

100G-CFP2-LR4-10KM-LEG
BROCADE 100GBASE-LR4 CFP2 SMF
CWDM 10KM REACH LC DOM



100G-CFP2-LR4-10KM-LEG

100Gbase CFP2 Transceiver

Features

- Supports 103Gbps and 112Gbs aggregate bit rates
- Single 3.3V Power Supply and Power dissipation <9W
- Distance up to 10km on SMF
- Hot-Pluggable CFP2 Footprint Duplex LC Connector Interface
- Class 1 FDA and IEC60825-1 Laser Safety Compliant
- RoHS6 Compliant
- Operating Case Temperature Standard: 0°C ~ +70°C
- Compliant with CFP2 MSA Specification
- MDIO Interface with integrated Digital Diagnostic Monitoring
- 4 x 28G electrical interface

Product Description

Legrand's 100G-CFP2-LR4-10KM-LEG Form Factor Pluggable CFP2 transceivers are compatible with the Small Form Factor Pluggable Multi-Sourcing Agreement (MSA). The CFP2 transceivers are high performance, cost effective modules supporting 100 Gigabit Ethernet and up to 10km transmission distance with SMF.

Legrand's CFP transceivers are RoHS compliant and lead-free.

Regulatory Compliance

Product Certificate	Certificate Number	Applicable Standard
TUV	R50135086	EN 60950-1:2006+A11+A1+A12
		EN 60825-1:2007
		EN 60825-2:2004+A1+A2

UL	E317337	UL 60950-1
		CSA C22.2 No. 60950-1-07
EMC CE	AE 50285865 0001	EN 55022:2010
		EN 55024:2010
CB	JPTUV-049251	IEC 60825-1
		IEC 60950-1
FCC	WTF14F0514437E	47 CFR PART 15 OCT., 2013
FDA	1331340-000	CDRH 1040.10
ROHS	RHS01G006464	2011/65/EU

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Storage Temperature	TST	-40	+85	°C
Supply Voltage	VCC	-0.5	3.6	V
Humidity (non-condensing)	Rh	5	85	%

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Case Temperature	TOP	0		+70	°C
Power Supply Voltage	VCC	3.2	3.3	3.41	V
Power Consumption	P			9	W

Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Input Amplitude (Differential)	VIN			1050	mVpp
Input Impedance (Differential)	Zin	80	100	120	ohms
Receiver					
Output Amplitude (Differential)	Vout	360		770	mVpp
Output Impedance (Differential)	Zout	80	100	120	Ohms
Output Rise/Fall Time (Differential)		24			ps

1.2V MDIO Interface Specifications

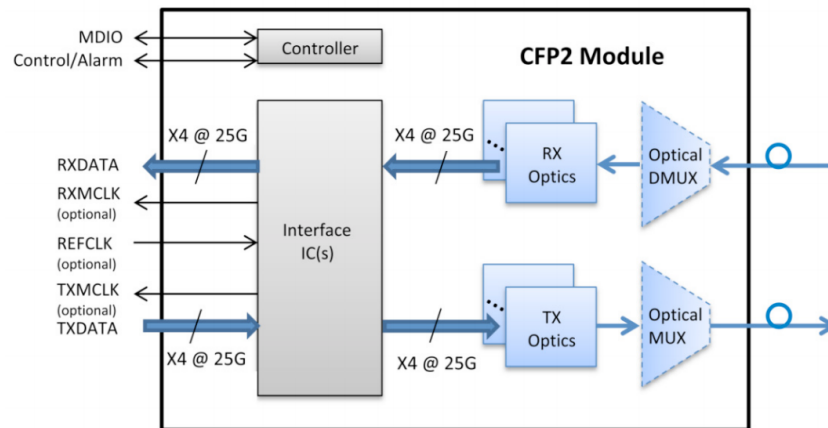
Parameter	Symbol	Min.	Typ.	Max.	Unit
Input Voltage	V_{IH}	0.84		1.5	V
	V_{IL}	-0.3		0.36	V
Input Leak current	I_{IN}	-100		100	μA
Output Voltage	V_{OH}	1.0		1.5	V
	V_{OL}	-0.3		0.2	V
Input Capacitance	C_I			10	pF
Input MDC Clock	f_{MDC}	0.1		4	MHz
MDC Clock Period	T_{MDC}	250		1000	ns
MDIO Hold Time	T_{hold}	10			ns
MDIO SetupTime	T_{setup}	10			ns
GLB_ALM	$T_{glb_alm_ass}$			150	ms
	$T_{glb_alm_dea}$			150	ms

Optical Characteristics

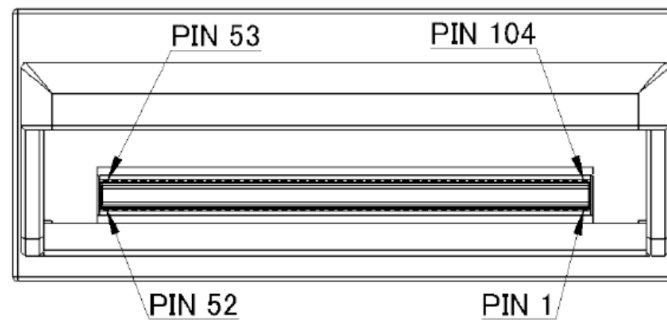
Parameter	Symbol	Min.	Typ.	Max.	Unit
Transmitter					
Four Lane Wavelength Range	λ_1	1294.53	1295.56	1296.59	nm
	λ_2	1299.02	1300.05	1301.09	
	λ_3	1303.54	1304.58	1305.63	
	λ_4	1308.09	1309.14	1310.19	
Signaling Speed per Lane			27.95		Gbps
Side Mode Suppression Ratio	SMSR	30			dB
Total Average Launch Power	P_o			8.9	dBm
Average Launch Power per Lane	P_{each}	-2.5		2.9	dBm
Side Mode Suppression Ratio	SMSR	30			dB
Optical Return Loss Tolerance				20	dB
Extinction Ratio	ER	7			dB
Transmitter eye mask	G.959.1 Compliant				
TX Disable Assert Time	T_{off}			100	dB
Receiver					
Four Lane Wavelength	λ_1	1294.52	1295.56	1296.59	nm
	λ_2	1299.02	1300.05	1301.09	
	λ_3	1303.54	1304.58	1305.63	

	$\lambda 4$	1308.09	1309.14	1310.19	
Signaling Speed per Lane			27.95		Gbps
Average Receive Power per Lane	Rpow1	-10.6		4	dBm
Average Receive Power per Lane	Rpow	-8.8		2.9	dBm
Receive Sensitivity per Lane	Pmin1			-10.6	dBm
Receive Sensitivity per Lane	Pmin2			-10.3	dBm
Receiver Overload per Lane	Pmax	4.5			dBm
Optical Return Loss	ORL			-26	dB
Los Assert		-21			dBm
Los De-assert				-11	dBm
Los Hysteresis		0.5			dBm

Functional Description of Transceiver



CFP2 Transceiver Electrical Pad Layout



Pin Function Definitions

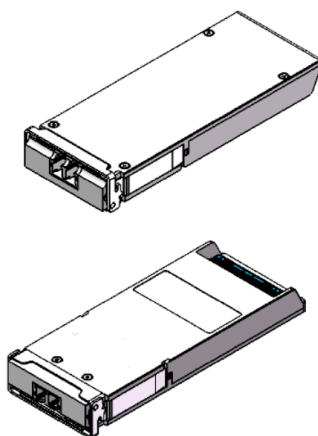
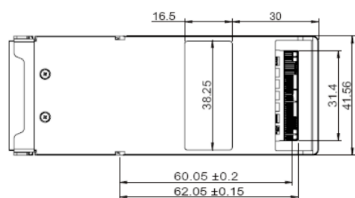
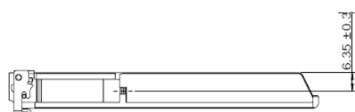
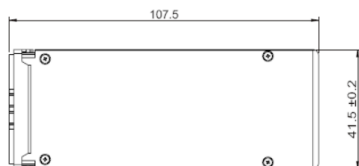
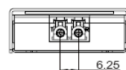
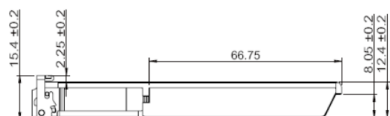
CFP2	
Bottom	
1	GND
2	(TX_MCK_N)
3	(TX_MCK_P)
4	GND
5	N.C.
6	N.C.
7	3.3V_GND
8	3.3V_GND
9	3.3V
10	3.3V
11	3.3V
12	3.3V
13	3.3V_GND
14	3.3V_GND
15	VND_IO_A
16	VND_IO_B
17	PRG_CNTL1
18	PRG_CNTL2
19	PRG_CNTL3
20	PRG_ALARM1
21	PRG_ALARM2
22	PRG_ALARM3
23	GND
24	TX_DIS
25	RX_LOS
26	MOD_LOPWR
27	MOD_ABS
28	MOD_RSTn
29	GLB_ALRMn
30	GND
31	MDC
32	MDIO
33	PRTADR0
34	PRTADR1
35	PRTADR2
36	VND_IO_C
37	VND_IO_D
38	VND_IO_E
39	3.3V_GND

CFP2	
Top	
104	GND
103	N.C.
102	N.C.
101	GND
100	TX3n
99	TX3p
98	GND
97	TX2n
96	TX2p
95	GND
94	N.C.
93	N.C.
92	GND
91	N.C.
90	N.C.
89	GND
88	TX1n
87	TX1p
86	GND
85	TX0n
84	TX0p
83	GND
82	N.C.
81	N.C.
80	GND
79	(REFCLKn)
78	(REFCLKp)
77	GND
76	N.C.
75	N.C.
74	GND
73	RX3n
72	RX3p
71	GND
70	RX2n
69	RX2p
68	GND
67	N.C.
66	N.C.

40	3.3V_GND
41	3.3V
42	3.3V
43	3.3V
44	3.3V
45	3.3V_GND
46	3.3V_GND
47	N.C.
48	N.C.
49	GND
50	(RX_MCK_N)
51	(RX_MCK_P)
52	GND

65	GND
64	N.C.
63	N.C.
62	GND
61	RX1n
60	RX1p
59	GND
58	RX0n
57	RX0p
56	GND
55	N.C.
54	N.C.
53	GND

Mechanical Specifications



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