



Design Reference

SFF-8636

Application

100GBASE-SR4 at 25.78125Gbps

per lane

InfiniBand QDR, EDR

Other optical links

Working Condition

Temperature

0°C ~ +70°C

Compliance

RoHS

UL certification

HydraX 100G SR4 Active Optical Cable

COL-851HG-xxxC



Support 100GBASE-SR4/EDR application

Compliant to QSFP28 Electrical MSA SFF-8636

Multi rate of up to 25.78125Gbps

+3.3V single power supply

Low power consumption

UL certification cables (optional)

Operating case temp

Commercial: 0°C to +70 °C

RoHS compliant

Hot-pluggable SFP+ footprint

General Specification

Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
Absolute Maximum Ratings						
Supply Voltage	V _{CC3}	-0.5	-	+3.6	V	
Storage Temperature	T _s	-10	-	+85	°C	
Operating Humidity	RH	+5	-	+85	%	1
Recommended Operating Conditions						
Operating Case Temperature	T _c	0	-	+70	°C	
Power Supply Voltage	V _{CC}	3.14	3.3	3.47	V	
Power Dissipation	P _d	-	-	3.0	W	1
Bit Rate	BR	10.3125	25.78125	-	Gbps	



Electrical Characteristics

Transmitter Electrical Characteristics						
Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
Differential Data Input Swing	V_{out}	200	-	1000	mV	
Input Differential Impedance	Z_D	90	100	110	Ω	
ModSelL	Module Select	V_{OL}	$V_{EE}-0.3$	-	0.4	V
	Module Unselect	V_{OH}	2.0	-	$V_{CC}+0.3$	V
LPMoDe	Low Power Mode	V_{IL}	$V_{EE}-0.3$	-	0.8	V
	Normal Operation	V_{IH}	2.0	-	$V_{CC}+0.3$	V
ResetL	Reset	V_{IL}	$V_{EE}-0.3$	-	0.8	V
	Normal Operation	V_{IH}	2.0	-	$V_{CC}+0.3$	V

Receiver Electrical Characteristics						
Parameter	Symbol	Min.	Typ	Max.	Unit	Notes
Differential Data Output Swing	$V_{in,P-P}$	200	-	1000	mV _{PP}	
Output Differential Impedance	Z_D	90	100	110	Ω	1
ModPrsL	Normal Operation	V_{OL}	$V_{EE}-0.3$	-	0.4	V
IntL	Interrupt	V_{OL}	$V_{EE}-0.3$	-	0.4	V
	Normal Operation	V_{OH}	2.0	-	$V_{CC}+0.3$	V
Bit Error Rate	BER		-	E-12		1

Note: 1 PRBS2^31-1@25.78125Gbps

Pin Descriptions

38	GND	
37	TX1n	
36	TX1p	
35	GND	
34	TX3n	
33	TX3p	
32	GND	
31	LPMoDe	
30	Vcc1	
29	VccTx	
28	IntL	
27	ModPrsL	
26	GND	
25	RX4p	
24	Rx4n	
23	GND	
22	RX2p	
21	RX2n	
20	GND	

Top Side
Viewed From Top

	GND	1
	TX2n	2
	TX2p	3
	GND	4
	TX4n	5
	TX4p	6
	GND	7
	ModselL	8
	ResetL	9
	VccRx	10
	SCL	11
	SDA	12
	GND	13
	RX3p	14
	Rx3n	15
	GND	16
	RX1p	17
	RX1n	18
	GND	19

Bottom Side
Viewed From Bottom



Pin Definitions

Pin	Symbol	Name/Description	Notes
1	GND	Ground	1
2	Tx2n	Transmitter Inverted Data Input	
3	Tx2p	Transmitter Non-Inverted Data Input	
4	GND	Ground	1
5	Tx4n	Transmitter Inverted Data Input	
6	Tx4p	Transmitter Non-Inverted Data Input	
7	GND	Ground	1
8	ModSelL	Module Select	
9	ResetL	Module Reset	
10	Vcc Rx	+3.3V Power Supply Receiver	
11	SCL	2-wire serial interface clock	
12	SDA	2-wire serial interface data	
13	GND	Ground	1
14	Rx3p	Receiver Non-Inverted Data Output	
15	Rx3n	Receiver Inverted Data Output	
16	GND	Ground	1
17	Rx1p	Receiver Non-Inverted Data Output	
18	Rx1n	Receiver Inverted Data Output	
19	GND	Ground	1
20	GND	Ground	1
21	Rx2n	Receiver Inverted Data Output	
22	Rx2p	Receiver Non-Inverted Data Output	
23	GND	Ground	1
24	Rx4n	Receiver Inverted Data Output	
25	Rx4p	Receiver Non-Inverted Data Output	
26	GND	Ground	1
27	ModPrsL	Module Present	
28	IntL	Interrupt	
29	Vcc Tx	+3.3V Power supply transmitter	
30	Vcc1	+3.3V Power supply	
31	LPMODE	Low Power Mode	
32	GND	Ground	1
33	Tx3p	Transmitter Non-Inverted Data Input	
34	Tx3n	Transmitter Inverted Data Input	
35	GND	Ground	1
36	Tx1p	Transmitter Non-Inverted Data Input	
37	Tx1n	Transmitter Inverted Data Input	
38	GND	Ground	1

Note: 1. Circuit ground is internally isolated from chassis ground.

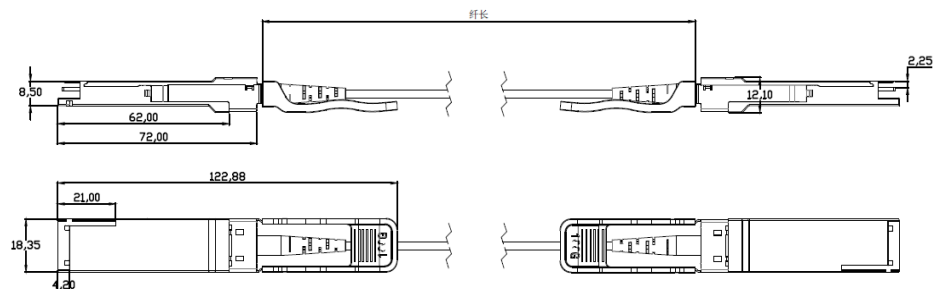


Digital Diagnostic Memory Map

2-Wire Serial Address 1010000x	
Lower Page 00h	
0	Identifier
1-	2 Status
3-	21 Interrupt Flags
22-	33 Free Side Device Monitors
34-	81 Channel Monitors
82-	85 Reserved
86-	98 Control
99	Reserved
100-104	Hardware Interrupt Pin Masks
105-106	Vendor Specific
107	Reserved
108-110	Free Side Device Properties
111-112	Assigned for use by PCI Express
113	Free Side Device Properties
114-118	Reserved
119-122	Password Change Entry Area (Optional)
123-126	Password Entry Area (Optional)
127	Page Select Byte

Upper Page 00h	Optional Page 01h	Optional Page 02h	Optional Page 03h
128 Identifier	128 CC_APPS	128-255 User EEPROM Data	128-175 Free Side Device Thresholds
129-191 Base ID Fields	129 AST Table Length (TL)		176-223 Channel Thresholds
	130-131 Application Code Entry 0		
	132-133 Application Code Entry 1		
	134-253 other entries		
192-223 Extended ID			224 Tx EQ & Rx Emphasis Magnitude ID
224-255 Vendor Specific ID			225 RX output amplitude indicators
			226-241 Channel Controls
			242-251 Channel Monitor Masks
	254-255 Application Code Entry TL		252-255 Reserved

Dimension of Case



Order Information

Part Number	
COL-851HG-xxxC	xxx = denotes the AOC length with unit meter. For example, 001 denote 1m, 002 denote 2m ... 099 denote 99m.

42 Emerald Hill Road, Singapore
Phone +65 6692 1168
Info.asean@hermesys.it

