	Datasheet	No.	DS10-V002
		Initial Date	2017-12-28
OV	OV8S341	Written Team	R&D Dept.
			GH Zheng

I Preview


PN	OV8S341
Description	100G CFP4 LR4 1310nm 10KM LCDDMI 0~70 °C

II Contents

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2. Applications
3. Description
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5. Optical Characteristics
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III Revision History

No.	Date	Items	Change Recording	Ver.	Rev.	Customer
1	2017-12-28	All	Initial registration	000	000	Standard
2						
3						
4						
5						
6						

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1. Features

- ◆ Supports 103Gbps and 112Gbps aggregate bit rates
- ◆ Single 3.3V Power Supply
- ◆ Power dissipation < 6W
- ◆ Up to 10km transmission on SMF
- ◆ Hot-Pluggable CFP4 Footprint Duplex LC Connector Interface
- ◆ Class 1 FDA and IEC60825-1 Laser Safety Compliant
- ◆ RoHS6 Compliant
- ◆ Operating Case Temperature: 0°C~+70°C
- ◆ Compliant with CFP4 MSA Specification
- ◆ MDIO interface with integrated Digital Diagnostic Monitoring
- ◆ No external reference clock

2. APPLICATIONS

- ◆ Data Center & 100G Ethernet
- ◆ ITU-T OTU4

3. Description

OCRECOM's OV8S341 100G CFP4 LR4 module supports a link length of 10KM on standard single-mode fiber (SMF, G.652). 100 Gigabit Ethernet signal is carried over four wavelengths 1295.56nm, 1300.05nm, 1304.58nm, 1309.14nm. Multiplexing and de-multiplexing of the four wavelengths are managed within the device.

4. Absolute Maximum Ratings


Parameter	Symbol	Min.	Typ.	Max.	Unit	Note
Storage Temperature	Ts	-40	-	85	°C	
Relative Humidity	RH	5	-	95	%	
Power Supply Voltage	VCC	-0.5	-	3.6	V	
Receive Input Optical Power (Damage threshold)	Pdmg	5.5			dBm	

5. Optical Characteristics

Transmitter

Parameter	Symbol	Min	Typ.	Max	Unit	Notes
Signaling rate, each lane			25.78		GBd	
Lane wavelength (range)		1294.53	1295.56	1296.59	nm	
		1299.02	1300.05	1301.09	nm	
		1303.54	1304.58	1305.63	nm	

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		1308.09	1309.14	1310.19	nm	
Rate tolerance		-20		20	ppm	From nominal rate
Side-mode suppression ratio	SMSR	30			dB	
Total launch power				10.5	dBm	
Average launch power, each lane	Pavg	-1		4.5	dBm	
Extinction Ratio	ER	4			dB	
Optical modulation amplitude, each lane (OMA)	OMA	-1.3		4.5	dBm	
Difference in launch power between any two lanes (OMA)				5	dB	
Transmitter and Dispersion Penalty, each lane	TDP			2.2	dB	
Average launch power of OFF transmitter, each lane				-30	dBm	
Relative Intensity Noise	RIN ₂₀ OMA			-130	dB/Hz	
Transmitter reflectance				-12	dB	
Transmitter eye mask {X1, X2, X3, Y1, Y2, Y3}		IEEE 802.3 Clause 88 100Gbase-LR4 {0.25, 0.4, 0.45, 0.25, 0.28, 0.4}				

Receiver

Parameter	Symbol	Min	Typ.	Max	Unit	Notes
Signaling rate, each lane			25.78		GBd	
Rate tolerance		-100		100	ppm	From normal rate
Average receive power, each lane	Pavg	-10.6		4.5	dBm	
Receive power, each lane (OMA)				2.9	dBm	
Difference in receiver power between any two lanes (OMA)				5.5	dB	
Receiver Sensitivity (OMA), each lane	Rsen			-8.6	dBm	1
Stressed Receiver Sensitivity (OMA), each lane	SRS			-6.8	dBm	
Stressed receiver sensitivity test conditions						
Vertical eye closure penalty, each lane	VECP		1.8		dB	
Stressed sys J2 jitter, each lane	J2		0.3		UI	2

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Stressed sys J9 jitter, each lane	J9		0.47		UI	2
Receiver reflectance				-26	dB	
LOS Assert	Plos_on	-20.6	-18		dBm	
LOS Deassert	Plos_off		-15	-10.6	dBm	
LOS Hysteresis		0.5			dB	

- Receiver sensitivity (OMA), each lane, is informative.
- Vertical eye closure penalty, stressed eye J2 Jitter, and stressed eye J9 Jitter are test conditions for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

6. Electrical Characteristics

Parameter	Symbol	Min	Typ.	Max	Unit	Notes
Supply currents and voltages						
Voltage	V _{CC}	3.2	3.3	3.4	V	With Respect to GND
Supply current	I _{CC}			1.8	A	
Power dissipation	P _{WR}			6.0	W	
Power dissipation (low power mode)	P _{LP}			1.0	W	
Low speed control and sense signals, 3.3 V LVCMOS						
Outputs low voltage	V _{OL}	-0.3		0.2	V	I _{OH} =100μA
Output high voltage	V _{OH}	V _{CC} -0.2		V _{CC} +0.3	V	I _{OH} =100μA
Input low voltage	V _{IL}	-0.3		0.8	V	
Input high voltage	V _{IH}	2		V _{CC} +0.3	V	
Input leakage current	I _{IN}	-10		10	μA	
Low speed control and sense signals, 1.2 V LVCMOS						
Outputs low voltage	V _{OL}	-0.3		0.2	V	
Output high voltage	V _{OH}	1.0		1.5	V	
Outputs low Current	I _{OL}	4			mA	
Output high Current	I _{OH}			-4	mA	
Input low voltage	V _{IL}	-0.3		0.36	V	
Input high voltage	V _{IH}	0.84		1.5	V	
Input leakage current	I _{IN}	-100		100	μA	
Input Capacitance	C			10	pF	
MDC Clock Rate		0.1		4	MHz	
High speed transmitter input from host						
Differential voltage pk-pk		100		1200	mV	
Common mode noise(rms)				17.5	mV	

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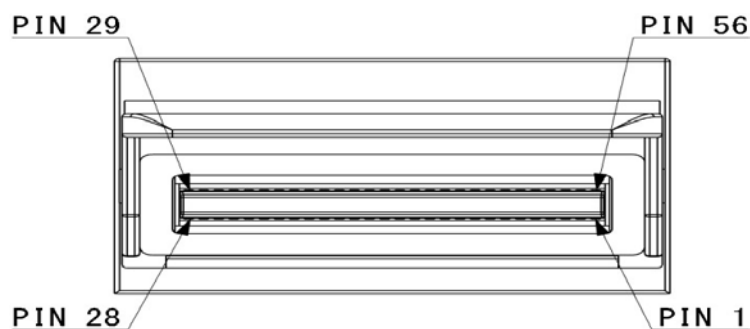
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Differential termination mismatch				10	%	
Transition time		10			pS	20/80%
Common mode voltage		-0.3		2.8	V	
High speed Receiver output to host						
Differential voltage pk-pk		100		1200	mV	
Common mode noise(rms)				17.5	mV	
Differential termination mismatch				10	%	
Transition time		95			pS	20/80%

7. MDIO Management Interface

The OCRECOM's 100G CFP4 Optical Transceiver incorporates MDIO management interface which is used for serial ID, digital diagnostics, and certain control and status report functions. The CFP4 transceiver supports MDIO pages 8000h NVR 1 Based ID registers, 8080h NVR 2 Extended ID registers, 8100h NVR 3 network lane specific registers, 8180h NVR 4 registers, and pages A000h module VR 1 registers (module level control and DDM registers), A200h network lane VR 1 registers, A280h network lane VR 2 registers, A400h host lane VR1 specific registers. Details of the protocol and interface are explicitly described in CFP MSA Management Interface Specification. Please refer to the specifications for design reference.

8. Pin descriptions



CFP4	
Top	
56	GND
55	TX3n
54	TX3p
53	GND
52	TX2n

CFP4	
Bottom	
1	3.3V_GND
2	3.3V_GND
3	3.3V
4	3.3V
5	3.3V

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51	TX2p
50	GND
49	TX1n
48	TX1p
47	GND
46	TX0n
45	TX0p
44	GND
43	(REFCLKn)
42	(REFCLKp)
41	GND
40	RX3n
39	RX3p
38	GND
37	RX2n
36	RX2p
35	GND
34	RX1n
33	RX1p
32	GND
31	RX0n
30	RX0p
29	GND

6	3.3V
7	3.3V_GND
8	3.3V_GND
9	VND_IO_A
10	VND_IO_A
11	TX_DIS (PNG_CNTL1)
12	TX_LOS (PNG_ALRM1)
13	GLB_ALRMn
14	MOD_LOPWR
15	MOD_ABS
16	MOD_RSTn
17	MDC
18	MDIO
19	PRTADR0
20	PRTADR1
21	PRTADR2
22	VND_IO_C
23	VND_IO_D
24	VND_IO_E
25	GND
26	(MCLKn)
27	(MCLKp)
28	GND

Pin Num.	Name	Function	Notes
1	3.3V_GND	Ground	3.3V Module Supply Ground, Internally connected to Signal Ground
2	3.3V_GND		
3	3.3V	3.3V Module Supply Voltage	3.3V ±5%
4	3.3V		

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5	3.3V		
6	3.3V		
7	3.3V_GND	Ground	3.3V Module Supply Ground, Internally connected to Signal Ground
8	3.3V_GND		
9	VND_IO_A	I/O	Module Vendor I/O A, NC
10	VND_IO_B	I/O	Module Vendor I/O B, NC
11	TX_DIS (PNG_CNTRL1)	I	“1” or NC = transmitter disabled, “0” = transmitter enabled
12	TX_LOS (PNG_ALRM1)	O	“1” = loss of signal (low optical signal), “0” = normal condition
13	GLB_ALRMn	O	“0” = alarm condition in any MDIO Alarm register, “1” = no alarm condition,
14	MOD_LOPWR	I	“1” or NC = module in low power (safe) mode, “0” = power-on enabled
15	MOD_ABS	O	“1” or NC = module absent, “0” = module present
16	MOD_RSTn	I	“0” = resets the module, “1” or NC = module enabled
17	MDC	1.2V COMS I	Management Data Clock
18	MDIO	1.2V COMS I/O	Management Data I/O bi-directional data
19	PRTADR0	1.2V COMS I	MDIO Physical Port address bit 0
20	PRTADR1	1.2V COMS I	MDIO Physical Port address bit 1
21	PRTADR2	1.2V COMS I	MDIO Physical Port address bit 2
22	VND_IO_C	I/O	Module Vendor I/O C, NC
23	VND_IO_D	I/O	Module Vendor I/O D, NC
24	VND_IO_E	I/O	Module Vendor I/O E, NC
25	GND	Ground	Signal Ground
26	(MCLKn)	CML O	For optical waveform testing
27	(MCLKp)	CML O	For optical waveform testing
28	GND	Ground	Signal Ground
29	GND	Ground	Signal Ground

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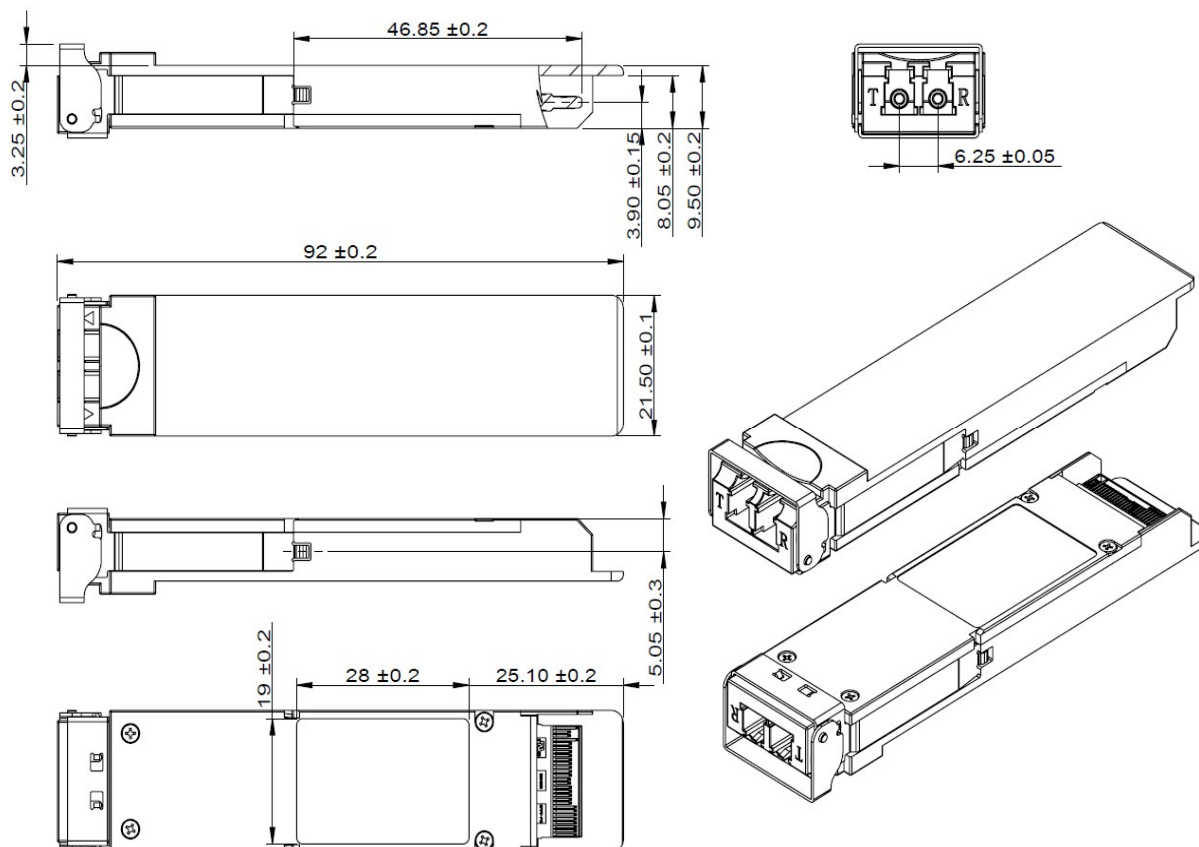
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30	RX0p	Lane 0 Rx Output O	CML Output
31	RX0n		
32	GND	Ground	Signal Ground
33	RX1p	Lane 1 Rx Output O	CML Output
34	RX1n		
35	GND	Ground	Signal Ground
36	RX2p	Lane 2 Rx Output O	CML Output
37	RX2n		
38	GND	Ground	Signal Ground
39	RX3p	Lane 2 Rx Output O	CML Output
40	RX3n		
41	GND	Ground	Signal Ground
42	REFCLKp	Reference Clock I	Reference Clock Input
43	REFCLKn		
44	GND	Ground	Signal Ground
45	Txop	Lane 0 Tx Input I	CML Input
46	Txon		
47	GND	Ground	Signal Ground
48	Tx1p	Lane 1 Tx Input I	CML Input
49	Tx1n		
50	GND	Ground	Signal Ground
51	Tx2p	Lane 2 Tx Input I	CML Input
52	Tx2n		
53	GND	Ground	Signal Ground
54	Tx3p	Lane 3 Tx Input I	CML Input
55	Tx3n		
56	GND	Ground	Signal Ground

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9. Mechanical Dimensions



LC Connector

10. Module Ordering information

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