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Product Data Sheet

Key Highlights:

- **Type**: 400GBASE-DR4 QSFP-DD
- **Compatibility:** Multi-Vendor MSA Compatible
- **Tx/Rx Wavelength:** 1310 nm
- **Laser:** EML
- **Modulation:** PAM4
- **Fiber Type:** Single-Mode Fiber (SMF)
- **Connectors:** MTP/MPO - 12
- **Optical Budget:** 3dB
- **Max. Distance:** 500m
- **Data Rate:** 425 Gbps
- **DDM/DOM:** Supported
- **Power Consumption:** ≤ 12W
- **Temperature:** Standard 0° - 70°C

Optical Transceiver : 400G-QSFP-DD-500

Product Description:

400G-QSFP-DD-500 is a 400GBASE-DR4 Multi-Vendor MSA Compatible QSFP-DD (Quad Small Form-Factor Pluggable - Double Density) Transceiver designed for operation over Single-Mode Fiber (SMF) optical cable. On the transmission side module converts 8x 50G 400GAUI-8 PAM4 (Pulse-Amplitude Modulation) electrical input channels (each 53.125Gbps) into 4 parallel and independent Single Lambda 100G PAM4 optical signals. Reversely the opposite is done on the receiving side, module converts 4 parallel and independent Single Lambda 100G PAM4 CWDM optical signals into 8x 50G 400GAUI-8 PAM4 electrical inputs. Module has minimum guaranteed optical budget of 3 dB, which in most cases is enough to reach 500 m distance over OS2 single-mode fiber. However, distance is just indicative parameter for comfort of identification that is calculated by taking into account minimal optical budget and average attenuation of optical cabling in industry. 400G-QSFP-DD-500 uses top quality quad channel EML driver together with 4 parallel EMLs (1310 nm) transmitter and 400Gb/s PIN photodiode array receiver. 400G-QSFP-DD-500 400GBASE-DR4 supports DDM/DOM optical diagnostics that provide real-time diagnostic information about the present operating conditions. 400G-QSFP-DD-500

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operates in Standard 0°-70°C temperature range and has MTP/MPO-12 interface. 400G-QSFP-DD-500 400GBASE-DR4 QSFP-DD support up to 425 Gbps data rate and is designed for 400G Ethernet application. 400G-QSFP-DD-500 QSFP-DD Double Fiber optical transceiver is multi-purpose module used in number of different places of today's networking. Consequently, most popular use cases are in Internet Service Provider (ISP), Mobile Operator and Data Center Core Networks.

400G-QSFP-DD-500 400GBASE-DR4 QSFP-DD transceiver is CE/RoHS certified and is compliant with product safety standards. 400G-QSFP-DD-500 is fully compliant to QSFP-DD MSA, 100G Lambda MSA 400G-DR4, CMIS 4.0, IEEE 802.3bs 400 Gbps specification. 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. However – our technical team has accumulated deep expertise in custom-encoded firmware's for 400GBASE-DR4 QSFP-DD transceiver in order to make it work in almost any brand equipment. We will be glad to know your requirements.

Product Specification:

General parameter	Value
Media Type:	Single-Mode Fiber (SMF)
Connectors:	MTP/MPO - 12
TX Wavelength:	1310 nm
RX Wavelength:	1310 nm
Minimum Optical Budget:	3dB
Maximum Distance:	500m
Supported Data Rate:	425 Gbps
Data Rate, each Lane up to:	106.25 Gbps
Modulation:	PAM4
Supported Applications:	Ethernet (425 Gbps), Infinband
Digital Diagnostic Monitoring (DDM):	Supported
Optical Clock And Data Recovery (CDR):	Supported
Operating Temperature Range:	Standard 0°- 70°C
Storage Temperature Range:	- 40° to 85°C
Relative Humidity (Non-Condensation):	0 to 85%
Power Consumption:	≤ 12W
Power Supply Voltage Typical:	+ 3.3V

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Product Data Sheet

General parameter	Value
Power Supply Voltage Range:	-3.135 to 3.465V
Chipset:	INPHI
Compliance:	QSFP-DD MSA, IEEE 802.3bs, 100G Lambda MSA 400G-DR4 CE, RoHS-6, Class 1 Laser Product, IEC60825-1, 21 CFR 1040.10 - 1040.11

Transmitter Parameters:	Value
Transmitter Type:	EML Laser
Tx Wavelength Bandwidth:	4 parralel Single Lambda lanes on 1310nm center wavelength
Average Launch Power Each Lane (Max):	4 dBm
Average Launch Power Each Lane (Min):	-2.9 dBm
Side-mode Suppression Ratio (Min):	30 dB
Outer Optical Modulation Amplitude OMA (Min) Each Lane:	- 0.8 dBm
Outer Optical Modulation Amplitude OMA (Max) Each Lane:	4.2 dBm
Launch Power in OMA minus TDECQ (Min) Each Lane:	- 2.2 dBm
Extinction Ratio (Min):	3.5 dB
Relative Intensity Noise (Max):	- 136 dB/Hz
Transmitter reflectance (Max):	- 26 dB
Average Launch Power OFF Transmitter (Max) Each Lane:	- 15 dB

Receiver Parameters:	Value
Receiver Type:	PIN Photodiode Array
Rx Wavelength Bandwidth:	4 parralel Single Lambda lanes on 1310nm center wavelength
Average Receive Power Each Lane (Min):	-5.9 dBm

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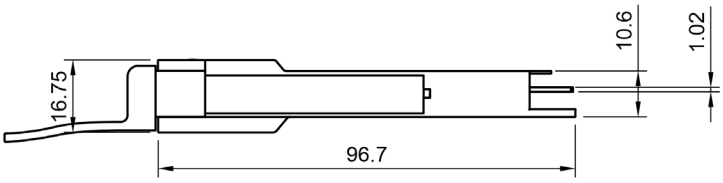
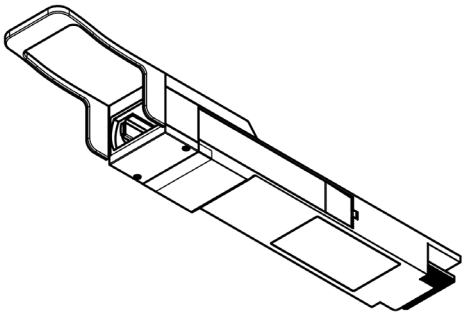
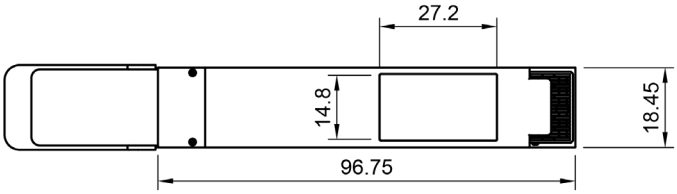
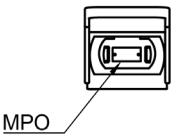
Receiver Parameters:	Value
Average Receive Power Each Lane (Max):	4 dBm
Damage Threshold Each Lane:	5 dBm
Receiver Sensitivity (OMA) Each Lane:	-4.4 dB
Receiver Reflectance (Max):	-26 dB
LOS Assert (Min):	- 30 dBm
LOS De-assert (Max):	- 12 dBm
LOS Hysteresis (Min):	0.5 dB

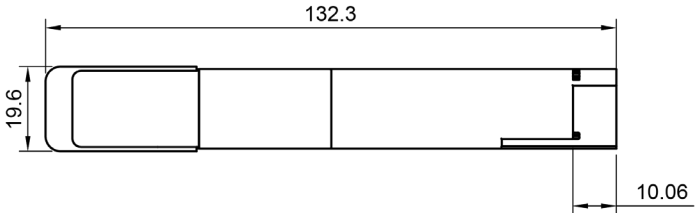
Mechanical Dimensions:

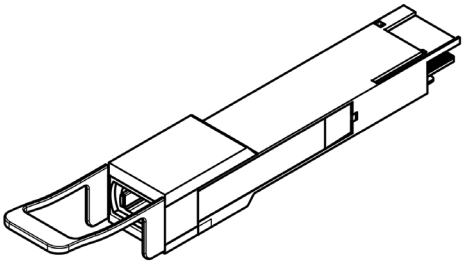












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Compatibility:

EDGE Optical transceivers can be provided with custom-encoded firmware, in order to provide compatibility with more then 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

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.

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