

OPTICAL SOLUTIONS

FIBRAIN Optical module QSFP28, 100Gbps, SR4, 100m



APPLICATIONS

- 100GBASE-SR4
- Rack-to-Rack connections
- Infiniband QDR, DDR, SDR

KEY FEATURES

- Speeds from 103.1Gbps up to 111.8Gbps
- Up to 100m reach over MM fiber (OM4)
- VCSEL array transmitter
- PIN array receiver
- CAUI-4 and IIC electrical interfaces
- Full compliance with CFP MSA 1.4

Fibrain FTH-M01T-S85M-10MD QSFP28 form-factor transceiver has been designed for use in high speed applications such as connections between core routers with speeds up to 111.8Gbps. Such high throughput was possible thanks to combined line rates of four CAUI-4 lines (each of which is capable to transmit data with speeds up to 27.95Gbps). Maximum estimated transmission distance can reach 100m (over OM4 multimode fiber). FTH-M01T-S85M-10MD is fully compliant with IEEE 802.3bm 100GBASE-SR specification.

TECHNICAL SPECIFICATION - ELECTRICAL INTERFACE

TRANSMITTER PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Differential Data Input Amplitude	VIN_P-P	180		1000	mV	
Differential Line Impedance			100		Ω	
Differential Termination Mismatch				10	%	
Transmitter Disable – Laser Enabled	VIL	-0.3		0.8	V	
Transmitter Disable – Laser Disabled	VIH	2.0		Vcc + 0.3	V	

RECEIVER PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Differential Data Output Amplitude	VOUT_P-P	228		900	mV, p-p	
Differential Line Impedance			100		Ω	
Differential Termination Mismatch				10	%	
Output Rise/Fall Time	TR	12			ps	
RX LOS – RX Signal Received	VOL			0.2	V	
RX LOS – RX Signal Lost	VOH	Vcc - 0.2		Vcc + 0.3	V	

TECHNICAL SPECIFICATION - OPTICAL INTERFACE

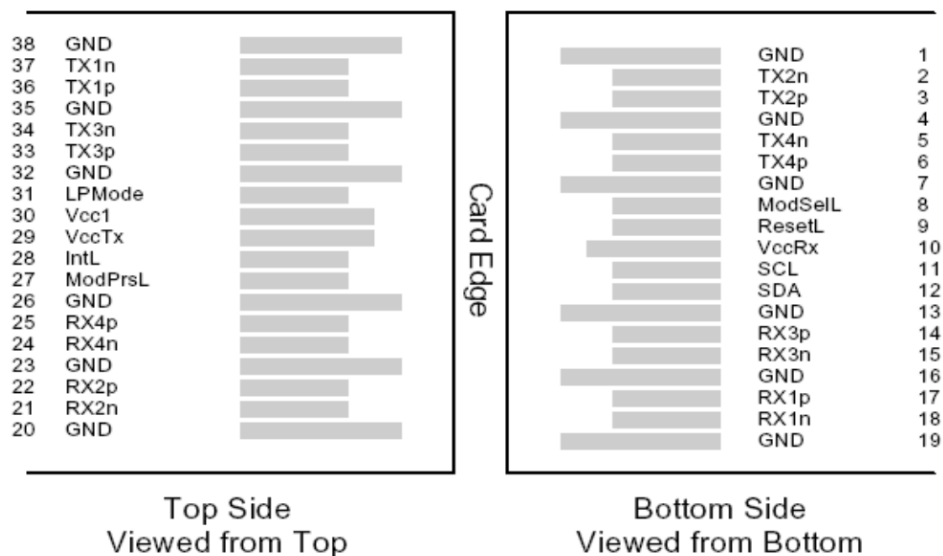
TRANSMITTER PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Central wavelength	λ	840	850	860	nm	4
Spectral Width				0.6	nm	
Average Launch Power per Lane, 100GE	PTX_LANE	-8.4		2.4	dBm	1
OMA per Lane, 100GE	OMA	-6.4		3.0	dBm	1
Difference in launch power between lanes	PTX_DELTA_LANE			4	dB	
Average Output Power (Laser Turn off)	POUT-OFF			-30	dBm	
Extinction Ratio, 100GE	ER	2			dB	
Transmitter and Dispersion Eye Closure	TDEC			4.3	dB	3
Optical Return Loss Tolerance	ORLT			12	dB	
Optical Eye Mask, 100GE		Compliant with IEEE 802.3bm				2

RECEIVER PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Central wavelength	λ	840	850	860	nm	3
Average Rx Power per Lane, 100GE	PRX_LANE	-10.3		2.4	dBm	2
OMA Sensitivity per Lane, 100GE	POMA_LANE			-9.2	dBm	
OMA Sensitivity per Lane, 100GE, Stressed	SPOMA_LANE			-5.2	dBm	2
Receiver Overload (Damage)	PIN-OL	3.4			dBm	3
Reflectance	Ref			-26	dB	
LOS Assert per lane	LODA	-30			dB	
LOS De-assert per lane	LODS			-12	dB	
LOS Hysteresis	LOSH	0.5		4.0	dB	

1. The optical power is launched into MMF.
2. Measured with a PRBS 231-1 test pattern @25.78125 Gb/s.
3. Each line

MODULE PINOUT

Module pinout is fully compliant with QSFP28 MSA specification. For more detailed description please check <https://ta.snia.org/higherlogic/ws/public/download/360/SFF-8679.PDF>



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Storage Temperature	TS	-40		+85	°C	
Supply Voltage	VCC	-0.5		10	V	
Operating Relative Humidity	RH			85	%	

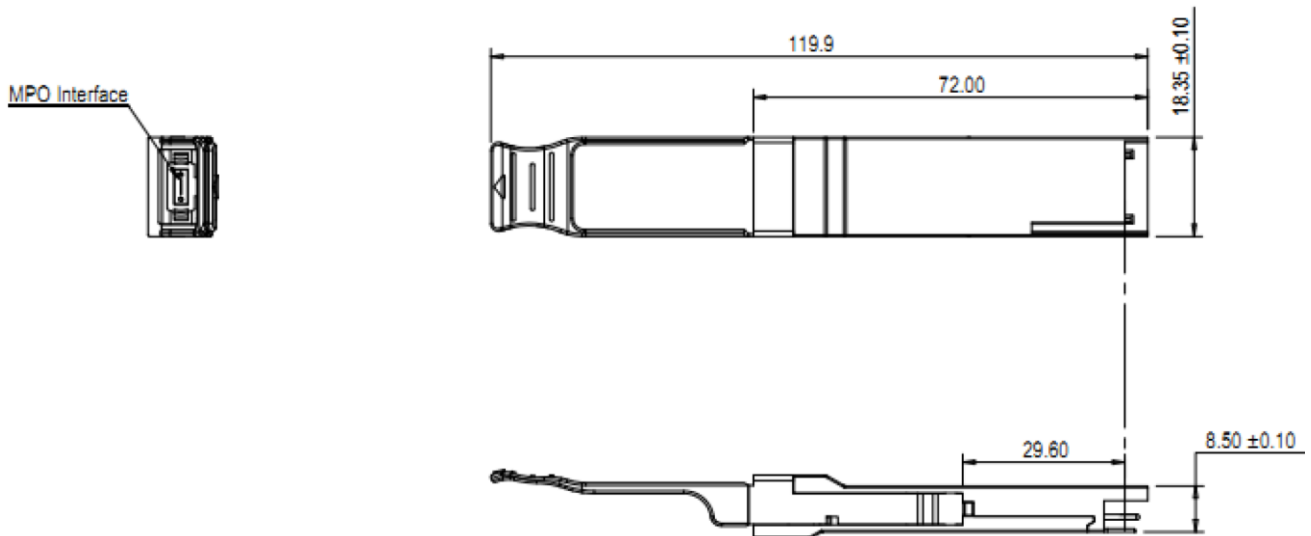
It has to be noted that the operation in excess of any individual absolute maximum ratings might cause permanent damage to this module.

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	TYPICAL	MAX	UNIT	NOTES
Operating Case Temperature	TC	0		+70	°C	
Power Supply Voltage	VCC	3.145	3.3	3.465	V	
Power Supply Current	ICC			1.06	A	
Maximum Power Dissipation	PD			3.5	W	
Aggregate Bit Rate	BRAVE		103.125	111.8	Gbps	
Lane Bit Rate	BRLANE		25.78	27.95	Gbps	
Transmission Distance	TD			100	m	1

1. OM4 multimode fiberMF.

MECHANICAL DRAWINGS



ORDERING INFORMATION

Part Number	Description
FTH-M01T-S85M-10MD	QSFP28 100G SR4 100m optical module. Please inform us about compatibility requirement

Fbrain Sp. z o.o. reserves the right to make changes to the products or information contained herein without notice. No liability is assumed as a result of their use or application. Pictures used for reference only, actual product look may differ. For the most actual information please contact technical support via aktywa@fibrain.pl