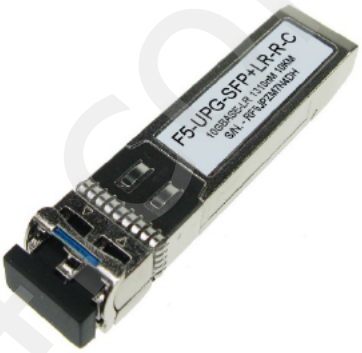
Datasheet

F5 Networks Compatible transceiver F5-UPG-SFP+LR-R

PART NUMBER: F5-UPG-SFP+LR-R-C



PRODUCT FEATURES:

Hot-swappable SFP+ F5 Networks compatible transceiver

Compliant with IEEE Std 802.3-2005 10G Ethernet 10GBase-LR/LW

Electrical interface specifications per SFF-8431

Management interface specifications per SFF-8431 and SFF-8472

SFP+ MSA package with duplex LC connector

Uncooled 1310nm DFB Laser Class 1 safety certified

Up to 10,3Gb/s bi-directional data links

Digital Diagnostic Monitoring available

SPECIFICATIONS:

Original Part Number:	F5-UPG-SFP+LR-R
Device type:	SFP+ LR/LW
Package:	SFP MSA
Data rate:	10,3Gbps
Wavelength:	1310nm
Distance/Power Budget:	Up to 10km on 9/125µm SMF
Optical componentes	Tipo de Led: Láser DFB
Output power:	-8,2 ~ +0,5dBm
Receiver Sensitivity:	< -14,4dBm
Power Supply Voltage:	3,3V
Connector:	Dual LC
Fiber type:	Single mode
Operating Temperature:	0 - 70 °C
DDM / DOM:	With
Application:	10 Gigabit Ethernet
Compatiblity:	100 % F5 Networks 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	0	25	70	°C
Supply Voltage	Vcc	3,135	3,3	3,465	V
Data rate	-	-	10,3125	-	Gb/s

TRANSCEIVER ELECTRICAL CHARACTERISTICS:

Parameter		Symbol	Minimum	Typical	Maximum	Unit	Notes
Module Supply Current		Icc	-	-	300	mA	-
Power Dissipation		Pd	-	-	1000	mW	-
Transmitter							
Input Differential Impedance		Zin	-	100	-	Ω	
Differential Data Input Swing		Vin, p-p	180	-	700	mVp-p	
TX_FAULT	Transmitter Fault	V_{OH}	2,0	-	V_{CCHOST}	V	TX_FAULT
	Normal Operation	V_{OL}	0	-	0,8	V	
TX_DISABLE	Transmitter Disable	V_{IH}	2,0	-	V_{CCHOST}	V	TX_DISABLE
	Transmitter Enable	V_{IL}	0	-	0,8	V	
Receiver							
Output Differential Impedance		Zo	-	100	-	Ω	
Differential Data Output Swing		Vin, p-p	300	-	850	mVp-p	
Data Output Rise Time, Fall Time		tr,tf	28	-	-	Ps	1
RX_LOS	Loss of signal (LOS)	V_{OH}	2,0	-	Vcc	V	RX_LOS
	Normal Operation	V_{OL}	0	-	0,8	V	

Notes:
1. 20-80%

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TRANSMITTER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Launch Optical Power	Po	-8,2	-	+0,5	dBm	1
Center Wavelength Range	λc	1260	1310	1355	nm	-
Extinction Ratio	EX	3,5	-	-	dB	2
Optical Modulation Amplitude	OMA	-5,2	-	-	dbM	
Spectral Width (-20dB)	Δλ	-	-	1	nm	-
Transmitter and Dispersion Penalty	TDP	-	-	3,2	dB	-
Optical Return Loss Tolerance	ORLT	-	-	12	dB	-
Pout @TX-Disable Asserted	Poff	-	-	-30	dBm	1
Eye Diagram	IEEE Std 802.3-2005 10Gb Ethernet 10GBASE-LR compatible					

Notes:

1. The optical power is launched into 9/125μm SMF.
2. Measured with a PRBS 2^{31}-1 test pattern @10,3125Gbps.

RECEIVER OPTICAL CHARACTERISTICS:

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Center Wavelength	λc	1260	1310	1355	nm	-
Receiver Sensitivity (Pavg)	S	-	-	-14.4	dBm	1
Receiver Sensitivity (OMA)	S_{OMA}	-	-	-12.6	dBm	1
Receiver Overload (Pavg)	P_{OL}	0,5	-	-	dBm	1
Stressed Sensitivity (OMA)	-	-	-	-10,3	dB	2
Optical Return Loss	ORL	12	-	-	dBm	-
LOS De-Assert	LOS_D	-	-	-16	dBm	-
LOS Assert	LOS_A	-30	-	-	dBm	-
LOS Hysteresis	-	0,5	-	-	dB	-

Notes:

1. Measured with PRBS 2^{31}-1 test pattern, 10.3125Gb/s, BER<10^{-12}.
2. Comply with IEEE 802.3-2005.

The F5-UPG-SFP+LR-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-SFP+LR-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.