available in wire size AWG 26; other sizes available on request
- **Ease of Use:** Quick-release cable latching system

Micro SFP+ Cable Assembly Electrical Performance
WDP, VMA and VCR Measurements

Passive micro SFP+ Cable Assemblies : WDP, VMA and VCR Measurements

A passive copper cable assembly will be compliant with the SFP+ MSA Rev 4.1 if the dWDP number is less than 6.75dBe. The WDP measurements shown in the table below are for the indicated wire gauge and cable length of TE production assemblies. Any cable with the same wire gauge and shorter length than the length listed below will have a lower dWDP value.

To be compliant with SFF 8431 Rev 4.1, the VMA must be less than 4.5 dB and the VCR must be greater than 33 dB. The VMA and VCR measurements shown in the table below are for the indicated wire gauge and cable length of TE production assemblies. Any cable with the same wire gauge and shorter length than the length listed below will also meet the VMA and VCR limits.

Cable Gauge	Cable Length (Meters)	Vcm (mV rms)	dWDP	VMA (dB)	VCR (dB)
Specification Limits	-	13.5	6.75	4.5	32.5
26 AWG	0.5 mtr	8.41	1.17	0.65	33.07
26 AWG	1 mtr	7.26	1.41	0.873	35.48
26 AWG	2 mtr	7.31	2.26	1.53	34.33
26 AWG	3 mtr	4.91	3.01	2.11	34.81
26 AWG	4 mtr	3.98	3.91	2.78	36.63
26 AWG	5 mtr	2.40	4.81	3.44	33.96
26 AWG	5 mtr	3.04	5.75	4.23	36.06

Frequently Asked Questions

WHAT ARE THE PERFORMANCE REQUIREMENTS FOR THE CABLE ASSEMBLY?

TE micro SFP+ copper passive cable assemblies meet the signal integrity requirements defined by the industry MSA SFF-8431. We can custom engineer cable assemblies to meet the requirements of a customer's specific system architecture.

WHAT WIRE GAUGE IS REQUIRED?

TE offers micro SFP+ cable assemblies in wire gauges #26 other gauges on request to support customers' specific cable routing requirements. Smaller wire gauges results in reduced weight, improved airflow and a more flexible cable for ease of routing.

WHAT CABLE LENGTHS ARE REQUIRED?

Cable length and wire gauge are related to the performance characteristics of the cable assembly. Longer cable lengths require heavier wire gauge, while shorter cable lengths can utilize a smaller gauge cable.

ARE THERE ANY SPECIAL CUSTOMER REQUIREMENTS?

Examples of special customer requirements include: custom cable lengths, EEPROM programming, labeling and packaging, length, company logo, signal output de-emphasis, and signal output amplitude. We can custom engineer cables to specific customer system architecture.

For More Information

te.com/products/microsfp+

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