EOLC-1HG-C-XX-YYC4

CFP4 Cable Assemblies, 0.5m/1m/2m/3m/4m Reach
RoHS6 Compliant

Features

- Supports 103.125Gb/s and 118.3Gb/s bit rates
- Lower Power Consumption for Single Module < 1.3W
- 30AWG up to 3 meters distance
- 26AWG up to 4 meters distance
- Power Supply: +3.3V
- Compatible to CFP4 MSA
- Temperature Range: 0~ 70℃
- RoHS6 Compliant

Applications

- 100G Ethernet
- OTU4

Eoptolink

Order Information

Part No.	Data rate （Per Lane）	Length	AWG	Passive/Active	Temp
EOLC-1HG-C-H-30C4	Up to 27.95G	0.5m	30	Active	0~ 70℃
EOLC-1HG-C-01-30C4	Up to 27.95G	1m	30	Active	0~ 70℃
EOLC-1HG-C-02-30C4	Up to 27.95G	2m	30	Active	0~ 70℃
EOLC-1HG-C-03-30C4	Up to 27.95G	3m	30	Active	0~ 70℃
EOLC-1HG-C-04-30C4	Up to 27.95G	4m	30	Active	0~ 70℃
EOLC-1HG-C-05-30C4	Up to 27.95G	5m	30	Active	0~ 70℃

*The product image only for reference purpose.

Regulatory Compliance*Note1

Product Certificate	Certificate Number	Applicable Standard
TUV	R50135086	EN 60950-1:2006+A11+A1+A12+A2
		EN 60825-1:2014
		EN 60825-2:2004+A1+A2
UL	E317337	UL 60950-1
		CSA C22.2 No. 60950-1-07
EMC CE	AE 50384190 0001	EN 55032:2012
		EN 55032:2015
		EN 55024:2010
		EN 55024:2010+A1
'FCC	WTF14F0514417E	47 CFR PART 15 OCT., 2013
FDA	/	CDRH 1040.10
ROHS	/	2011/65/EU

Note1: The above certificate number updated to June 2018, because some certificate will be updated every year, such as FDA and ROHS. For the latest certification information, please check with Eoptolink.

Product Description

EOLC-1HG-C-XX-YYC4 Copper Cable assemblies are high-performance, cost effective I/O solutions for 100 G Ethernet and OTU4 applications. CFP4 copper modules allow hardware manufacturers to achieve high port density, configurability and utilization at a very low cost and to reduce power budget.

Absolute Maximum Ratings*Note2

Parameter	Symbol	Min	Typ	Max	Units
Maximum Supply Voltage	Vcc	-0.5		4.0	V
Storage Temperature	T_S	-40		85	°C

Note2: Exceeding any one of these values may destroy the device immediately.

Normal operating condition

Parameter	Symbol	Min	Typ	Max	Units	Notes
Operating Case Temperature	Tc	0		70	°C	
Supply Voltage	Vcc	3.15	3.3	3.45	V	
Power Consumption	P			1.3	W	Note3
Data Rate(per channel)				27.95	Gbps	

Note3: The power consumption value is just depended on single module.

Performance Specifications – Electrical

Parameter	Symbol	Min.	Typ.	Max	Unit
Transmitter Differential Input Voltage	V_{IN}	400	-	1200	mV_{pp}
Receiver Differential Output Voltage	V_O	400	-	1200	mV_{pp}
Impedance	Zcable	90	100	110	Ohms
MDC and MDIO	VOL	-0.3		0.2	V
	VOH	1		1.5	
MDC and MDIO	VIL	-0.3		0.36	V
	VIH	0.84		1.5	

CFP4 Transceiver Electrical Pad Layout

	CFP4 Bottom
1	3.3V_GND
2	3.3V_GND
3	3.3V
4	3.3V
5	3.3V
6	3.3V
7	3.3V_GND
8	3.3V_GND
9	VND_IO_A
10	VND_IO_B
11	TX_DIS *(PRG_CNTL1)*
12	RX_LOS *(PRG_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

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

EEPROM Serial ID Memory Contents

EEPROM Address			CFP NVR 1	Version	V1.0
Data Addr	**Field Size (Byte)**	**Name Of filed**	**Description of field**	**Coded value**	**Hex**
BASE ID FIELDS					
8000h	1	Module Identifier	Module Identifier	CFP4	12
8001h	1	Extended Identifier	Extended Identifier	Power Class 1 Module (≤ 1.5W max),Network lane : Host lane = Reserved,Non-WDM,No CLEI code present	30
8002h	1	Connector Type Code	Connector Type Code	Undefined	00
8003h	1	Ethernet Application Code	Ethernet Application Code	100GE-CR4 Copper	12
8004h	1	Fiber Channel Application Code	Fiber Channel Application Code		00
8005h	1	Copper Link Application Code	Copper Link Application Code		00
8006h	1	SONET/SDH Application Code	SONET/SDH Application Code		00
8007h	1	OTN Application Code	OTN Application Code		00
8008h	1	Additional Capable Rates Supported	Additional Capable Rates Supported	111.8 Gbps,103.125 Gbps	18
8009h	1	Number of Lanes Supported	Number of Lanes Supported	Number of Network Lanes:4; Number of Host Lanes:4;	44
800Ah	1	Media Properties	Media Properties	Media Type:Copper;Directionality: Normal;Without optical MUX/DEMUX;1 TX Lane and 1 RX Lane,	C1
800Bh	1	Maximum Network Lane Bit Rate	Maximum Network Lane Bit Rate	28Gbps	8C
800Ch	1	Maximum Host Lane Bit Rate	Maximum Host Lane Bit Rate	28Gbps	8C
800Dh	1	Maximum Single Mode Optical Fiber Length	Maximum Single Mode Optical Fiber Length		00
800Eh	1	Maximum Multi-Mode Optical Fiber Length	Maximum Multi-Mode Optical Fiber Length		00

800Fh	1	Maximum Copper Cable Length	Maximum Copper Cable Length	x(m)	xx
8010h	1	Transmitter Spectral Characteristics 1	Transmitter Spectral Characteristics 1		00
8011h	1	Transmitter Spectral Characteristics 2	Transmitter Spectral Characteristics 2		00
8012h	2	Minimum Wavelength per Active Fiber	Minimum Wavelength per Active Fiber		00
8013h					00
8014h	2	Maximum Wavelength per Active Fiber	Maximum Wavelength per Active Fiber		00
8015h					00
8016h	2	Maximum per Lane Optical Width	Maximum per Lane Optical Width		00
8017h					00
8018h	1	Device Technology 1	Device Technology 1	Copper	44
8019h	1	Device Technology 2	Device Technology 2	No wavelength control,Un-cooled transmitter device,Transmitter not Tunable,Detector side VOA not implement,Detector Type:Undefined;CDR without EDC	00
801Ah	1	Signal Code	Signal Code	Undefined;Non-PSK	00
801Bh	1	Maximum Total Optical Output Power per Connector	Maximum Total Optical Output Power per Connector		00
801Ch	1	Maximum Optical Input Power per Network Lane	Maximum Optical Input Power per Network Lane		00
801Dh	1	Maximum Power Consumption	Maximum Power Consumption	1600mW	08
801Eh	1	Maximum Power Consumption in Low Power Mode	Maximum Power Consumption in Low Power Mode	1500mW	4B
801Fh	1	Maximum Operating Case Temp Range	Maximum Operating Case Temp Range	70℃	46
8020h	1	Minimum Operating Case Temp Range	Minimum Operating Case Temp Range	0℃	0
8021h	8	Vendor Name	Vendor Name	E	45
8022h				o	6F
8023h				p	70
8024h				t	74

Eoptolink

8025h				o	6F
8026h				l	6C
8027h				i	69
8028h				n	6E
8029h				k	6B
802Ah				<space>	20
802Bh				<space>	20
802Ch				<space>	20
802Dh				<space>	20
802Eh				<space>	20
802Fh				<space>	20
8030h				<space>	20
8031h	3	Vendor OUI	Vendor OUI		00
8032h					00
8033h					00
8034h	16	Vendor Part Number	Vendor Part Number	E	45
8035h				O	4F
8036h				L	4C
8037h				C	43
8038h				1	31
8039h				H	48
803Ah				G	47
803Bh				C	43
803Ch				x	xx
803Dh				x	xx
803Eh				x	xx
803Fh				x	xx
8040h				C	43
8041h				4	34
8042h				<space>	20
8043h				<space>	20
8044h	16	Vendor Serial Number	Vendor Serial Number	C	43
8045h ~ 804Dh				x	xx
804Eh ~				<space>	20
8054h	8	Date Code	Date Code	Year	xx
8055h				Year	xx
8056h				Year	xx
8057h				Year	xx
8058h				Month	xx

Eoptolink

8059h				Month	xx
805Ah				Day	xx
805Bh				Day	xx
805Ch	2	Lot Code	Lot Code	<space>	20
805Dh				<space>	20
805Eh ~8067h	10	CLEI Code	CLEI Code	0	30
8068h	1	CFP MSA Hardware Specification Revision Number	CFP MSA Hardware Specification Revision Number	V1.4	0E
8069h	1	CFP MSA Management Interface Specification Revision Number	CFP MSA Management Interface Specification Revision Number	V1.4	0E
806Ah	2	Module Hardware Version Number	Module Hardware Version Number	V1.0	01
806Bh					00
806Ch	2	Module Firmware Version Number	Module Firmware Version Number	V1.0	01
806Dh					00
806Eh	1	Digital Diagnostic Monitoring Type	Digital Diagnostic Monitoring Type		00
806Fh	1	3	Digital Diagnostic Monitoring Capability 1		00
8070h	1	Digital Diagnostic Monitoring Capability 2	Digital Diagnostic Monitoring Capability 2		00
8071h	1	Module Enhanced Options	Module Enhanced Options		00
8072h	1	Maximum High-Power-up Time	Maximum High-Power-up Time	60s	3C
8073h	1	Maximum TX-Turn-on Time	Maximum TX-Turn-on Time	1s	01
8074h	1	Host Lane Signal Spec	Host Lane Signal Spec		FF
8075h	1	Heat Sink Type	Heat Sink Type	Heat Sink Type:Flat top	00
8076h	1	Maximum TX-Turn-off Time	Maximum TX-Turn-off Time	1ms	14
8077h	1	Maximum High-Power-down Time	Maximum High-Power-down Time	20s	01
8078h	1	Module Enhanced Options 2	Module Enhanced Options 2		00
8079h	1	Transmitter Monitor Clock	Transmitter Monitor		00

		Options	Clock Options		
807Ah	1	Receiver Monitor Clock Options	Receiver Monitor Clock Options		00
807B-807Eh	4	Reserved	Reserved		00
807Fh	1	CFP NVR 1 Checksum	CFP NVR 1 Checksum	Note4	xx
Note4: The check code shall be the 8 bit unsigned result of the checksum of all of the CFP register LSB contents from addresses 8000h to 807Eh inclusive.					

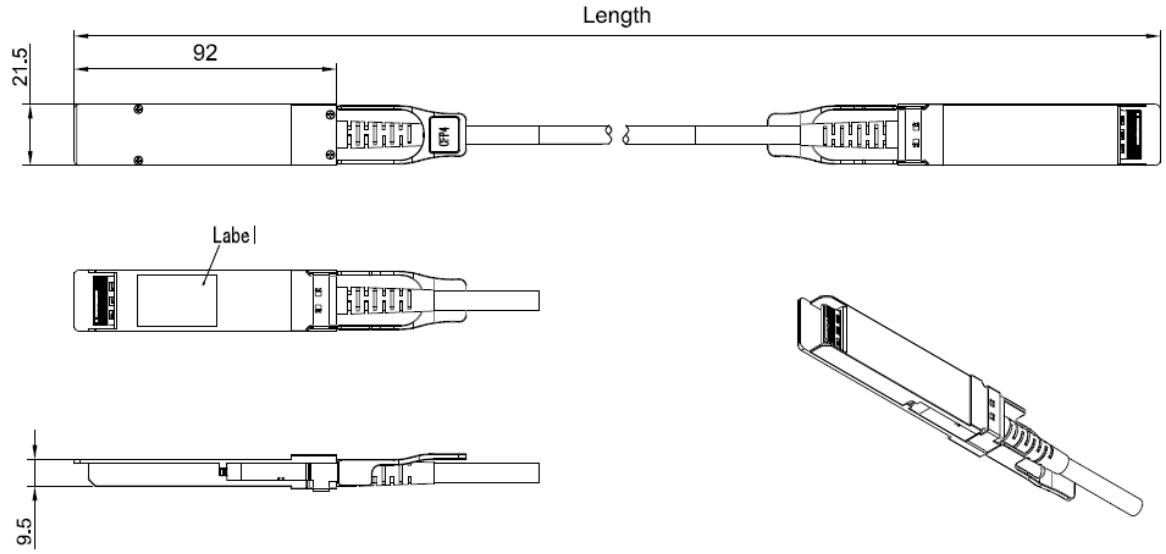
EEPROM Address			CFP NVR 2	Version	V1.0
Data Addr	**Field Size (Byte)**	**Name Of filed**	**Description of field**	**Coded value**	**Hex**
Alarm & Warning Thresholds					
8080h	2	Temp High Alarm	Temp High Alarm	73℃	49
8081h					00
8082h	2	Temp High Warning	Temp High Warning	70℃	46
8083h					00
8084h	2	Temp Low Warning	Temp Low Warning	-5℃	FB
8085h					00
8086h	2	Temp Low Alarm	Temp Low Alarm	-8℃	F8
8087h					00
8088h	2	VCC High Alarm	VCC High Alarm	3.5V	88
8089h					B8
808Ah	2	VCC High Warning	VCC High Warning	3.4V	84
808Bh					D0
808Ch	2	VCC Low Warning	VCC Low Warning	3.2V	7D
808Dh					00
808Eh	2	VCC Low Alarm	VCC Low Alarm	3.1V	79
808Fh					18
8090h	2	SOA Bias Current High Alarm	SOA Bias Current High Alarm	N/A	00
8091h					00
8092h	2	SOA Bias Current High Warning	SOA Bias Current High Warning	N/A	00
8093h					00
8094h	2	SOA Bias Current Low Warning	SOA Bias Current Low Warning	N/A	00
8095h					00
8096h	2	SOA Bias Current Low Alarm	SOA Bias Current Low Alarm	N/A	00
8097h					00
8098h	2	Auxiliary 1 Monitor High Alarm	Auxiliary 1 Monitor High Alarm	N/A	00
8099h				N/A	00
809Ah	2	Auxiliary 1 Monitor High Warning	Auxiliary 1 Monitor High Warning	N/A	00
809Bh				N/A	00

809Ch	2	Auxiliary 1 Monitor Low Warning	Auxiliary 1 Monitor Low Warning	N/A	00
809Dh				N/A	00
809Eh	2	Auxiliary 1 Monitor Low Alarm	Auxiliary 1 Monitor Low Alarm	N/A	00
809Fh				N/A	00
80A0h	2	Auxiliary 2 Monitor High Alarm	Auxiliary 2 Monitor High Alarm	N/A	00
80A1h				N/A	00
80A2h	2	Auxiliary 2 Monitor High Warning	Auxiliary 2 Monitor High Warning	N/A	00
80A3h				N/A	00
80A4h	2	Auxiliary 2 Monitor Low Warning	Auxiliary 2 Monitor Low Warning	N/A	00
80A5h				N/A	00
80A6h	2	Auxiliary 2 Monitor Low Alarm	Auxiliary 2 Monitor Low Alarm	N/A	00
80A7h				N/A	00
80A8h	2	Laser Bias Current High Alarm	Laser Bias Current High Alarm	N/A	00
80A9h				N/A	00
80AAh	2	Laser Bias Current High Warning	Laser Bias Current High Warning	N/A	00
80ABh				N/A	00
80ACh	2	Laser Bias Current Low Warning	Laser Bias Current Low Warning	N/A	00
80ADh				N/A	00
80AEh	2	Laser Bias Current Low Alarm	Laser Bias Current Low Alarm	N/A	00
80AFh				N/A	00
80B0h	2	Laser Output Power High Alarm	Laser Output Power High Alarm	N/A	00
80B1h				N/A	00
80B2h	2	Laser Output Power High Warning	Laser Output Power High Warning	N/A	00
80B3h				N/A	00
80B4h	2	Laser Output Power Low Warning	Laser Output Power Low Warning	N/A	00
80B5h				N/A	00
80B6h	2	Laser Output Power Low Alarm	Laser Output Power Low Alarm	N/A	00
80B7h				N/A	00
80B8h	2	Laser Temperature High Alarm	Laser Temperature High Alarm	N/A	00
80B9h				N/A	00
80BBh	2	Laser Temperature High Warning	Laser Temperature High Warning	N/A	00
80BBh				N/A	00
80BCh	2	Laser Temperature Low Warning	Laser Temperature Low Warning	N/A	00
80BDh				N/A	00
80BEh	2	Laser Temperature Low Alarm	Laser Temperature Low Alarm	N/A	00
80BFh				N/A	00
80C0h	2	Receive Optical Power High Alarm	Receive Optical Power High Alarm	N/A	00
80C1h				N/A	00
80C2h	2	Receive Optical Power High Warning	Receive Optical Power High Warning	N/A	00
80C3h				N/A	00
80C4h	2	Receive Optical Power Low Warning	Receive Optical Power Low Warning	N/A	00
80C5h				N/A	00

Proprietary

80C6h	2	Receive Optical Power Low Alarm	Receive Optical Power Low Alarm	N/A	00
80C7h				N/A	00
80C8-80FE	55	Reserved			00
80FF	1	CFP NVR 2 Checksum		Note4	xx
Note4: The check code shall be the 8 bit unsigned result of the checksum of all of the CFP register LSB contents from addresses 8080h to 80FFh inclusive.					

Mechanical Specifications



*This 2D drawing only for reference, please check with Eoptolink before ordering.

Obtaining Document

You can visit our website:

http://www.eoptolink.com

Or contact Eoptolink Technology Inc., Ltd. listed at the end of the documentation to get the latest documents.

Revision History

Revision	Initiated	Review	Approved	Revision History	Release Date
V1.a	Marvin	Kelly/Torres/Picard/Airon/Abby/Angela		Preliminary Released.	JUL 29, 2015
V1.b	Roty	Picard /Marvin /Airon		Update regulatory compliance and Modified power consumption maximum value	NOV 03, 2015
V1.c	Marvin	Angela		Add picture and update the cable	Ort 20.2016

				length.	
V1.d	Angela	Marvin		Released	June 29, 2018

Notice:

Eoptolink reserves the right to make changes to or discontinue any optical link product or service identified in this publication, without notice, in order to improve design and/or performance. Applications that are described herein for any of the optical link products are for illustrative purposes only. Eoptolink makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Contact:

Add: No.127 West Wulian Street, Gongxing Town, Shuangliu district, Chengdu City, Sichuan, China.

Tel: (+86) 028-67087999

Fax: (+86) 28-67087979-8010

Postal: 610213

E-mail:sales@eoptolink.com

http://www.eoptolink.com

Eoptolink