

## Juniper Compatible QFX-SFP-10GE-LRM Quick Spec:

Part Number	QFX-SFP-10GE-LRM QFX-SFP-10GE-LRM-EXT QFX-SFP-10GE-LRM-IND
Form Factor:	SFP+
TX Wavelength:	1310nm
Reach:	300m
Cable Type:	MMF
Rate Category:	10GBase
Interface Type:	LRM
DDM:	Yes
Connector Type:	Dual-LC
Power Budget:	6.0 dB
TX Power Min/Max:	-8.00 to 0.50
RX Power Min/Max:	-14.00 to -3.00



## Juniper Compatible QFX-SFP-10GE-LRM Features

- Operating Data Rate up to 10.3Gbps
- 1310nm DFB-LD Transmitter
- Reach:
  - OM1 (62.5/125micron) 220m
  - OM2 (50/125micron 400 MHz\*km) 100m
  - OM3 (50/125micron 500 MHz\*km) 220m
  - G.652 (9/125micron singlemode) 300m
- Single 3.3V Power Supply and TTL Logic Interface
- Hot Pluggable
- Operating Case Temperature:
  - Standard: 0°C to +70 °C
  - Extended -5°C to +85 °C
  - Industrial -40°C to +85 °C
- Compliant with MSA SFP+
- Compliant with IEEE 802.3ae 10GBASE-LR
- Compliant with IEEE 802.3ae 10GBASE-LW
- Compliant with SFF-8472
- RoHS 6 Compliant

## Juniper Compatible QFX-SFP-10GE-LRM Applications

- 10GBASE-LR at 10.3125Gbps
- 10GBASE-LW at 9.953Gbps
- Other Optical Links

## Juniper Compatible QFX-SFP-10GE-LRM Specification

### Electrical Characteristics (Condition: Ta=TOP)

Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
CML Inputs(Differential)	Vin	150		1200	mV p-p	AC coupled inputs
Supply Current	ICC			300	mA	
Input Impedance (Differential)	Zin	85	100	115	ohm	Rin > 100 kohm @ DC
Tx_Disable Input Voltage – Low	VIL	0		0.8	V	
Tx_Disable Input Voltage – High	VIH	2.0		3.45	V	
Tx_Fault Output Voltage – Low	VOL	0		0.5	V	
Tx_Fault Output Voltage – High	VOH	2.0		Vcc+0.3	V	
CML Outputs (Differential)	Vout	350		700	mV pp	AC coupled outputs
Output Impedance (Differential)	Zout	85	100	115	ohms	
Rx_LOS Output Voltage- Low	VOL	0		0.5	V	
Rx_LOS Output Voltage- High	VOH	2.5			V	

## Optical Characteristics (Condition: Ta=TOP)

TX						
Parameter		Symbol	Min	Typ	Max	Unit
Data Rate			-	10.3	-	Gb/s
9µm Core Diameter SMF				10		Km
Centre wavelength		$\lambda_c$	1270	1310	1355	nm
Output Spectral Width(-20dB)		$\Delta\lambda$	-	-	1	nm
Average Output Power		$P_{out}$	-8	-	+0.5	dBm
Extinction Ratio		ER	3.5	-	-	dB
Average Power of OFF Transmitter					-30	dBm
Side Mode Suppression Ratio		SMSR	30			dB
Input Differential Impedance		$Z_{in}$	90	100	110	$\Omega$
TX Disable	Disable		2.0		$V_{cc}+0.3$	V
	Enable		0		0.8	
TX Fault	Fault		2.0		$V_{cc}+0.3$	V
	Normal		0		0.8	
TX Disable Assert Time		$t_{off}$			10	us
RX						
Parameter		Symbol	Min	Typ	Max	Unit
Center Wavelength		$\lambda_c$	1260		1565	nm
Receive Sensitivity		$P_{in}$	-	-	-14	dBm
Maximum Input Power		$P_{MAX}$	-3	0	-	dBm
Signal Detect Threshold-Assertion:		$SD_{HIGH}$	-	-	-15	dBm
Signal Detect Threshold-Deassertion:		$SD_{LOW}$	-25	-	-	dBm
Output Differential Impedance		$P_{in}$	90	100	110	$\Omega$
Receiver Overload		$P_{max}$	0.5			dBm
Optical Return Loss		ORL			-12	dB
LOS	High		2.0		$V_{cc}+0.3$	V
	Low		0		0.8	

### Absolute Maximum Ratings (T<sub>C</sub>=25°C)

Parameter	Symbol	Min	Max	Unit
Storage Temperature	T <sub>ST</sub>	-40	+85	°C
Operating Temperature (Standard)	T <sub>IP</sub>	0	+70	°C
Operating Temperature (Industrial)		-40	+85	
Input Voltage	T <sub>CC</sub>	0	5	V

### Recommend Operation Environment

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	V <sub>CC</sub>	+3.15	3.3	+3.45	V
Operating Temperature	T <sub>OP</sub>	0	-	+70	°C
Operating Temperature		-40	-	+85	

### Licensing

The following U.S. patents are licensed by Finisar to FluxLight, Inc.:

U.S. Patent Nos: 7,184,668, 7,079,775, 6,957,021, 7,058,310, 6,952,531, 7,162,160, 7,050,720