

CFP2 OPTEC, 100G, SM LC, 10km, TX1310, DDM

Description:

CFP2 OPTEC 100GBASE-LR4 module supports a link length of 10, 20, 30km kilometers on standard single-mode fiber (SMF, G.652). 100 Gigabit Ethernet signal is carried over four wavelengths. Multiplexing and demultiplexing of the four wavelengths are managed within the device. Compliant with CFP2 MSA Specification.



Ordering Information						
Name	Rate	Temp. [°C]	Wavelength	Distance	Connector	Fibre Type
CFP2 OPTEC, 100G, SM LC, 10km, TX1310, DDM	Up To 112Gbps	0 ~ +70	1310nm	10km	LC	SMF

Regulatory Compliance		
Feature	Standard	Performance
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
EMCCE	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	Typ.	Max	Unit
Storage Temperature	TS	-40		+85	°C
Supply Voltage	Vcc	-0.5		3.6	V
Operating Relative Humidity	RH	5		85	%

Recommend operating conditions					
Parameter	Symbol	Min	Typical	Max	Unit
Case operating Temperature, Standard	TC	0		+70	°C
Power Supply Voltage	Vcc	3.2	3.3	3.40	V
Power Consumption	P			9	W



CFP2 OPTEC, 100G, SM LC, 10km, TX1310, DDM

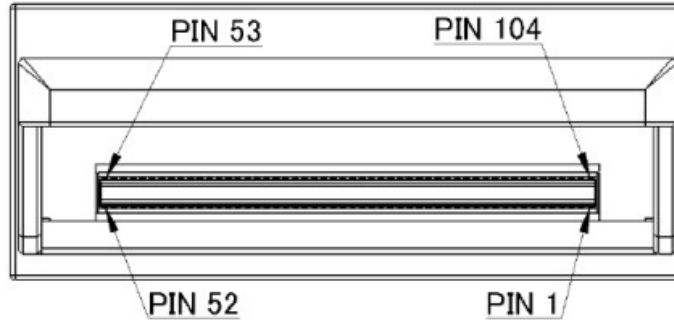
Performance Specifications - Electrical						
Parameter	Symbol	Min	Typ.	Max	Unit	Note
Transmitter						
Input Amplitude (Differential)	V _{in}			1050	mVpp	AC coupled inputs
Input Impedance (Differential)	Z _{in}	80	100	120	ohm	R _{in} > 100 kohms @ DC
Receiver						
Output Amplitude (Differential)	V _{out}	360		770	mVpp	AC coupled outputs
Output Impedance (Differential)	Z _{out}	80	100	120	ohm	
Output Rise/Fall Time	t _r /t _f	24			ps	20%~80%

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	uA	
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		10000	ns	
MDIO Hold Time	T _{hold}	10			ns	
MDIO Setup Time	T _{setup}	10			ns	
GLB_ALM	T _{glb_alm_ass}			150	ms	
	T _{glb_alm_dea}			150	ms	

Optical and Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	
Transmitter						
Signaling Speed per Lane	BR _{Ave}			27.95	GBPS	
Lane_0 Center Wavelength	λ _{C0}	1294.53	1295.56	1296.59	nm	
Lane_1 Center Wavelength	λ _{C1}	1299.02	1300.05	1301.09	nm	
Lane_2 Center Wavelength	λ _{C2}	1303.54	1304.58	1305.63	nm	
Lane_3 Center Wavelength	λ _{C3}	1308.09	1309.14	1310.19	nm	
Total Average Output 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 definition {X1, X2, X3, Y1, Y2, Y3}			G.959.1 Compliant			
TX Disable Assert Time	t _{off}			100	us	
Receiver						
Signaling Speed per Lane	BR _{Ave}		27.95		Gbps	
Lane_0 Center Wavelength	λ _{C0}	1294.53	1295.56	1296.59	nm	
Lane_1 Center Wavelength	λ _{C1}	1299.02	1300.05	1301.09	nm	
Lane_2 Center Wavelength	λ _{C2}	1303.54	1304.58	1305.63	nm	
Lane_3 Center Wavelength	λ _{C3}	1308.09	1309.14	1310.19	nm	
Average Receive Power per Lane	R _{pow1}	-10.6		4	dBm	
Average Receive Power per Lane	R _{pow}	-8.8		2.9	dBm	
Receive Sensitivity per Lane	P _{min1}			-10.6	dBm	
Receive Sensitivity per Lane	P _{min2}			-10.3	dBm	
Receiver Overload per Lane	P _{max}	4.5			dBm	
Optical Return Loss	ORL			-26	dB	
LOS Assert	LOSA	-21			dBm	
LOS De-Assert	LOSD			-11	dBm	
LOS Hysteresis		0.5			dB	



CFP2 OPTEC, 100G, SM LC, 10km, TX1310, DDM



Pin Descriptions

Pin	CFP2 - Bottom	Pin	CFP2 - Top
1	GND	45	3.3V_GND
2	(TX_MCK_N)	46	3.3V_GND
3	(TX_MCK_P)	47	N.C.
4	GND	48	N.C.
5	N.C.	49	GND
6	N.C.	50	(RX_MCK_N)
7	3.3V_GND	51	(RX_MCK_P)
8	3.3V_GND	52	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_A		
17	PRG_CNTL1		
18	PRG_CNTL2		
19	PRG_CNTL3		
20	PRG_ALRM1		
21	PRG_ALRM2		
22	PRG_ALRM3		
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		
40	3.3V_GND		
41	3.3V		
42	3.3V		
43	3.3V		
44	3.3V		
		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.
		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

