



HydraX MM Optical Transceiver Module

LC SFP28 25G 850nm 100m



Design Reference

SFF-8472
SFF-8431
SFF-8432
IEC 60825 Class 1

Application

25GBASE-SR Ethernet

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

Supports rate up to 25.78Gb/s bit rates

LC Duplex optical interface

Operating data rate up to 25.78Gbps

850nm VCSEL Transmitter and PIN receiver

Distance up to 100m @OM4

Distance up to 70m @OM3

Single 3.3V Power supply

Hot-Pluggable SFP28 footprint

Built-in dual CDR

Electrical interface compliant to SFF-8431

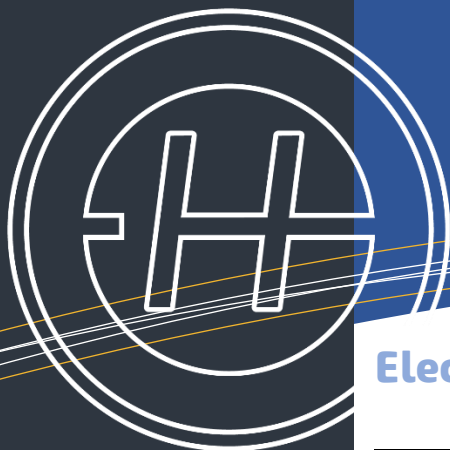
Power Dissipation < 1.0W

General Description

The Hermesys HydraX™ series SFP-22025001X1DW optical transceivers is intended for intended for 100m reach service up to 25.78Gb/s 850nm multi-mode high-speed communications equipment where low-cost, extraordinary performance and reliability are essential. It utilizes internal clock and data recovery (CDR) units on transmitter and the receiver chains for low jitter compliance. The differential AC coupled Tx and Rx data interfaces are CML compatible. The device is Class I laser safety compliant.

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
DC Supply Voltage	V _{CC}	3.135	3.3	3.465	V	
Module Supply Current	I _{CC}			300	mA	



Electrical Characteristics

Transmitter Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Data input Swing	VIN	200		800	mV	
Tx Differential Input Impedence	ZIN		100		Ω	
Transmitter Disable Voltage	VD	2.0		Vcc+0.3	V	
Transmitter Enable Voltage	VEN	0		0.8	V	

Receiver Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Data Output Swing	VOOUT	200		800	mV	
Rx Differential Output Impedence	ZOUT		100		Ω	
LOS Assert Voltage	VLOSA	2.4		Vcc	V	
LOS De-assert Voltage	VLOSD	Vee		Vee+0.4	V	

Monitoring Interface

Receiver Electrical Characteristics				
Parameter	Symbol	Spec	Unit	Notes
Temperature		+/-3°C	°C	
Voltage		+/-5%	V	
IBias		+/-10%	mA	
Rx power		+/-2	dBm	@25°C
Tx power		+/-2	dBm	@25°C

Optical Characteristics

Transmitter Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter Laser Type		850nm VCSEL				1
Average Output Power	Pout	-8.4		2.4	dBm	
Optical Modulation Amplitude (OMA)	POMA	-6.4		3	dBm	
Extinction ratio	ER	2			dB	
Wavelength	λ	840		860	nm	
Spectral Line RMS Width @ -20dB	$\Delta\lambda$			0.6	nm	
Average Output Power (Laser Off)	P _{OFF}			-30	dBm	
Output Eye Diagram		{0.3, 0.38, 0.45, 0.35, 0.41, 0.5}				1

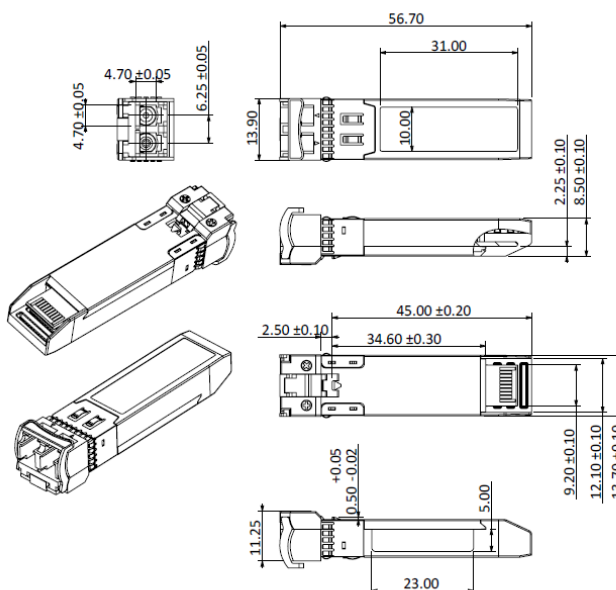


Receiver Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Receiver Type		PIN/TIA				
Wavelength	λ	840	850	860	nm	
Received Sensitivity (OMA)	$P_{IN}(OMA)$			-8.6	dBm	2
Optical Power Overload	$P_{IN}(SAT)$	2.4			dBm	2
Rx_LOS of Signal Assert	P_A	-30			dBm	
Rx_LOS of Signal De-assert	P_D			-13	dBm	
Rx_LOS of Signal Hysteresis	P_{HY}	0.5		5	dB	

Notes:

1. Measured at 25.78Gb/s with PRBS $2^{31}-1$, Hit ratio 1.5 E-3;
2. Test at 25.78Gb/s, PRBS $2^{31}-1$, BER of 5E-5, NRZ and including back to back

Dimension of Case



NOTES:

- 1.TOLERANCE: +/-0.1MM.
- 2.OTHERS ACCORDING WITH SFF-8074i/SFF-8432 MSA OR CUSTOMER SPEC.
- 3.LIGHT PORT ACCORDING WITH FIBER CONNECTOR SPEC.

Order Information

Part Number	Grade	Packing info
SFP-22025001X1DW	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.



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