



HydraX MM Optical Transceiver Module

MPO QSFP56 200G SR4 850nm 100m OM4/OM5

Design Reference

IEEE 802.3bm
IEEE 802.3cd
IEC 60825 Class 1

Application

200GBASE SR4 Proprietary
High Speed Interconnections
Data center

Working Condition

Operation Temperature
-0°C ~ +70°C (Case)
Storage Temperature
-40°C ~ +85°C (Ambient)
Relative humidity
5% ~ 95%

Compliance

CE Mark
FCC Mark

Safety and EMI

Protection of over
voltage/current



Built-in 200G PAM4 DSP

Signaling speed per lane up to 26.5625Gbit/s
per lan

Supports 212.5Gb/s aggregate bit rates

Up to 70m on OM3 Multimode Fiber(MMF) and
100m on OM4 or OM5 MMF

3.3V power supply voltage

Hot Pluggable QSFP56 form factor

200GAUI-4 electrical interface

MP012 connector receptacle

Built-in digital diagnostic function

General Description

The Hermesys HydraXTM series SFP-22200001Q56X5W 200G QSFP56 SR4 is designed for use in 200 Gigabit Ethernet links over OM3/OM4/OM5 multimode fiber. They are compliant with the QSFP MSA and with IEEE 802.3cd 200GBASE-SR4 specification. Digital diagnostics functions are available via the I2C interface as specified by CMIS V4.0.



Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	V_{CC}	-0.5		3.6	V	
Input Voltage	V_{in}	-0.3		$V_{CC}+0.3$	V	

Recommended Operating Conditions

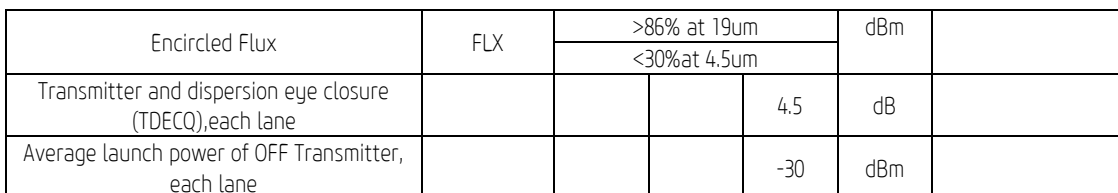
Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Power Supply Voltage	V_{CC}	3.13	3.3	3.47	V	
Power Dissipation	P_m	-	4.1	4.5	W	
Baud Rate per Lane(PAM4)	fd		26.5625		GBaud/s	
Fiber Bend Radius	Rb	3		+100	cm	
Link Distance with OM3 fiber	D	0		70	m	OM4 and OM5 MMF reach 100M

Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential input impedance	Z_{in}	90	100	110	ohm	
Differential Output impedance	Z_{out}	90	100	110	ohm	
Differential input voltage amplitude	ΔV_{in}	300		900	mVp-p	
Differential output voltage amplitude	ΔV_{out}	300		900	mVp-p	
Bit Error Rate	BER			2.4E-4		
Input Logic Level High	V_{IH}	2.0		VCC	V	
Input Logic Level Low	V_{IL}	0		0.8	V	
Output Logic Level High	V_{OH}	VCC-0.5		VCC	V	
Output Logic Level Low	V_{OL}	0		0.4	V	

Optical Characteristics

Transmitter Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Signaling Speed per Lane			26.5625 ± 100pm		GBd	
Modulation format			PAM4			
Center wavelength		840	850	860	nm	
RMS Spectral Width	SW			0.6	nm	
Average Launch Power per Lane	TXPx	-6.5		4	dBm	
Tx OMA per lane	TxOMA	-4.5		3	dBm	
Launch power in OMAouter minus TDECQ(min)		-5.9			dBm	
Optical Extinction Ratio	ER			12	dB	



Receiver Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Signaling Speed per Lane			26.5625		GBd	
Modulation format			PAM4			
Center wavelength		840		860	nm	
Damage Threshold	S_{EN}	5			DT	
Average receive Power per Lane	LOSA	-8.4		4	RXPx	
Receive power, each lane (OMAouter)	LOSD			3		
Receiver reflectance	LOSH			-12	Rfl	
Stressed receiver sensitivity(OMAouter),each lane	ORL			-3.4		
Receiver sensitivity(OMAouter)each lane(SECQ=1.4dB)				-6.5		

Figure 10: Memory Map of the 128-Kbit Device

The diagram illustrates the memory layout of a 128-Kbit device, organized into two main sections: the Lower Page (00h-7Fh) and the Main Memory (80h-FFh).

Lower Page (00h-7Fh):

- 00h-0Fh:** Module Dynamic Information (NVRs)
- 7Eh-7Fh:** Bank Select
- 7Fh:** Page Select

Main Memory (80h-FFh):

The main memory is divided into several banks and pages:

- Page 00h:** System ID, Advertising (NVRs)
- Page 01h:** Revision codes Advertising (NVRs)
- Page 02h:** Module and Lane Threshold Values (NVRs)
- Page 03h:** User EEPROM (NVRs)
- Page 04h:** Tunable Laser Advertising (NVRs)
- Pages 05h-0Fh:** Reserved
- Pages B0h-FFh:** Custom

Bank 0 (Pages 10h-1Fh):

- 10h-1Fh:** Lane Dynamic Information (NVRs)
- 20h-3Fh:** Reserved For Coherent
- 40h-4Fh:** Reserved
- 50h-5Fh:** Reserved
- 60h-6Fh:** Command and local Payload For CDB
- 70h-7Fh:** Extended Payload For CDB

Bank N (Pages 20h-3Fh):

- 20h-3Fh:** Reserved For Coherent
- 40h-4Fh:** Reserved
- 50h-5Fh:** Reserved

Bank 1 (Pages 40h-4Fh):

- 40h-4Fh:** Reserved

Bank 1 (Pages 50h-5Fh):

- 50h-5Fh:** Reserved

Bank 1 (Pages 60h-6Fh):

- 60h-6Fh:** Command and local Payload For CDB

Bank 1 (Pages 70h-7Fh):

- 70h-7Fh:** Extended Payload For CDB

Bank 1 (Pages 80h-8Fh):

- 80h-8Fh:** Reserved

Bank 1 (Pages 90h-9Fh):

- 90h-9Fh:** Reserved

Bank 1 (Pages A0h-AFh):

- A0h-AFh:** Reserved

Bank 1 (Pages B0h-BFh):

- B0h-BFh:** Reserved

Bank 1 (Pages C0h-CFh):

- C0h-CFh:** Reserved

Bank 1 (Pages D0h-DFh):

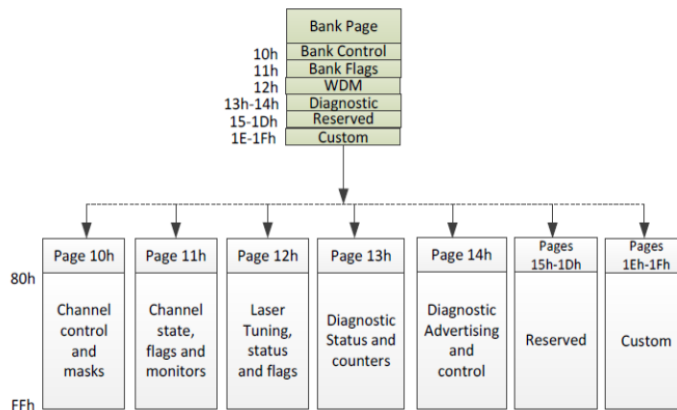
- D0h-DFh:** Reserved

Bank 1 (Pages E0h-EFh):

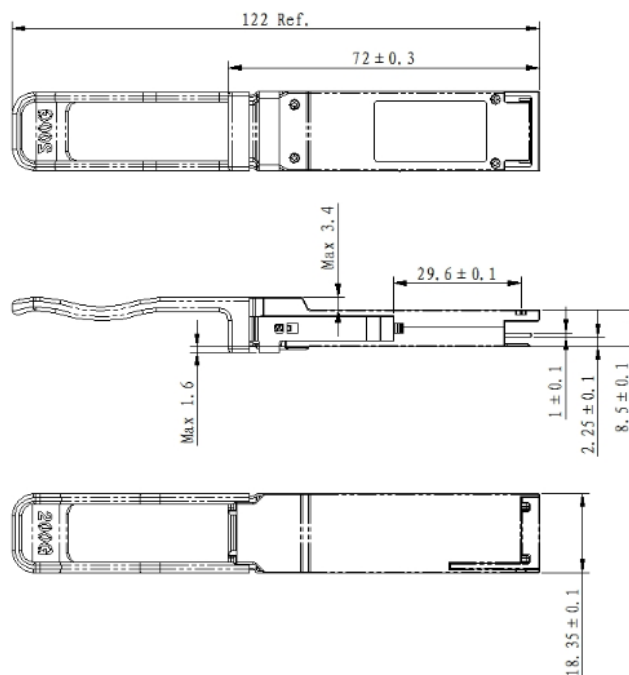
- E0h-EFh:** Reserved

Bank 1 (Pages F0h-FFh):

- F0h-FFh:** Reserved



Dimension of Case



Unit: mm

Order Information

Part Number	Grade	Packing info
SFP-22200001Q56X5W	Commercial -0~70 °C	400 pcs per carton (10pcs per tray, 10 tray per inner box, 4 inner box per carton)

Note:

X means compatible equipment code.



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

