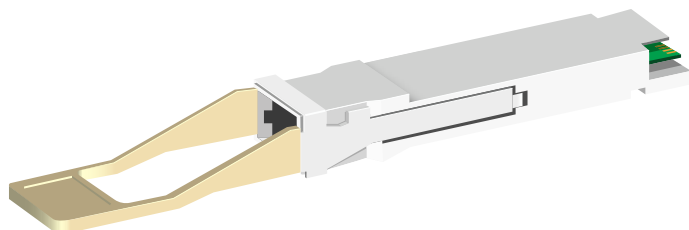


QSFP

QSFP28 100G ESR4 300M

P/N: 1445515F1C

Quick Start



DESCRIPTION

QSFP28 ESR4 transceivers are designed for use in for 4 x 25 Gbps optical links over multimode fiber. QSFP28 ESR4 integrates four channel VCSEL arrays and four channel PIN photodiode arrays, each channel can operate at 25.78 Gbps up to 300 m over OM4 Multi-mode fiber. They are compliant with the QSFP28 MSA, IEEE P802.3bm 100GBASE-SR4.

INSTALLATION

To install the QSFP28 ESR4 into an appropriate module, complete the following steps:

1. Inspect the QSFP28 ESR4. If damaged, file a claim with the carrier and then contact ADTRAN Customer Service.
2. Do not remove the protective end cap from the QSFP until the fiber optic cable is ready to be connected.
3. Insert the QSFP28 ESR4 into the QSFP cage on the module. Ensure the manufacturer's label on the QSFP is facing upward for correct installation.
4. Slide the QSFP28 ESR4 all the way into the receptacle until there is an audible "click."

**CAUTION!**

Due to compliance certification requirements, use only QSFPs supplied by ADTRAN. ADTRAN cannot certify system integrity with other QSFPs.

**NOTICE**

The latch handle on the QSFP is used to remove the QSFP from the cage on the circuit card.

OPERATIONAL SPECIFICATIONS

General

- Module type: QSFP28
- Fiber/Copper: Multimode Fiber
- Lanes/Channels: 4 Transmit and 4 Receive
- Signal data rate : Up to 25.78 Gbps per channel
- Optical Connector: MTP/MPO
- Applications: 100GBASE-SR4 Ethernet
- Distance: 300 m over OM4 Fiber

Optical

Transmitter

- Laser Diode Type: VCSEL Array (4 channels)
- Tx Central Wavelength: 850 nm
- Tx Output optical power: -9.1 to +2.4 dBm at each lane
- Tx Spectral width: 0.65 nm Max (RMS)
- Extinction Ratio: 2 dB min
- Optical Rise time (tr): 40 ps (20% - 80%)
- Optical Fall time (tf): 40 ps (20% - 80%)

Receiver

- Rx Type: PIN Array
- Rx Central wavelength: 850 nm
- Receive Overload: +2.4 dBm at each lane
- Receive Sensitivity: -11 dBm at each lane

Environmental

- Controlled Protected Environment (Inside)
- Operational temperature range: -5°C to +50°C
- Storage temperature range: -40°C to +85°C
- Relative humidity 5 to 85%

SAFETY AND REGULATORY

ENGLISH



WARNING!

Read all warnings and cautions before installing or servicing this equipment.



CAUTION!

- Electrostatic Discharge (ESD) can damage electronic modules. When handling modules, wear an antistatic discharge wrist strap to prevent damage to electronic components. Place modules in antistatic packing material when transporting or storing. When working on modules, always place them on an approved antistatic mat that is electrically grounded.
- The cable meets or exceeds all the applicable requirements of NEBS, Telcordia GR-63-CORE, and GR-1089-CORE. The product is intended for deployment in Central Office type facilities, EEEs, EECs, and locations where the NEC applies (for example, Customer Premises).
- This product and the host system are designed and intended for installation as part of a Common Bonding Network (CBN). This product and the host system are not designed nor intended for installation as part of an Isolated Bonding Network (IBN).
- This product does not have an internal DC connection between battery return and frame ground. This product can be installed in a DC-I (isolated) or DC-C (common) configuration.
- The chassis frame ground terminal must be connected to an earth ground to ensure that the exposed metal (i.e., front panels, SFP/XFP modules) on the product is properly grounded by way of the backplane connector.
- This product contains or uses a Class 1 Laser module that complies with FDA 21 CFR 1040.10, 1040.11 and IEC 60825-1. For continued compliance with the above standards, only approved Class 1 laser modules from an ADTRAN approved vendor list (located on the ADTRAN website) should be installed in this product. ADTRAN cannot certify system integrity with other laser modules.



NOTE

- This product is designed to be deployed in GR-3108-CORE environmental class 1.
- This product is NRTL Listed to the applicable UL Standards. The product is designed to meet the applicable requirements of Telcordia GR-63-CORE and GR-1089-CORE.
- This product has been evaluated to international safety standards EN 60950-1, AS/NZS 60950.1, and IEC 60950-1. This product meets the requirements for CE marking under the EMC Directive and Low Voltage Directive. Standards used to demonstrate Compliance are EN 300 386 and EN 60950.
- This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions:
 1. This device may not cause harmful interference.
 2. This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by ADTRAN could void the user's authority to operate this equipment.
- This product is designed to meet the following environmental classes:
 - ◆ ETSI EN 300 019-2-1 "Classification of environmental conditions; Storage Class" 1.2
 - ◆ ETSI EN 300 019-2-2 "Classification of environmental conditions, Transportation", Class 2.3
 - ◆ ETSI EN 300 019-2-3 "Classification of environmental conditions, Stationary use at weather protected locations", Class 3.1E
- This product is designed to function without degradation during exposure to all test severities per Class 3.3 of ETSI EN 300 019-2-3.
- This product meets EU RoHS Directive. Refer to www.adtran.com for further information on RoHS/WEEE.

FRANÇAIS



AVERTISSEMENT!

Lisez tous les avertissements et mises en garde avant l'installation de cet équipement ou la réalisation de toute opération de maintenance.



ATTENTION!

- L'ESD (décharge électrostatique) peut endommager les modules électroniques. Lors de la manipulation des modules, portez un bracelet de décharge antistatique pour éviter d'endommager les composants électroniques. Placez les modules dans un emballage antistatique lors du transport ou du stockage. Lorsque vous travaillez sur les modules, placez-les toujours sur un tapis antistatique certifié muni d'un branchement de mise à la terre.
- La borne de terre de châssis doit être connecté à une prise de terre pour assurer que le métal exposé (tels que les panneaux avant, des modules SFP / XFP) sur le produit est correctement mis à la terre via le connecteur de fond de panier.
- Ce produit contient ou utilise un module Laser de classe 1 qui est conforme avec la FDA 21 CFR 1040.10, 1040.11 et IEC 60825-1. Pour le maintien de la conformité avec les normes ci-dessus, seulement approuvé classe 1 modules laser d'un ADTRAN approuvés liste des fournisseurs (situé sur le site ADTRAN) doit être installé dans ce produit. ADTRAN ne peut certifier l'intégrité du système avec d'autres modules laser.



REMARQUE

- Ce produit a été conçu pour répondre aux normes internationales de sécurité EN 60950-1, AS / NZS 60950,1 et IEC 60950-1.
- Ce produit est conçu pour répondre aux classes environnementales suivantes:
 - ◆ ETSI EN 300 019-2-1: "Classification des conditions d'environnement; Entreposage," classe 1.2
 - ◆ ETSI EN 300 019-2-2: "Classification des conditions d'environnements; Transport," classe 2.3
 - ◆ ETSI EN 300 019-2-3: "Classification des conditions d'environnements; l'utilisation à poste fixe dans des endroits protégés contre les intempéries," classe 3.1E
- L'équipement est conçu pour fonctionner sans dégradation lors des tests à tous les niveaux de sévérité, suivant les spécifications de la classe 3.3 de l'ETSI EN 300 019-2-3.
- Ce produit est conforme à la directive. Reportez-vous à www.adtran.com pour de plus amples renseignements sur RoHS/WEEE.

DEUTSCH



WARNUNG!

Lesen Sie sich alle Warn- und Sicherheitshinweise durch, bevor Sie dieses Gerät installieren oder warten.



VORSICHT!

- Elektrostatische Entladung (ESD) können elektronische Baugruppen beschädigt werden. Beim Umgang mit Modulen, tragen Sie eine Antistatikarmband, um Schäden an elektronischen Bauteilen zu verhindern. Ort -Module in antistatische Verpackung, beim Transport oder Lagerung. Bei Arbeiten an Modulen immer legen Sie sie auf einer zugelassenen antistatische Unterlage, die elektrisch geerdet ist.
- Der Fahrgestellrahmen Erdanschluß muß zu einer Erde verbunden werden, um sicherzustellen, dass das freiliegende Metall (dh Frontplatten, SFP / XFP-Module) auf dem Produkt richtig über den Backplane-Anschluss geerdet ist.
- Ce produit contient ou utilise un module Laser de classe 1 qui est conforme avec la FDA 21 CFR 1040.10, 1040.11 et IEC 60825-1. Pour le maintien de la conformité avec les normes ci-dessus, seulement approuvé classe 1 modules laser d'un ADTRAN approuvés liste des fournisseurs (situé sur le site ADTRAN) doit être installé dans ce produit. ADTRAN ne peut certifier l'intégrité du système avec d'autres modules laser.



HINWEIS

- Dieses Produkt wurde entwickelt, um internationalen Sicherheitsnormen EN 60950-1 erfüllen, AS / NZS 60950,1 und IEC 60950-1.
- Dieses Produkt wurde entsprechend der folgenden Umweltklassen entwickelt:
 - ◆ ETSI EN 300 019-2-1 "Klassifizierung von Umweltbedingungen"; Storage Class 1,2
 - ◆ ETSI EN 300 019-2-2", Klassifizierung von Umweltbedingungen,Transportation", der Klasse 2.3
 - ◆ ETSI EN 300 019-2-3 "Klassifizierung von Umweltbedingungen, Ortsfester Einsatz, wettergeschützten Standorten" Klasse 3.1E
- Dieses Gerät funktioniert ohne Leistungsabfall während aller für Klasse 3.3 von ETSI EN 300 019-2-3 vorgeschriebenen Belastungstests.
- Dieses Produkt erfüllt die EU RoHS Richtlinie. Bitte besuchen Sie www.adtran.com für ausführlichere Informationen zu RoHS/WEEE.

Documentation for ADTRAN Network Solutions products is available for viewing and download directly from the ADTRAN Support Community website.

Go to: <https://supportforums.adtran.com/welcome>

Registration is required.

ADTRAN offers training courses on our products, including customized training and courses taught at our facilities or at customer sites.

For inquiries, go to: <http://adtran.com/training>

The following online documents and resources provide additional information for this product:

ADTRAN Pluggable Optics Compatibility Matrix (online tool, go to: <http://www.adtran.com/pluggableoptics>)

Warranty: ADTRAN will replace or repair this product within the warranty period if it does not meet its published specifications or fails while in service. Warranty information can be found online at www.adtran.com/warranty.

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