



10GBASE-ZR/ZW 1550nm SMF 80km SFP+ Optical Transceiver with Duplex LC Connector

Model No. 10GZRSFPx

FEATURES

- Compliant with SFF8472 diagnostic monitoring interface
- Duplex LC connector
- Hot pluggable
- Class 1 laser product compliant with EN 60825-1
- Support CPRI line bit rate option 7: 9830.4 Mbit/s
- Single power supply 3.3V
- Up to 80km transmission on SMF



DIAGNOSTICS

PARAMETER	RANGE	ACCURACY	UNIT	CALIBRATION
Internal Transceiver Temperature	-40 to 85	±3	°C	Internal
Internal Transceiver Voltage	3.14 to 3.46	±0.1	V	
Bias Current	0 to 120	±10%	mA	
TX Power	0 to +4	±3	dB	
RX Average Power	-23 to -10	±3	dB	

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN	MAX	UNIT
Storage Temperature	T _s	-40	85	°C
Supply Voltage	V _{CC}	0	3.6	V
Input Voltage	V _{IN}	0	V _{CC}	V
Operating Relative Humidity	RH	0	85	%

RECOMMENDED OPERATING CONDITIONS

PARAMETER	SYMBOL	MIN	MAX	UNIT	NOTES
Case Operating Temperature	T _c	0	70	°C	10GZRSFPC
		-40	85		10GZRSFPI
Supply Voltage	V _{CC}	3.14	3.46	V	
Supply Current	I _{TX} + I _{RX}		545	mA	10GZRSFPC
			645		10GZRSFPI
Power Consumption @3.3V	P	-	1.8	W	10GZRSFPC
			2.1		10GZRSFPI

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TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS ($V_{CC} = 3.14V$ to $3.46V$, $T_C = 0^{\circ}C$ to $70^{\circ}C$, $-40^{\circ}C$ to $85^{\circ}C$)

PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT
Data Rate	B		10.3125		Gbps
Output Optical Power	P_{out}	0	-	+4.0	dBm
Extinction Ratio	ER	8.2			dB
Center Wavelength	λ_c	1530	-	1565	nm
Spectral Width (RMS)	$\Delta\lambda$	-	-	1	nm
Side Mode Suppression Ratio	SSR_{min}	30			dB
Transmitter and Dispersion Penalty	TDP			3	dB
Relative Intensity Noise	RIN	-	-	-128	dB/Hz
Optical Return Loss	ORL	21	-	-	dB
Output Eye		Compliant with IEEE802.3ae			
Differential Input Impedance	Z_d		100		Ω
Differential Input Voltage Swing	V_{DIFF}	300		1000	mVpp
Transmit Fault Output-Low	TX_FAULT_L	0.0	-	0.5	V
Transmit Fault Output-High	TX_FAULT_H	2.4	-	V_{CC}	V
TX_DISABLE Assert Time	t_{off}	-	-	100	μs
TX_DISABLE Negate Time	t_{on}	-	-	2	ms
TX_FAULT from fault to assertion	t_{fault}	-	-	50	ms
TX_DISABLE Time to start reset	t_{reset}	10	-	-	μs

RECEIVER ELECTRO-OPTICAL CHARACTERISTICS ($V_{CC} = 3.14V$ to $3.46V$, $T_C = 0^{\circ}C$ to $70^{\circ}C$, $-40^{\circ}C$ to $85^{\circ}C$)

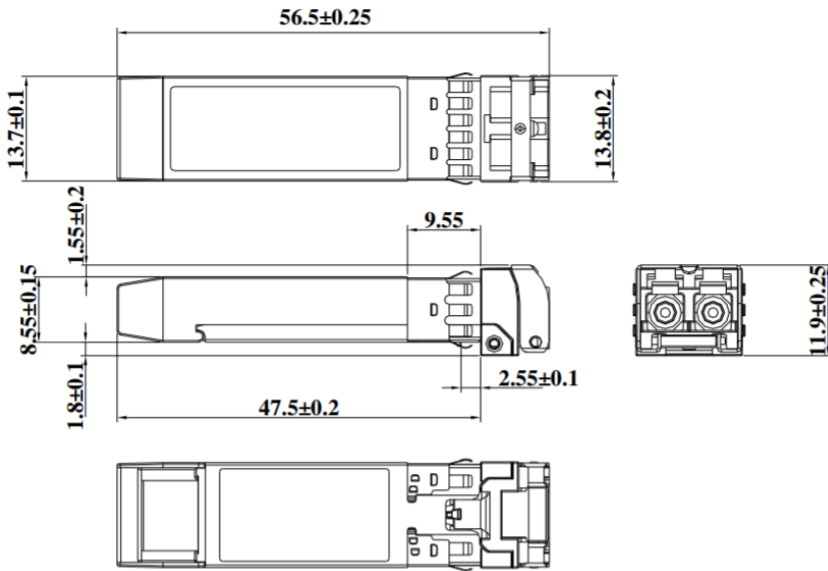
PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Data Rate	B		10.3125		Gbps	
Operating Center Wavelength	λ_c	1530	-	1565	nm	
Optical Input Power – maximum	P_{IN}	-7	-	-	dBm	BER<10 ⁻¹²
Receiver Sensitivity@10.3125 Gbps	P_{IN}	-	-	-23	dBm	BER<10 ⁻¹²
Receiver Sensitivity with 80km fiber @10.3125G	P_{IN_fiber}	-	-	-20	dBm	BER<10 ⁻¹²
Loss of Signal-Asserted	P_A	-38	-	-	dBm	
Loss of Signal-Deasserted	P_D	-	-	-25	dBm	
Differential Output Impedance	Z_d	-	100	-	Ω	
Differential Output Voltage	V_{DIFF}	300	-	800	mVpp	
Receiver Loss of Signal Output Voltage-Low	RX_LOS_L	0	-	0.5	V	
Receiver Loss of Signal Output-High	RX_LOS_H	2.4	-	V_{CC}	V	
Receiver Loss of Signal Assert Time (off to on)	t_{A,RX_LOS}	-	-	100	μs	
Receiver Loss of Signal Assert Time (on to off)	t_{D,RX_LOS}	-	-	100	μs	

TIMING PARAMETERS

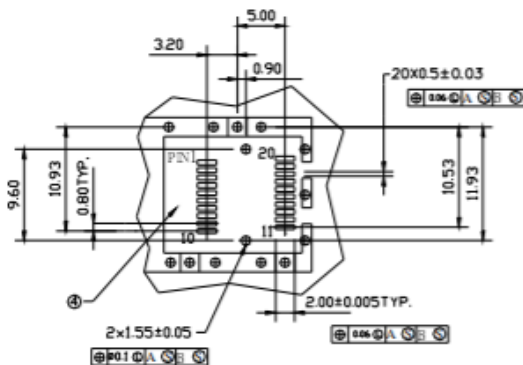
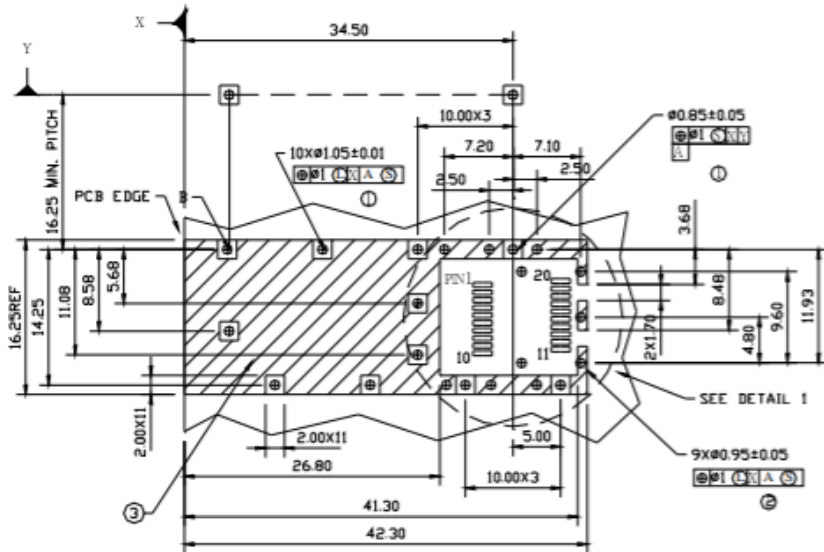
PARAMETER	SYMBOL	MIN	TYP.	MAX	UNIT	NOTES
Time to Initialize	t_{start_up}			10	s	



DIMENSIONS (unit: mm)



SFP HOST BOARD MECHANICAL LAYOUT (unit: mm)



LEGEND

- 1. PADS AND VIAS ARE CHASSIS GROUND
- 2. THROUGH HOLES, PLATING OPTIONAL
- 3. HATCHED AREA DENOTES COMPONENT AND TRACE KEEPOUT (EXCEPT CHASSIS GROUND)
- 4. AREA DENOTES COMPONENT KEEPOUT (TRACES ALLOWED)

DIMENSIONS ARE IN MILLIMETERS

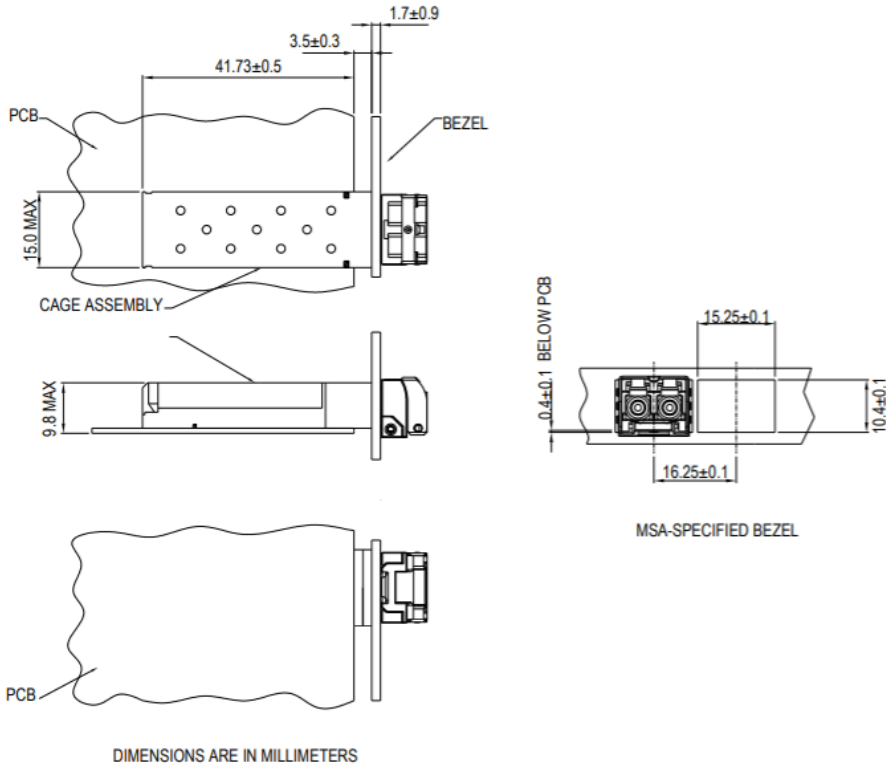
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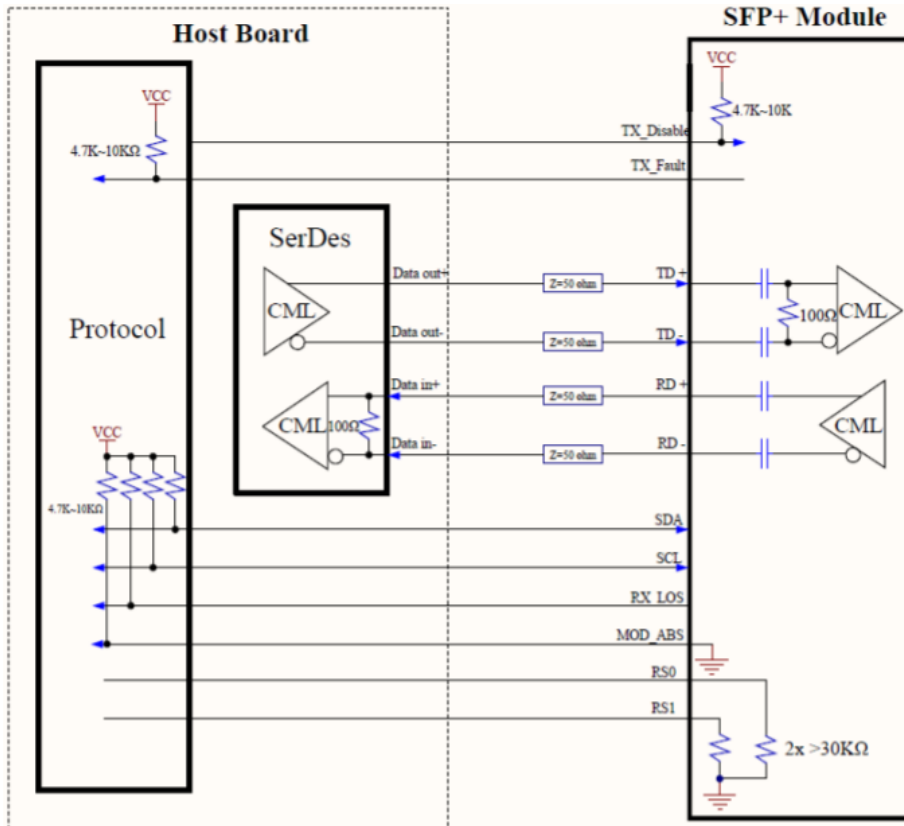
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ASSEMBLY DRAWING

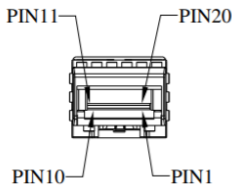


RECOMMENDED INTERFACE CIRCUIT





PIN ASSIGNMENT



PIN	SIGNAL NAME	DESCRIPTION	PIN	SIGNAL NAME	DESCRIPTION
1	T _{GND}	Transmit Ground	11	R _{GND}	Receiver Ground
2	TX_FAULT	Transmit Fault	12	RX-	Receive Data out Bar, ac coupled
3	TX_DISABLE	Transmit Disable	13	RX+	Receive Data out, ac coupled
4	MOD_DEF (2)	SDA Serial Data Signal	14	R _{GND}	Receiver Ground
5	MOD_DEF (1)	SCL Serial Clock Signal	15	V _{CCR}	Receiver Power Supply
6	MOD_DEF (0)	TTL Low	16	V _{CCT}	Transmitter Power Supply
7	RS0	RX Rate Select, no function implemented	17	T _{GND}	Transmitter Ground
8	RX_LOS	Receiver Loss of Signal, TTL High, open collector	18	TX+	Transmit Data in, ac coupled
9	RS1	TX Rate Select, no function implemented	19	TX-	Transmit Data in Bar, ac coupled
10	R _{GND}	Receiver Ground	20	T _{GND}	Transmitter Ground

ORDERING INFORMATION

PART NUMBER	OPERATING TEMPERATURE
10GZRSFPC	0°C to 70°C
10GZRSFPI	-40°C to 85°C

Note: The specifications subject to change without notice.