

Fortinet Compatible transceiver FG-TRAN-SX

PART NUMBER: FG-TRAN-SX-C

PRODUCT FEATURES:

Hot-swappable SFP Fortinet compatible transceiver

Compliant with IEEE Std 802.3-2005, Gigabit Ethernet 1000Base-SX

Compliant with SFF-8074i and SFF-8472, revision 9.5

Compliant with SFP MSA Specification, duplex LC connector compliant

Uncooled 850nm VCSEL Laser class 1 safety certified

Up to 1.25Gb/s bi-directional data links

Digital Diagnostic Monitoring available

RoHS6 Compliant



SPECIFICATIONS:

Original Part Number:	FG-TRAN-SX
Device type:	SFP SX
Package:	SFP MSA
Wavelength:	850nm
Distance/Power Budget:	Up to 550m on 50/125µm multimode fiber, 300m on 62.5/125µm multimode fiber
Optical componentes	LED: Laser VCSEL
Output power:	-9 ~ -3dBm
Receiver Sensitivity:	< -18dBm
Power Supply Voltage:	3,3V
Connector:	Dual LC
Fiber type:	Multimode
Operating Temperature:	0 - 70 °C
Application:	Gigabit Ethernet 1000Base-SX
DDM / DOM	Avaliable
Compatibility:	100 % Fortinet Compatible
ROHS:	Compliant

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ABSOLUTE MAXIMUM RATINGS:

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

Parameter	Symbol	Minimum	Maximum	Unit
Storage Temperature	Ts	-40	85	°C
Relative Humidity	RH	5	95	%
Supply Voltage	Vcc	-0,5	4,0	V

RECOMMENDED OPERATING CONDITIONS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Operating Case Temperature	Tc	-10	25	70	°C
Supply Voltage	Vcc	3,135	3,3	3,465	V
Data Rate	-	0,1	-	1,25	Gb/s

TRANSCEIVER ELECTRICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	
Module Supply Current	Icc	-	-	220	mA	
Power dissipation	Pd	-	-	800	mW	
Transmitter Differential Input Voltage (TD +/-)	-	300	-	2200	mVp-p	
Receiver Differential Output Voltage (RD +/-)	-	600	-	1200	mVp-p	
LOW SPEED OUTPUT	Transmitter Fault(TX_FAULT) / Loss of Signal (LOS)	V _{OH}	2,0	-	Vcc	V
		V _{OL}	0	-	0,8	V
LOW SPEED INPUT	Transmitter Disable (TX_DISABLE), MOD_DEF 1, MOD_DEF 2 2	V _{IH}	2,0	-	Vcc	V
		V _{IL}	0	-	0,8	V

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TRANSMITTER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Launch Optical Power	P _o	-9	-6	-3	dBm	1
Center Wavelength Range	λ _c	830	850	860	nm	-
Extinction Ratio	EX	9	-	-	dB	-
Spectral Width(RMS)	Δλ	-	-	0,85	nm	-
Total Jitter	TJ	-	-	266	Ps	-
Dispersion Penalty	-	-	-	1	dB	-
Optical Rise/Fall Time	T _{rise} /T _{fall}	-	-	260	ps	-
Pout @TX-Disable Asserted	P _{off}	-	-	-30	dBm	-
Eye diagram	IEEE Std 802.3-2005 Gigabit Ethernet 1000BASE-SX compatible					

RECEIVER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Receiver Sensitivity	S	-	-	-18	dBm	1
Receiver Overload	P _{OL}	-3	-	-	dBm	1
Optical Return Loss	OR _L	12	-	-	dB	-
LOS De-Assert	LOS _D	-	-	-19	dBm	-
LOS Assert	LOS _A	-35	-	-	dBm	-
LOS Hysteresis	-	0,5	3	5	dB	-

Notas:

1: MMF 50/125μm with NA = 0,2, MMF 62.5/125μm with NA = 0,275

Parameter	Symbol	Minimum	Typical	Maximum	Unit
Tx disable assert time	T _{off}	-	-	10	μs
Tx disable negate time	T _{on}	-	-	1	ms
Time to initialize,include reset of TX FAULT	T _{init}	-	-	300	ms
TX FAULT from fault to assertion	T _{fault}	-	-	100	μs
Receiver LOS Assert Time(off to on)	T _{D,RX LOS}	-	-	80	μs
Receiver LOS Assert Time(on to off)	T _{A,RX LOS}	-	-	80	μs
Serial I2C Clock Rate	I2C Clock			100	KHz

The FG-TRAN-SX is a Class 1 laser product. It fully complies with the multi-sourcing agreement (MSA) which enables it to work in all MSA compliant platforms. The FG-TRAN-SX must be operated within the specified temperature and voltage limits.

The optical ports of the module shall be terminated with an optical connector or with a dust plug.