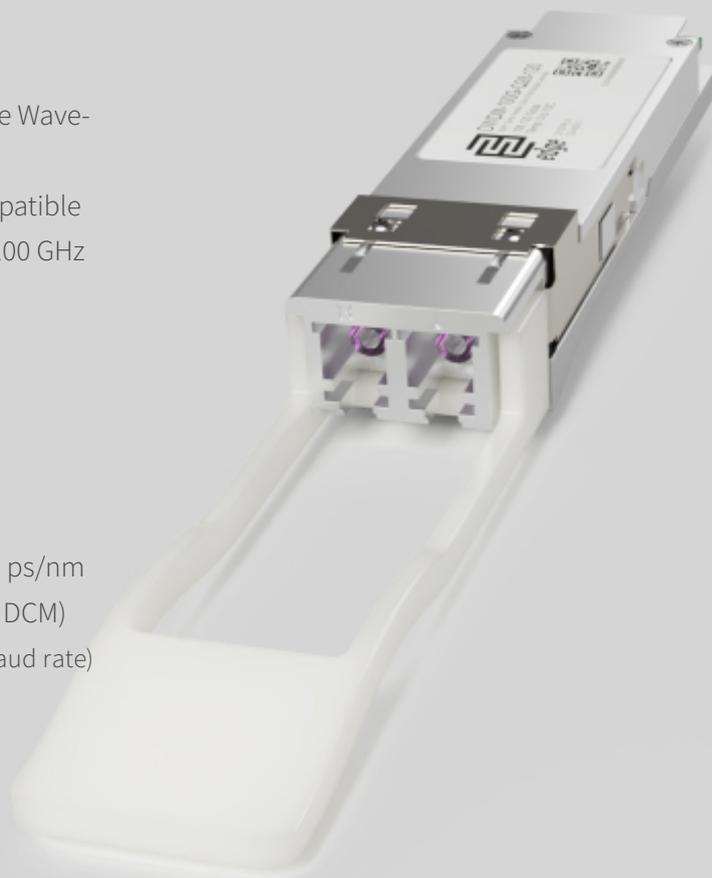


Key Highlights:

- **Type:** 100G DWDM PAM4 QSFP28 Single Wavelength
- **Compatibility:** Multi-Vendor MSA Compatible
- **Tx/Rx Wavelength:** ITU-T DWDM Grid 100 GHz C-Band (Ch. 21-60)
- **Laser:** DFB
- **Modulation:** PAM4
- **Fiber Type:** Single-Mode Fiber (SMF)
- **Connectors:** Double LC
- **Optical Budget:** 7 dB
- **Dispersion Tolerance:** -30 ps/nm to 30 ps/nm
- **Max. Distance:** 120 km (with EDFA and DCM)
- **Data Rate:** 103.125 Gbps (53.125 Gbps baud rate)
- **Forward Error Correction:** Supported
- **DDM/DOM:** Supported
- **Power Consumption:** ≤ 5.5 W
- **Temperature:** Standard 0°-70°C



Optical Transceiver : DWDM-100G-Q28-120

Product Description:

100G DWDM transceiver DWDM-100G-Q28-120 is a Multi-Vendor MSA Compatible Single-wavelength 100G DWDM QSFP28 (Quad Small Form-Factor Pluggable 28) Transceiver designed for multiple channel 100G transmission over G.652 Single-Mode Fiber (SMF). Efficient multiple 100G Ethernet signal transmission over double or single fiber is a milestone in the optical communication industry and helps Data Centers, Mobile Operators and Fixed Operators to migrate legacy 10G DWDM/CWDM connections to high speed 100G DWDM connections.

100G DWDM QSFP28 transceiver DWDM-100G-Q28-120 has a minimum guaranteed optical budget of 7 dB, which in most cases is enough to reach 2 km distance without DCM (Dispersion Compensation Module) and EDFA (Erbium-Doped Fiber Amplifier), however for long and extended reach applications up to 120km EDFA and DCM are required to compensate the fiber link loss and fiber dispersion. With help of EDFA and DCM 25dB link budget can be achieved and up to 120km reach can be fulfilled considering near ideal conditions with fiber loss 0.2dB/km (or 24dB total) and with 1dB safety margin. We have summarized typical applications for DWDM-100G-Q28-120 transceivers and are able to offer complete solutions including



DWDM filters, EDFA Boosters and DCM units. 100G DWDM QSFP28 transceivers support standard 40 DWDM channels ([ITU-T 100GHz DWDM grid](#)) which are compatible with standard [Double Fiber DWDM](#) or [Single Fiber DWDM](#) 100GHz filters. Supported channels are starting from Channel 21 (1560.61 nm) up to Channel 60 (1529.55 nm). Additional channels are available upon request and can be offered as customized products. The 100G DWDM QSFP28 module supports DDM/DOM optical diagnostics, which provide diagnostic information about the present operating conditions. The 100G DWDM transceiver operates in the standard 0°-70°C temperature range and has a duplex LC optical connector and on the electrical side supports 4x25.78 Gbps CAUI-4 host interface which is compatible with standard 100G Ethernet switches. 100G DWDM QSFP28 has integrated PAM4 (Pulse Amplitude Modulation 4-level) DSP (Digital Signal Processor) chip and module uses a PAM4 gearbox to convert the 4x25.78 Gbps CAUI-4 electrical signals to a single lane PAM4 100G optical signal. Transceiver uses DFB (Distributed Feedback Laser), Silicon Photonics external modulator and receiver use wideband PIN-Photodiode and is DWDM channel independent. The 100G DWDM QSFP28 module preferably should be used in high power QSFP28 switch/router ports (Power Class 7, 5W). Module has an integrated FEC, while FEC on the host platform needs to be disabled.

100G DWDM transceivers DWDM-100G-Q28-120 are certified and are compliant with product safety standards. Transceivers are fully compliant to QSFP28 Multi Source Agreement [SFF-8636](#), QSFP28 MSA digital monitoring functions and are Laser Class 1 compliant according to International Safety Standard IEC-60825. Consequently, compliance to above standards guarantees that module is compatible and works with majority of networking equipment, where is not implemented special algorithm for protection against third party modules.

The 100G DWDM transceivers can be used in Cisco, Juniper, Nokia, HP, Huawei and other manufacturers equipment which have 100G QSFP28 port capabilities. So far originally almost none of these manufacturers have 100G DWDM QSFP28 transceivers in their portfolio, however we have accumulated deep expertise in custom-encoded firmware for 100G DWDM QSFP28 in order to make these modules work in almost any brand of equipment. If you would like to receive help with total solutions (long and extended reach applications) which require EDFA, DCM and DWDM filters - we will be glad to know your requirements – [Contact Us](#).

Product Specification:

| General parameter | Value |
|-------------------------|--|
| Media Type: | Single-Mode Fiber (SMF) |
| Connectors: | Double LC |
| TX Wavelength: | Ch. 21 (1560.61 nm) to Ch. 60 (1529.55 nm) |
| RX Wavelength: | Ch. 21 (1560.61 nm) to Ch. 60 (1529.55 nm) |
| Minimum Optical Budget: | 7 dB |
| Maximum Distance: | up to 120km with DCM and EDFA |
| Supported Data Rate: | 103.125 Gbps |
| Modulation: | PAM4 |
| Supported Applications: | 100G Ethernet (103.125 Gbps) |



| General parameter | Value |
|---------------------------------------|---|
| Digital Diagnostic Monitoring (DDM): | Supported |
| Forward Error Correction (FEC): | Supported |
| Operating Temperature Range: | Standard 0° - 70°C |
| Storage Temperature Range: | - 40° to 85°C |
| Relative Humidity (Non-Condensation): | 5 to 85% |
| Power Consumption: | ≤5.5W |
| Power Consumption (Typical): | ≤4.7W |
| Power Supply Voltage Typical: | + 3.3V |
| Power Supply Voltage Range: | -3.135 to 3.465V |
| Compliance: | Class 1 laser product IEC 60825-1:2014, 21 CFR 1040.10 and 1040.11, QSFP28 MSA SFF-8636, DWDM ITU-T 100GHz grid, CAUI-4 |

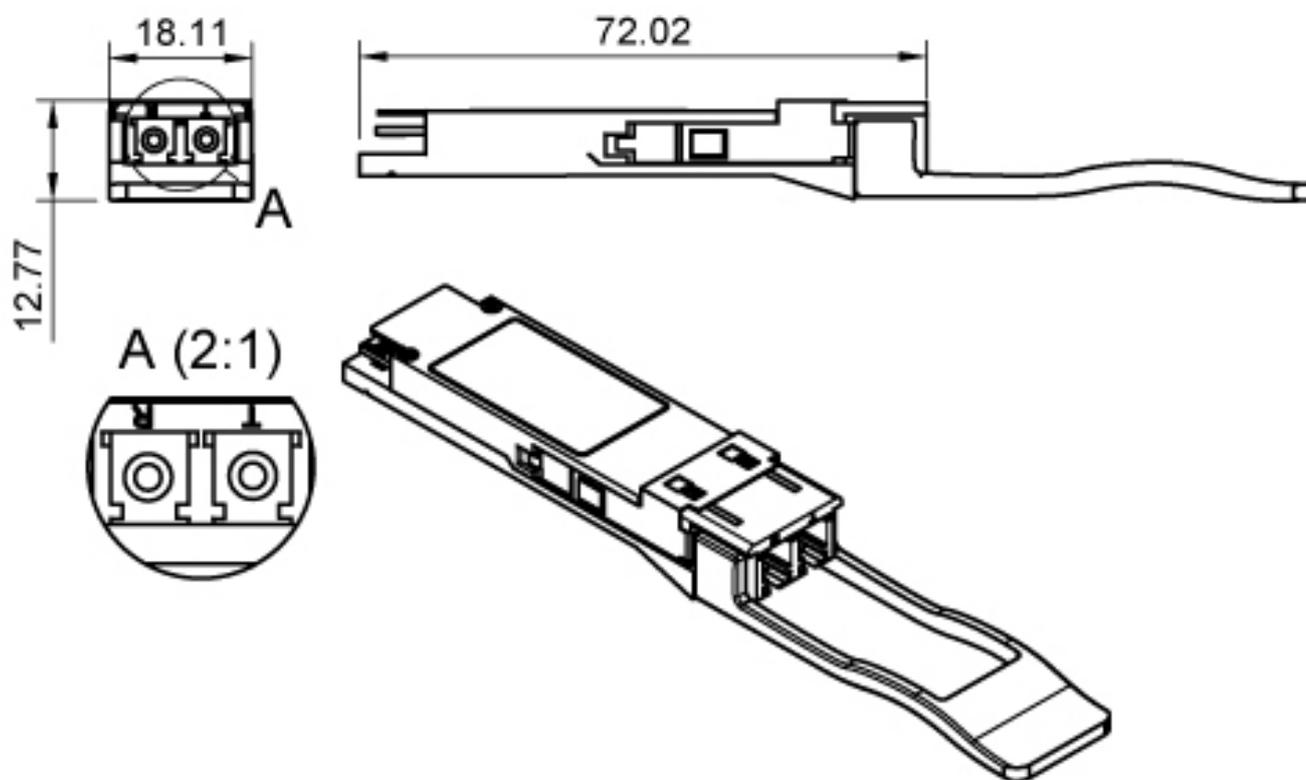
| Transmitter Parameters: | Value |
|--------------------------------|------------------------------|
| Transmitter Type: | DFB Laser |
| Tx Wavelength Bandwidth: | $\lambda_C \pm 0.1\text{nm}$ |
| Average Launch Power (Max): | 2 dBm |
| Average Launch Power (Min): | -2 dBm |
| Extinction Ratio (Min): | 6 dB |
| Transmitter Reflectance (Max): | -26 dB |

| Receiver Parameters: | Value |
|---|----------------------|
| Receiver Type: | PIN Photodiode Array |
| Rx Wavelength Bandwidth: | 1527-1567nm |
| Average Receive Power (Typical): | -9 dBm |
| Average Receive Power (Max): | -8 dBm |
| Receiver Sensitivity, Avg Power at OSNR 32dB/0.1nm: | -7 dBm |



| Receiver Parameters: | Value |
|-----------------------------|-----------|
| Damage Threshold Each Lane: | 4 dBm |
| Receiver Reflectance (Max): | -26 dBm |
| Dispersion Tolerance (Min): | -30 ps/nm |
| Dispersion Tolerance (Max): | 30 ps/nm |
| LOS Assert (Min): | -15 dBm |
| LOS De-Assert (Max): | -10.5 dBm |
| LOS Hysteresis (Typical): | 1 dB |

Mechanical Dimensions:



Compatibility:

EDGE Optical transceivers can be provided with custom-encoded firmware, in order to provide compatibility with more than 100 vendor brands in data and telecom communications industry:

MS - General MSA
AD - ADVA
AE - Advantech
AL - Alcatel (Nokia)
AT - Allied Telesis
AR - Arista
AS - Arris
AV - Avaya
BC - Barracuda
BR - Broadcom
QL - Cavium (Qlogic)
CR - Ceragon
CP - Checkpoint
CH - Chelsio
CN - Ciena
CI - Cisco
LI - Cisco (Linksys)
CE - Comnet
CO - Coriant
DH - Dahua
DC - DCN
DL - Dell & Force10
DK - D-Link

DZ - DZS(Dasan-Zhone)
EI - ECI
EC - EdgeCore
EW - EdgeWare
EL - Eltex
EM - EMC2
EN - Enterasys
ER - Ericsson
EF - EXFO
EX - Extreme Networks
F5 - F5 Networks
FI - Finisar
FO - Fortinet
FU - Fujitsu
H3 - H3C
HI - Hirschmann
HU - Huawei
IB - IBM
IF - Infinera
IN - Intel
IX - Ixia
JU - Juniper Networks
KM - KeyMile

KY - KyLand
LN - Lenovo
ML - Mellanox
ME - Meraki (Cisco)
MT - MikroTik
MO - Moxa
MR - MRV
NC - NEC
NG - Netgear
NK - Nokia
NT - Nortel
NS - NSN
OR - Oracle
PA - Palo Alto Network
PL - Planet
QC - QCT(Quanta)
QN - QNAP
RD - RAD
RW - RadWare
RC - Raisecom
RK - Ruckus
RU - Ruijie Networks
SG - Samsung

SV - Sandvine
SC - Silicom
SF - SolarFlare
SW - Sonicwall
SM - Supermicro
SY - Synology
TC - Telco Systems
TP - TP-LINK
TN - Trendnet
UN - Ubiquiti Networks
VX - VeEx
WG - WatchGuard
WS - Waystream
WT - Westermo
ZT - ZTE
ZX - Zyxel
HP - HP
AG - Avago
OC - Oclaro
EU - Emulex
TM - Transmode
AU - HP Aruba
XX - Other

Ordering Info:

| Part Number | Data Rate | Applications | Temperature Range | Available DWDM Channels |
|----------------------|-----------|-----------------------------------|-------------------|------------------------------------|
| DWDM-100G-Q28-120-XX | 100 Gbps | Up to 120 km with EDFA and DCM | 0°- 70°C | 21 to 60 1560.61nm to 1529.55nm |

XX represents the chosen channel, thus Ch.21 would be DWDM-100G-Q28-120-21.

Warranty:

EDGE Optic's provides a limited **warranty for sixty (60) months** from Purchaser's receipt of the Equipment represented in this data sheet against defective design or workmanship. Warranty does not cover damage caused by improper deployment, misuse and accidents.

