Cisco 25GBASE SFP28 Modules

Product Overview

The Cisco[®] 25GBASE SFP28 (Small Form-Factor Pluggable) portfolio offers customers a wide variety of high-density and low-power 25 Gigabit Ethernet connectivity options for data center and high-performance computing networks applications. The 25G Modules are based on SFP28 form factor.

25G Direct Attached Cables (DAC)

25G Active Optical Cables (AOC)

25G Short Reach (SR) Module

10/25G Cisco Short Reach (CSR) Module

10/25G Long Reach (LR) Module

Features and Benefits of Cisco 25G Modules

- Interoperable with other IEEE-compliant 25G interfaces where applicable
- Certified and tested on Cisco SFP28 ports for superior performance, quality, and reliability
- High-speed electrical interface compliant to IEEE 802.3by

Table 1.   Cisco 25G Portfolio

Product	Descriptions
Cisco SFP-H25G-CU1M	25GBASE-CR1 Copper Cable 1-meter
Cisco SFP-H25G-CU1.5M	25GBASE-CR1 Copper Cable 1.5-meter
Cisco SFP-H25G-CU2M	25GBASE-CR1 Copper Cable 2-meter
Cisco SFP-H25G-CU2.5M	25GBASE-CR1 Copper Cable 2.5-meter
Cisco SFP-H25G-CU3M	25GBASE-CR1 Copper Cable 3-meter
Cisco SFP-H25G-CU4M	25GBASE-CR1 Copper Cable 4-meter
Cisco SFP-H25G-CU5M	25GBASE-CR1 Copper Cable 5-meter
Cisco SFP-25G-AOC1M	25GBASE-AOC Active Optical Cable 1-meter
Cisco SFP-25G-AOC2M	25GBASE-AOC Active Optical Cable 2-meter
Cisco SFP-25G-AOC3M	25GBASE-AOC Active Optical Cable 3-meter
Cisco SFP-25G-AOC4M	25GBASE-AOC Active Optical Cable 4-meter
Cisco SFP-25G-AOC5M	25GBASE-AOC Active Optical Cable 5-meter
Cisco SFP-25G-AOC7M	25GBASE-AOC Active Optical Cable 7-meter
Cisco SFP-25G-AOC10M	25GBASE-AOC Active Optical Cable 10-meter
Cisco SFP-25G-SR-S	25GBASE-SR SFP28 Module for MMF
Cisco SFP-10/25G-CSR-S	10/25GBASE-CSR SFP28 Module for MMF
Cisco SFP-10/25G-LR-S	10/25GBASE-LR SFP28 Module for SMF

Cisco SFP-25G Copper Cables

Cisco SFP28 to SFP28 copper direct-attach 25GBASE-CR1 cables are suitable for very short links and offer a highly cost-effective way to establish a 25-Gigabit link between SFP28 ports of Cisco switches within racks and across adjacent racks. Cisco offers passive copper cables in lengths of x= 1, 1.5, 2, 2.5, 4 and 5 meters.

1m, 1.5m, and 2m cables do not require FEC on the host port; 2.5m and 3m cables require BASE-R FEC on the host port; 4m and 5m cables require RS-FEC.

Cisco SFP-25G Active Optical Cables

Cisco SFP28 to SFP28 Active Optical Cables are direct-attach fiber assemblies with SFP connectors. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. Cisco offers Active Optical Cables in lengths of 1, 2, 3, 4, 5, 7, and 10 meters.

AOC cable require BASE-R FEC on the host ports.

Cisco SFP-25G-SR-S

The Cisco 25GBASE-SR Module supports a link length of 70/100m on OM3/4 MMF.

This module requires RS-FEC on the host ports.

Cisco SFP-10/25G-CSR-S

The Cisco 10/25GBASE-CSR Module supports a link length of up to 300/400m over OM3/4 at 10G, and up to 300/400m over OM3/4 at 25G[*].

This module requires RS-FEC on the host port for full reach operation at 25G. Using BASE-R FEC the module can support 70/100m over OM3/4 and with-out FEC it can support 30/50m over OM3/4 at 25G[*]. For 10G operation FEC is not required.

[*]Depends upon fiber quality.

Cisco SFP-10/25G-LR-S

The Cisco 10/25GBASE-LR Module supports a link length of 10 kilometers on standard Single-Mode Fiber (SMF) G.652 at both 10G and 25G.

This module requires RS-FEC on the host ports for operation at 25G.

Technical Specifications

Platform Support

Cisco 25G transceivers are supported on Cisco switches. For more details, refer to the document "Cisco 25 Gigabit Ethernet Transceiver Modules Compatibility Matrix".

Connectors and Cabling

Refer to Table 2 for cabling specifications for each 25G product.

Table 2. 25G Port Cabling Specifications

Cisco SFP-25G	Cable Type	Cable Distance	Max Power Consumption (W)	Pull Tab Color
Cisco SFP-H25G-CU1M	Direct-attach copper cable assembly	1m	1/10	Beige
Cisco SFP-H25G-CU1.5M		1.5m		Black
Cisco SFP-H25G-CU2M		2m		Brown
Cisco SFP-H25G-CU2.5M		2.5m		Yellow
Cisco SFP-H25G-CU3M		3m		Orange
Cisco SFP-H25G-CU4M		4m		Green
Cisco SFP-H25G-CU5M		5m		Gray
Cisco SFP-25G-AOC1M	Active Optical Cable assembly	1m	1	Beige
Cisco SFP-25G-AOC2M		2m		Brown
Cisco SFP-25G-AOC3M		3m		Orange
Cisco SFP-25G-AOC4M		4m		Green
Cisco SFP-25G-AOC5M		5m		Gray
Cisco SFP-25G-AOC7M		7m		Blue
Cisco SFP-25G-AOC10M		10m		Red
Cisco SFP-25G-SR-S		70/100m (OM3/OM4)	1.2	Beige
Cisco SFP-10/25G-CSR-S		300/400m (OM3/OM4)[*]	1.2	Peach
Cisco SFP-10/25G-LR-S		10km	1.3	Blue

[*]Depending upon fiber quality.

Table 3. SFP28 Port Cabling Specifications

Cisco SFP-25G	Wavelength (nm)	Cable Type	Core Size (Microns)	Modal Bandwidth	Cable Distance
Cisco SFP-25G-SR-S	850	MMF	50.0	2000 (OM3)	70m
				4700 (OM4)	100m
Cisco SFP-10/25G-SR-S	850	MMF	50.0	2000 (OM3)	300m[*]
				4700 (OM4)	400m[*]
Cisco SFP-10/25G-LR-S	1310	SMF	G.652	-	10km

Table 4. Optical Transmit and Receive Specifications

Product	Type	Transmit Power (dBm)[*]		Receive Power (dBm)[*]		Transmit and Receive Wavelength (nm)
		Maximum	Minimum	Maximum	Minimum	
Cisco SFP-25G-SR-S	25GBASE-SR 850nm MMF	+2.4	-8.4	+2.4	-10.3	840 to 860
Cisco SFP-10/25G-CSR-S	10G	+2.4	-7.3	+2.4	-9.9	
	25G	+2.4	-6	+2.4	-8.7	840 to 860
Cisco SFP-10/25G-LR-S	10G	+0.5	-8.2	+0.5	-14.4	1260 to 1355 (10G)
	25G	+2.0	-7	+2	-13.3	1295 to 1325 (25G)

[*]Transmitter and receiver power is in average, unless specified.

[**]The launch power shall be the lesser of the class 1 safety limit or the maximum receive power. Class 1 laser requirements are defined by IEC 60825-1: 2001.

Connectors: Dual LC/PC connector (**SFP-25G-SR-S, SFP-10/25G-CSR-S and SFP-10/25G-LR-S**).

Note: Only connections with patch cords with PC or UPC connectors are supported. Patch cords with APC connectors are not supported. All cables and cable assemblies used must be compliant with the standards specified in the standards section.

Environmental Conditions

Operating temperature range:

- Commercial temperature range: 0 to 70°C (32 to 158°F)
- Storage temperature range: -40 to 85°C (-40 to 185°F)

Warranty

- Standard warranty: 1 year

Ordering Information

Table 5 provides the ordering information for Cisco 25G cables and transceivers.

Table 5.   Ordering Information

Description	Product Number
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable, 1-meter	SFP-H25G-CU1M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable 1.5-meter	SFP-H25G-CU1.5M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable, 2-meter	SFP-H25G-CU2M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable 2.5-meter	SFP-H25G-CU2.5M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable, 3-meter	SFP-H25G-CU3M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable 4-meter	SFP-H25G-CU4M
Cisco 25GBASE-CR1 SFP28 Passive Copper Cable, 5-meter	SFP-H25G-CU5M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 1-meter	SFP-25G-AOC1M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 2-meter	SFP-25G-AOC2M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 3-meter	SFP-25G-AOC3M
Cisco 25GBASE-AOC SFP28 Active Optical Cable 4-meter	SFP-25G-AOC4M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 5-meter	SFP-25G-AOC5M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 7-meter	SFP-25G-AOC7M
Cisco 25GBASE-AOC SFP28 Active Optical Cable, 10-meter	SFP-25G-AOC10M
Cisco 25GBASE-SR SFP28 Module for MMF	SFP-25G-SR-S
Cisco 10/25GBASE-CSR SFP28 Module for MMF	SFP-10/25G-CSR-S
Cisco 10/25GBASE-LR SFP28 Module for SMF	SFP-10/25G-LR-S

Regulatory and Standards Compliance

Standards:

- SFF-8402: SFP+ 28 Gb/s 1x Pluggable Transceiver Solution (SFP28) - Rev 1.0 March 30, 2014
- SFF-8472: Diagnostic Monitoring Interface for Optical Transceivers - Rev 12 August 29, 2014
- IEEE 802.3™-2015 IEEE Standard for Ethernet
- IEEE P802.3by™ D3.0, 29th March 2016
- IEEE P802.3cc™, 12th July 2017
- RoHS 6

Safety:

- Laser Class 1 21CFR-1040 LN#50 7/2001
- Laser Class 1 IEC60825-1
- Cable jacket of SFP copper modules is UL E116441 Compliant
- SFP copper cables are ELV Compliant

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Additional Information

For more information about Cisco 25GBASE SFP28 optics and copper modules, contact your sales representative or visit https://www.cisco.com/en/US/products/hw/modules/ps5455/prod_module_series_home.html.

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