



HydraX SM Optical Transceiver Module

LC SFP28 25G 1310nm 10km



Design Reference

SFP28 MSA
SFF-8431
SFF-8432
IEC 60825 Class 1

Application

e-CPRI 25G
25GBASE-LR/LW 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 from 24.33Gb/s to 25.78Gb/s bit rates

Hot-pluggable SFP28 footprint

1310nm DML laser transmitter and PIN receiver

Duplex LC connector

Up to 10km on SMF

Single power supply 3.3V

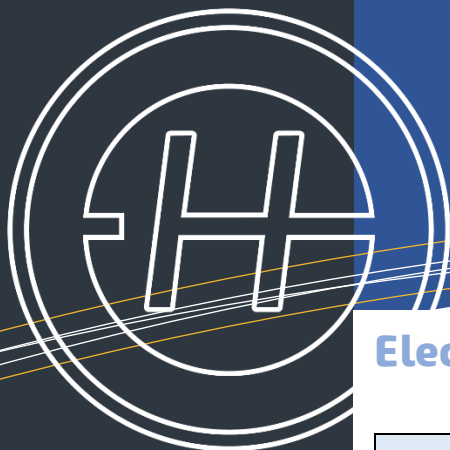
Built-in CDR

General Description

The Hermesys HydraX™ series SFP-21025100X1DW optical transceivers is intended for 10km reach service from 24.33Gb/s to 25.78Gb/s 1310nm single 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}			410	mA	



Electrical Characteristics

Transmitter Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Input differential impedance	Z_{IN}		100		Ω	
Differential data input swing	V_{IN}	200		800	mV	
Transmitter Disable Voltage	V_D	2.0		$V_{CC}+0.3$	V	
Transmitter Enable Voltage	V_{EN}	0		+0.8	V	

Receiver Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Differential Data Output Swing	V_{OUT}	200	-	800	mV	
Rx Differential Output Impedance	Z_{OUT}		100		Ω	
LOS Assert	LOS_A	2.4	-	V_{CC}	V	
LOS De-Assert	LOS_D	V_{EE}	-	$V_{EE}+0.4$	V	

Monitoring Interface

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

Optical Characteristics

Transmitter Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Transmitter Laser Type		1310nm DML				1
Average Output Power	P_{OUT}	-4		2	dBm	
Optical Modulation Amplitude (OMA)	POMA	-4		2	dBm	
Extinction ratio	ER	3.5			dB	
Wavelength	λ	1295		1325	nm	
Spectral Line RMS Width @ -20dB	$\Delta\lambda$			1	nm	
Side Mode Suppression Mode	SMSR	30			dB	
Average Output Power (Laser Off)	P_{OFF}			-30	dBm	
Dispersion Penalty	DP			2.7	dB	1
Relative Intensity Noise	RIN			-130	dB/Hz	

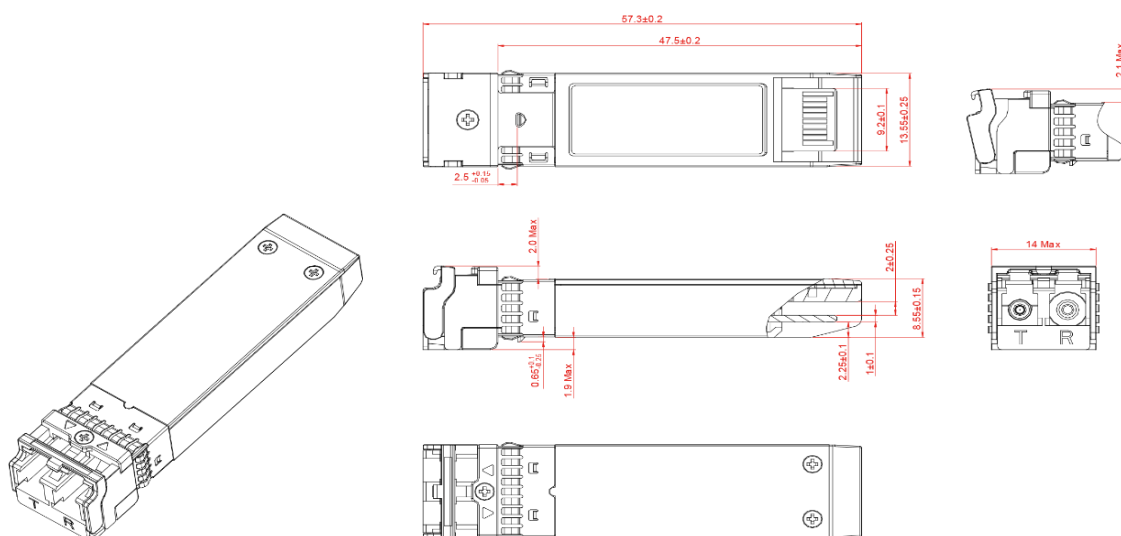


Receiver Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Notes
Receiver Type		PIN/TIA				
Wavelength	λ	1295		1325	nm	
Received Sensitivity (OMA)	$P_{IN(OMA)}$			-12	dBm	1
Optical Power Overload	$P_{IN(SAT)}$	2			dBm	1
Rx_LOS of Signal Assert	P_A	-30			dBm	
Rx_LOS of Signal De-assert	P_D			-17	dBm	
Rx_LOS of Signal Hysteresis	P_{HY}	0.5		5	dB	

Notes:

1. Measured at 25.78Gb/s with PRBS 2^{31-1} NRZ test pattern for BER < 5×10^{-5} ;

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-21025100X1DW	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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