

## **F5 Networks Compatible transceiver F5-UPG-SFPLX-R**

### **PART NUMBER: F5-UPG-SFPLX-R-C**

#### **PRODUCT FEATURES:**

Hot-swappable SFP F5 Networks compatible transceiver

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

Compliant with SFF-8074i

Compliant with SFP MSA Specification, duplex LC connector compliant

Uncooled 1310nm Fabry-Perot (FP) Class 1 laser safety certified

Up to 1.25Gb/s bi-directional data links

Single +3.3V DC power supply

RoHS6 Compliant



#### **SPECIFICATIONS:**

<b>Original Part Number:</b>	F5-UPG-SFPLX-R
<b>Device type:</b>	SFP LX
<b>Package:</b>	SFP MSA
<b>Wavelength:</b>	1310nm
<b>Distance/Power Budget:</b>	Up to 10km on 9/125µm SMF
<b>Optical components</b>	LED: Fabry-Perot (FP)Laser
<b>Output power:</b>	-9 ~ -3dBm
<b>Receiver Sensitivity:</b>	< -23dBm
<b>Power Supply Voltage:</b>	3,3V
<b>Connector:</b>	Dual LC
<b>Fiber type:</b>	Single Mode
<b>Operating Temperature:</b>	0 - 70 °C
<b>Application:</b>	Gigabit Ethernet 1000Base-LX
<b>Compatibility:</b>	100 % F5 Networks Compatible
<b>ROHS:</b>	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 <sub>OH</sub>	2,0	-	Vcc	V
		V <sub>OL</sub>	0	-	0,8	V
LOW SPEED INPUT	Transmitter Disable (TX_DISABLE), MOD_DEF 1, MOD_DEF 2 2	V <sub>IH</sub>	2,0	-	Vcc	V
		V <sub>IL</sub>	0	-	0,8	V

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### TRANSMITTER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Launch Optical Power	P <sub>o</sub>	-9	-6	-3	dBm	1
Center Wavelength Range	λ <sub>c</sub>	1260	1310	1360	nm	-
Extinction Ratio	EX	9	-	-	dB	-
Spectral Width(RMS)	Δλ	-	-	4	nm	-
Total Jitter	TJ	-	-	266	Ps	-
Dispersion Penalty	-	-	-	1	dB	-
Optical Rise/Fall Time	T <sub>rise</sub> /T <sub>fall</sub>	-	-	260	ps	-
Pout @TX-Disable Asserted	P <sub>off</sub>	-	-	-45	dBm	-
Eye diagram	IEEE Std 802.3-2005 Gigabit Ethernet 1000Base-LX compatible					

### RECEIVER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Receiver Sensitivity	S	-	-	-23	dBm	1
Receiver Overload	P <sub>OL</sub>	-3	-	-	dBm	1
Optical Return Loss	OR <sub>L</sub>	12	-	-	dB	-
LOS De-Assert	LOS <sub>D</sub>	-	-	-24	dBm	-
LOS Assert	LOS <sub>A</sub>	-35	-	-	dBm	-
LOS Hysteresis	-	0,5	3	5	dB	-

Notas:

1. Measured with PRBS 2<sup>7</sup>-1 test pattern, 1.25Gb/s, EX=9dB, BER<10<sup>-12</sup>.

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

The F5-UPG-SFPLX-R 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 F5-UPG-SFPLX-R 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.