

**SFPP-1.25G-10km-1310**

Hybriflex SFP+ Modul 1.25G 10km



SFP optical transceivers are based on the Gigabit Ethernet IEEE 802.3 standard and Fibre Channel FC-P1 Rev.5.0, providing a fast and reliable interface for GE/FC applications. The product implements digital diagnostics via a 2-wire serial bus compliant with the INF-8074i Small Form Factor Pluggable Multi-Source Agreement (MSA) and SFF-8472 standard.

Features / Benefits

- Supports data rates of 1.25Gb/s
- Compliant with SFP MSA
- Hot-pluggable SFP footprint
- 1310nm FP laser transmitter
- Duplex LC connector
- Built-in digital diagnostic functions
- Up to 10km on 9/125um SMF
- Single power supply 3.3V
- RoHS Compliant
- Class 1 laser product complies with EN 60825-1
- Operating temperature range: -40°C to 85°C

Technical Features**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Storage Temperature	Ts	-40	-	85	°C	Ambient temperature
Relative Humidity	Rh	5	-	95	%	-
Supply Voltage	Vcc	-0.5	-	4.0	V	-

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min	Typ	Max	Unit	Notes
Data Rate	DR	-	1.25	-	Gb/s	IEEE 802.3
Data Rate	DR	-	1.062	-	Gb/s	FC-P1-2 Rev 5
Bit Error Rate	BER	-	-	10 ⁻¹²	-	-
Operating Temperature	Tc	-40	-	85	°C	Case temperature
Supply Current	Icc	-	175	300	mA	For electrical power interface
Input Voltage	Vcc	3.14	3.3	3.46	V	-

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TRANSMITTER OPTICAL CHARACTERISTICS

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Output Optical Power	PTX	-9	-	-3	dBm	Class 1 Product
Optical Center Wavelength	λ_C	1270	-	1355	nm	-
Optical Modulation Amplitude	OMA	174	-	-	μW	Equivalent extinction ratio specification for FC
Extinction Ratio	ER	6	-	-	dB	-
Tx Disabled Power	PTX_DIS	-	-	-45	dBm	-
Spectral Width (RMS)	$\Delta\lambda$	-	-	3	nm	-
Optical Rise/Fall Time(20%-80%)	tr/tf	-	150	260	ps	-
Transmitter Dispersion Penalty	TDP	-	-	2	dB	-
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	-
Generated Jitter (peak to peak)	GJPP	-	-	0.15	UI	-
Optical Return Loss Tolerance	ORL	-	-	12	dB	-

RECEIVER OPTICAL CHARACTERISTICS

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Receiver Overload	Pol	-3	-	-	dBm	-
Optical Center Wavelength	λ_C	1260	-	1360	nm	-
Receiver Sensitivity (PAVG)	-	-	-	-19.5	dBm	-
Receiver Sensitivity OMA	SOMA	-	-	-18.7	dBm	-
Optical Return Loss	TORL	12	-	-	dB	-
Receiver Reflectance	RREFL	-	-	-12	dB	-
Generated Jitter(peak to peak)	Rjp-p	-	-	0.15	UI	-
LOS Assert	LOS-A	-35	-	-	dBm	-
LOS De-Assert	LOS-D	-	-	-27	dBm	-
LOS Hysteresis	LOS-H	0.5	-	-	dB	-

ELECTRICAL CHARACTERISTICS

Transmitter Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Input differential impedance	RIN	-	100	-	Ω	-
Single ended data input swing	VIN PP	250	-	1200	mV	-
Transmit disable voltage	VD	VCC-1.3	-	Vcc	V	-
Transmit enable voltage	VEN	VEE	-	VEE+0.8	V	-
Transmit disable assert time	-	-	-	10	μs	-
Receiver Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Single ended data output swing	VOUT PP	300	-	800	mV	-
Data output rise/fall time (20%-80%)	tr/tf	-	-	300	PS	-
RX_LOS Loss of signal (LOS)	VOH	VCC-0.5	-	VCC HOST	V	-
RX_LOS Normal Operation	VOL	VEE	-	VEE+0.5	V	-

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PIN DESCRIPTION

PIN	Name	Function / Description	Notes
1	VEET	Transmitter ground (common with receiver ground)	Circuit ground is isolated from chassis ground
2	TX_FAULT	Transmitter Fault. Not supported	-
3	TX DISABLE	Transmitter Disable. Laser output disabled on high or open	Disabled:TDIS>2Vor open, Enabled: TDIS<0.8V
4	MOD_DEF(2)	Module Definition 2. Data line for serial ID	Should Be pulled up with 4.7k –10k ohm on host board to a voltage between 2V and 3.6V
5	MOD_DEF(1)	Module Definition 1. Clock line for serial ID	Should Be pulled up with 4.7k –10k ohm on host board to a voltage between 2V and 3.6V
6	MOD_DEF(0)	Module Definition 0. Grounded within the module	Should Be pulled up with 4.7k –10k ohm on host board to a voltage between 2V and 3.6V
7	Rate Select	No connection required	-
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation	LOS is open collector output
9	VEER	Receiver ground (common with transmitter ground)	Circuit ground is isolated from chassis ground
10	VEER	Receiver ground (common with transmitter ground)	Circuit ground is isolated from chassis ground
11	VEER	Receiver ground (common with transmitter ground)	Circuit ground is isolated from chassis ground
12	RD-	Receiver Inverted DATA out. AC coupled	-
13	RD+	Receiver Non-inverted DATA out. AC coupled	-
14	VEER	Receiver ground (common with transmitter ground)	Circuit ground is isolated from chassis ground
15	VCCR	Receiver power supply	-
16	VCCT	Transmitter power supply	-
17	VEET	Transmitter ground (common with receiver ground)	Circuit ground is isolated from chassis ground
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	-
19	TD-	Transmitter Inverted DATA in. AC coupled	-
20	VEET	Transmitter ground (common with receiver ground)	Circuit ground is isolated from chassis ground