

# 1 Gbps Optical Connector with Cable ASSY



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

## Background or assignment

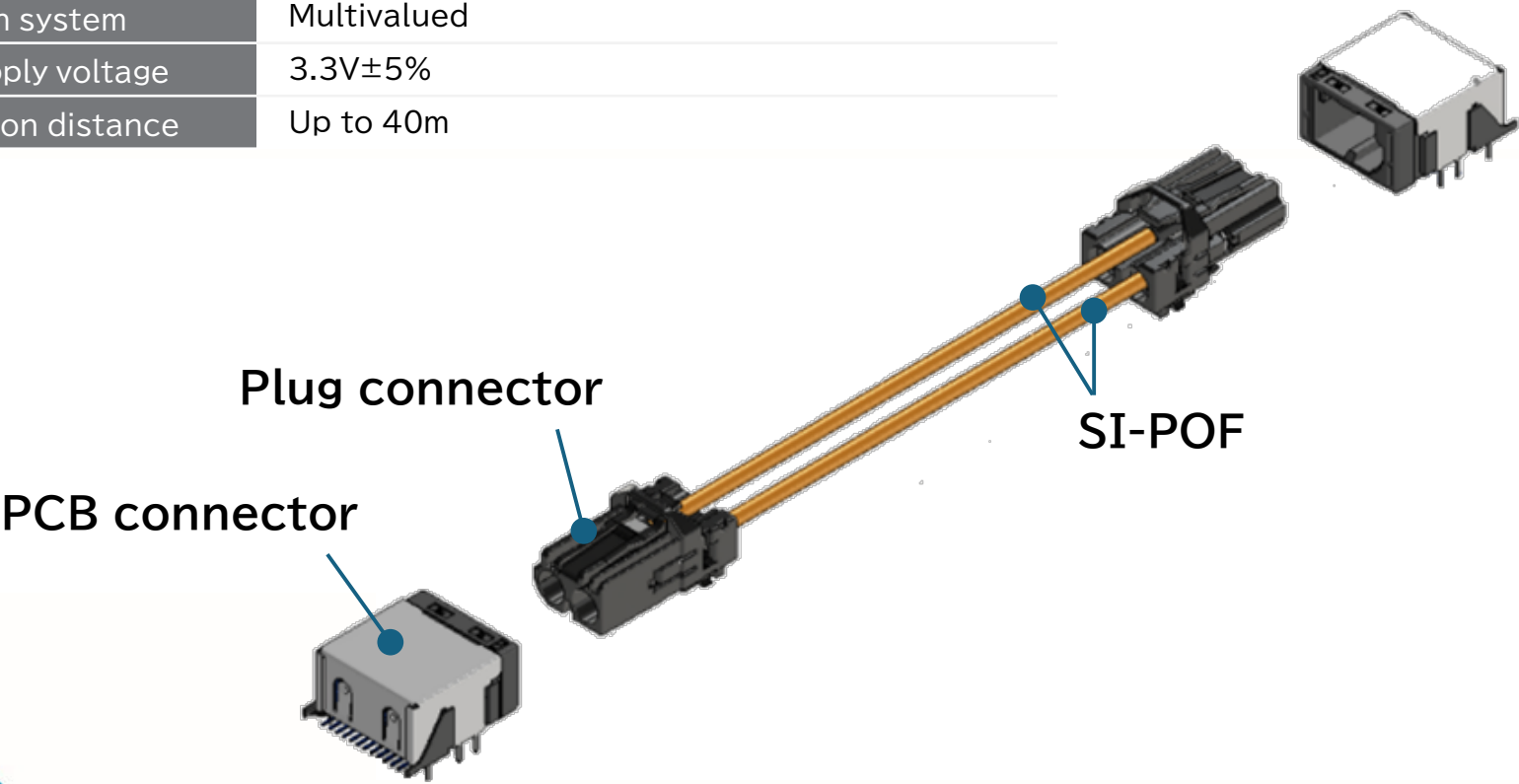
- Supports automotive high-speed communication for autonomous driving (data transmission between main ECUs)
- Manages noise and electrical insulation according to vehicle electrification
- Contributes to carbon neutrality by reducing weight

## Solutions to Challenges

- 1 Reduces the weight and improves noise resistance performance by using plastic optical fibers(Shielded wire ratio volume 1/4)
- 2 Ensures high reliability in on-board environments by using plastic optical fibers
- 3 70% smaller than conventional MOST connectors

## Main performance, specifications and structure

Application case	Gigabit Ethernet
Data rate speed	Up to 1Gbps
Light source	LED
Optical fiber	SI-POF (Step Index Plastic Optical Fiber)
Operating temperature	Connector: -40°C to +105°C Optical fiber: -40°C to +90°C
PCB connector volume	4.7g
PCB connector size	20.1(W) × 22.8(D) × 12.1(H)mm
Modulation system	Multivalued
Power-supply voltage	3.3V±5%
Transmission distance	Up to 40m



# 25Gbps Optical Connector with Cable ASSY

Under  
development  
Target: 2030  
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 High-speed communications up to 25Gbps by using high-bandwidth plastic optical fibers
- 2 Same handling and routing as electrical wiring
- 3 Reduces the weight due to unnecessary EMC actions in transmission channel

## Main performance, specifications and structure

Application case	Multi-Gigabit Ethernet
Data rate speed	Up to 25Gbps
Light source	VCSEL (Vertical Cavity Surface Emitting Laser)
Optical fiber	GI-POF (Graded Index Plastic Optical Fiber)
Operating temperature	-40°C to +105°C
PCB connector volume	5.0g (Development target value)
PCB connector size	20.1(W) × 22.0(D) × 12.1(H)mm
Modulation system	Binary (NRZ)
Power-supply voltage	3.3V±5%
Transmission distance	Up to 40m

