25Gbps Optical Components

Under development
Target: 2032 and after

Automotive optical connector with cable assembly that makes high-speed optical communication systems achievable

Background or Assignment

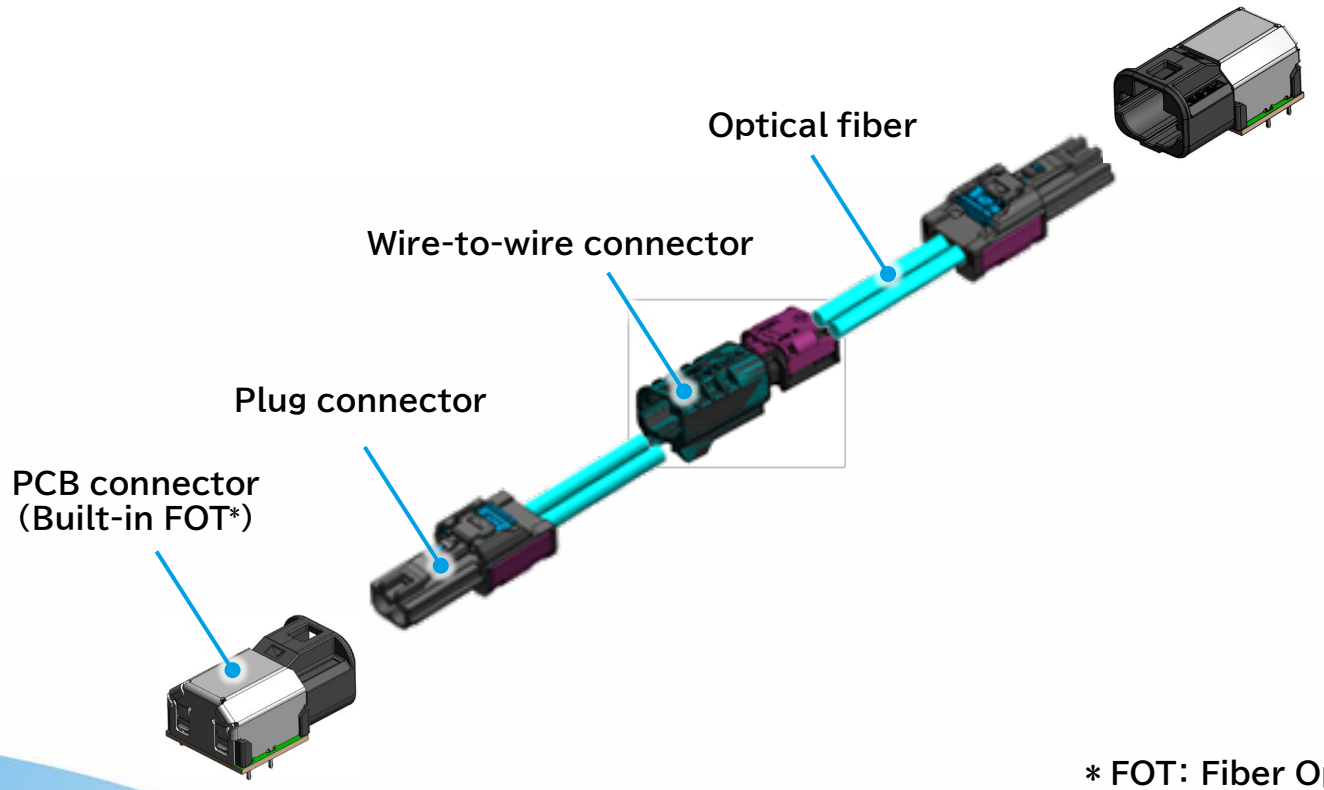
- Supports automotive high-speed communications for autonomous driving (transmit high-definition videos and aggregated sensor signals)
- Manages noise and electrical insulation according to vehicle electrification
- Contributes to carbon neutrality by reducing weight

Solutions to Challenges

1. Achieves high-speed communication up to 25Gbps using an optical connector integrated with optical-electrical transceiver (FOT*)
2. Same handling and routing as electrical wiring
3. Eliminates the need for EMC countermeasures for the transmission channel, reducing the number of W/H components and overall weight

Main performance, specifications, and structure

Data rate speed	Up to 25Gbps
Light source	VCSEL (Vertical Cavity Surface Emitting Laser)
Optical fiber	GI-GOF (Graded Index Glass Optical Fiber) or GI-POF(Graded Index Plastic Optical Fiber)
Operating temperature	-40°C to +105°C
PCB connector size	14.0(W)×22.6(D)×10.3(H) mm
Modulation system	Binary (NRZ)
Transmission distance	Up to 40m



* FOT: Fiber Optical Transceiver

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