8G-ZR-DXXX-BR1

SFP+, 8/4/2 Gbps FC/FICON, DWDM 100GHz, DDM, 23dB, 80km, D200 - D600 (41ch)

BROCADE

OVERVIEW

The 8G-ZR-Dxxx-BR1 is a versatile DWDM transceiver in SFP+ form-factor supporting a wide range of Fiber Channel (FC) services (2G to 8G). The transceiver has been layer-1 tested and approved by Brocade.

The transceiver is provided in 41 channel versions at the 100GHz DWDM grid as specified in the ITU-T 694.1 standard. The transceiver can also be used in 1550/1530nm CWDM applications by selecting wavelength versions that match these.

The optical performance provides a bridgeable distance of up to 80km (without dispersion compensation) for 8G FC.
This transceiver provides digital diagnostic functions via a 2-wire serial interface as defined by the SFF-8472 specification.

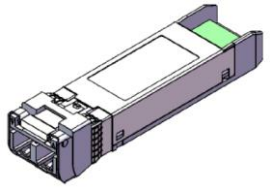
The transceiver module is compliant to RoHS-6/6.

TECHNICAL DATA

Technology		DWDM 100GHz SFP+
Transmission media		SM (2x LC)
Typical reach		80 km
Nominal wavelength		192.00 - 196.00 THz (41ch)
Bit rate range		2.125 – 8.5 Gbps
Protocols	FC:	8G FC 4G FC 2G FC
Power budget		10 – 23 dB [1) 2)]
Dispersion tolerance		-500 to 1600 ps/nm
Dispersion penalty		Max: 3 dB
Temperature range		0°C to +70°C
Power consumption		< 1.7 W

Transmitter data	Output power (avg):	Min: -1.0 dBm Max: +3.0 dBm
	Tx wavelength:	192.00 - 196.00 THz in 100GHz steps (G.694.1)
Receiver data	Minimum input power:	-24.0 dBm [1) 2)]
	Max input power:	-7.0 dBm
	Wavelength range:	1480 – 1580 nm
DDM		Yes
MSA compliance		SFF+ MSA

[1)] @ 8.5 Gbps (8G FC)
[2)] @ BER < 1E-12 using PRBS 2^{31}-1



Regulatory compliance	
RoHS	RoHS 6
Safety	EN 60825-1 Class 1 laser product

Storage temp.	-40°C to 85°C

For a 1550nm CWDM channel the DWDM channels D250 – D410 can be used.
For a 1530nm CWDM channel the DWDM channels D500 – D600 can be used.
(The ITU G.694.2 channel grid states 1551/1531nm ± 7nm)

For 1550nm single-channel applications, the ITU-T G.959 states 1500nm – 1565nm, which means any channel between D200 – D600.

ORDERING INFORMATION

Part number	ITU channel	λ nm
8G-ZR-D200-BR1	192.00	1561.42
8G-ZR-D210-BR1	192.10	1560.61
8G-ZR-D220-BR1	192.20	1559.79
8G-ZR-D230-BR1	192.30	1558.98
8G-ZR-D240-BR1	192.40	1558.17
8G-ZR-D250-BR1	192.50	1557.36
8G-ZR-D260-BR1	192.60	1556.55
8G-ZR-D270-BR1	192.70	1555.75
8G-ZR-D280-BR1	192.80	1554.94
8G-ZR-D290-BR1	192.90	1554.13
8G-ZR-D300-BR1	193.00	1553.33
8G-ZR-D310-BR1	193.10	1552.52
8G-ZR-D320-BR1	193.20	1551.72
8G-ZR-D330-BR1	193.30	1550.92
8G-ZR-D340-BR1	193.40	1550.12
8G-ZR-D350-BR1	193.50	1549.32
8G-ZR-D360-BR1	193.60	1548.51
8G-ZR-D370-BR1	193.70	1547.72
8G-ZR-D380-BR1	193.80	1546.92
8G-ZR-D390-BR1	193.90	1546.12

Part number	Freq. THz	λ nm
8G-ZR-D400-BR1	194.00	1545.32
8G-ZR-D410-BR1	194.10	1544.53
8G-ZR-D420-BR1	194.20	1543.73
8G-ZR-D430-BR1	194.30	1542.94
8G-ZR-D440-BR1	194.40	1542.14
8G-ZR-D450-BR1	194.50	1541.35
8G-ZR-D460-BR1	194.60	1540.56
8G-ZR-D470-BR1	194.70	1539.77
8G-ZR-D480-BR1	194.80	1538.98
8G-ZR-D490-BR1	194.90	1538.18
8G-ZR-D500-BR1	195.00	1537.40
8G-ZR-D510-BR1	195.10	1536.61
8G-ZR-D520-BR1	195.20	1535.82
8G-ZR-D530-BR1	195.30	1535.04
8G-ZR-D540-BR1	195.40	1534.25
8G-ZR-D550-BR1	195.50	1533.47
8G-ZR-D560-BR1	195.60	1532.68
8G-ZR-D570-BR1	195.70	1531.90
8G-ZR-D580-BR1	195.80	1531.12
8G-ZR-D590-BR1	195.90	1530.33
8G-ZR-D600-BR1	196.00	1529.55

DEFINITIONS

Technology:	Grey; Transceiver type for non-WDM applications. Electrical or optical. CWDM; Transceiver type for CWDM applications using G.694.2 channel grid. DWDM; Transceiver type for DWDM applications using G.694.1 channel grid. BiDi; Transceiver pair using two different wavelength channels operating on a single-fiber. DAC: Direct Attach Cable. Electrical or optical cable with attached connectors.
Transmission Media:	Type of fiber, e.g. Multimode (MM) or Singlemode (SM). Number of and connector type within brackets (e.g. 2x LC, 1x MPO).
Typical reach:	Nominal distance performance based on dispersion and power budget properties, i.e. w/o dispersion compensation and optical amplification.
Bit rate range:	Supported bit rate range in Gigabit or Megabit per second (Gbps or Mbps).
Protocols:	Protocols within supported bit rate range.
Nominal wavelength:	Typical wavelength from transmitter.
Interface standards:	Referenced interface standards e.g. IEEE 802.3 standard for 10GbE services.
Power budget:	Min and max power budget between Transmitter and Receiver. Excluding any dispersion penalty.
Dispersion tolerance/penalty:	Maximum amount of tolerated dispersion and required reduction of power budget to maintain BER better than $1E^{-12}$. Defined at a specific bit rate.
Temperature range:	Max operating case temperature range. Standard temperature range: Typically 0°C to +70°C (32°F to +158°F) Extended temperature range (E-temp): Typically -20°C to +75°C (-4°F to +167°F) Industrial temperature range (I-temp): -40°C to +85°C (-40°F to +185°F)
Power consumption:	Worst case power consumption.
Transmitter Output power:	Average output power. Provided in min and max values.
Receiver minimum input power:	Minimum average input power at specified BER, normally $1E^{-12}$.
Receiver max input power:	Maximum average input power at specified BER, normally $1E^{-12}$.
DDM:	Digital Diagnostic Monitoring functionality as defined in SFF-8472 MSA.