SFP56 50G 1310nm LR 10KM DDM Transceiver
RSFP56-50G-LR

RSFP56-50G-LR is a 1310nm DFB laser based 50Gb/s SFP56 transceiver. It is designed to transmit and receiver optical data up to 10km over single mode fiber. The transceiver is compliant with SFF-8472, SFF-8402, SFF-8432 and applicable portions of SFF-8431. Digital diagnostics functions are available via a 2-wire serial interface, as specified in SFF-8472.

OPTIC PORTS DEFINITION

NO.	Parameter	Symbol	Unit	Min.	Typ.	Max.	Note
Transmitter							
3.1	Center Wavelength	λ	nm	1295	1310	1325	
3.2	Spectral Width | -20dB		nm			1	
3.3	Side Mode Suppression Ratio	SMSR	dB	30			
3.4	Average Launch Power		dBm	-4.5		4.2	
3.5	OMA_outer	POMA	dBm	-1.5		4	
3.6	OMA_outer - TDECQ		dBm	-2.9			26.5625Gbd_PAM4
3.7	Transmitter and dispersion eye closure for PAM4 (TDECQ)		dB			3.2	26.5625Gbd_PAM4
3.8	TDECQ-10log10(Ceq)		dB			3.2	26.5625Gbd_PAM4
3.9	Transmitter and dispersion(TDP)		dB			2.7	25.78125Gbd_ NRZ ,10.3125Gbd_NRZ
3.10	Average Launch Power of OFF Transmitter		dBm			-30	
3.11	Extinction Ratio	ER	dB	3.5			
3.12	Optical return loss tolerance		dB			15.6	
3.13	RIN15.6OMA		dB/Hz			-132	
3.14	Transmitter Reflectance		dB			-26	

Receiver							
3.15	Center Wavelength	λ	nm	1295		1325	
3.16	Damage Threshold		dBm	5.2			
3.17	Average Receive Power		dBm	-10.8		4.2	
3.18	Receiver power(OMA)		dBm			4	
3.19	Receiver sensitivity (OMA)	POMA	dBm			-8.4	1
	no-power monitor RX		dBm		-40		
3.20	Assert LOS	LOSA	dBm	-30			
3.21	De-Assert LOS	LOSD	dBm			-14	
3.22	LOS Hysteresis		dB	0.5			

Note: Measured with 26.5625Gbd PAM4, PRBS31Q, ER≥3.5dB, BER<2.4E-4

ELECTRIC PORTS DEFINITION

Parameter	Symbol	Unit	Min.	Typ.	Max.	Note
Supply Voltage	VCC	V	3.14	3.3	3.46	
Power Consumption	P	W			2.0	
Transmitter						
Input Differential Impedance	RIN	Ω		100		
Single Ended Data Input Swing	VIN	mVp-p	100		450	
Transmit Disable Voltage	VDIS	V	2		VCCHOST	
Transmit Enable Voltage	VEN	V	VEE		VEE+0.8	
Transmit Fault Assert Voltage	VFA	V	2.2		VCCHOST	
Transmit Fault De-Assert Voltage	VFDA	V	VEE		VEE+0.4	
Receiver						
Single Ended Data Output Swing	VOD	mVp-p	225		450	
LOS Fault	VLOSFT	V	2.2		VCCHOST	
LOS Normal	VLOSNR	V	VEE		VEE+0.4	

ABSOLUTE MAXIMUM RATINGS

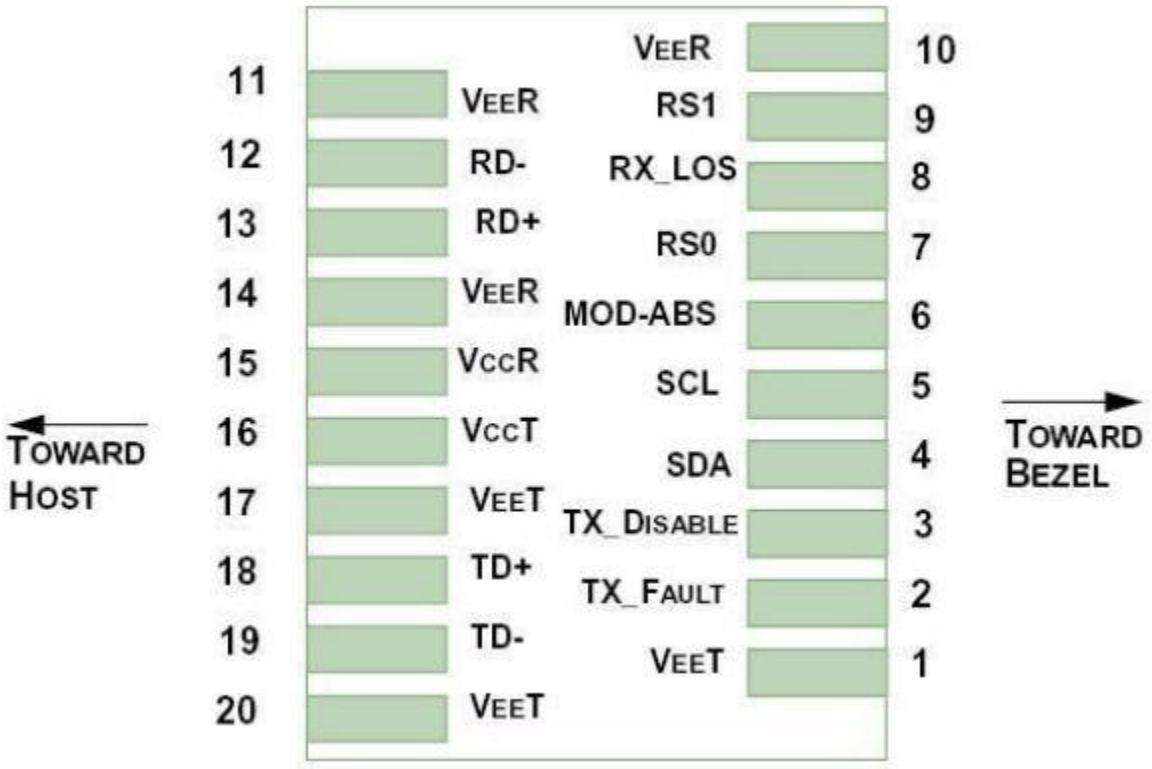
Recommended Storage conditions

Parameter	Symbol	Unit	Min.	Max.
Storage Temperature Range	Ts	°C	-45	85
Relative Humidity	RH	%	0	95
Supply Voltage	V_{CC}	V	-0.3	4.0

Recommended operation conditions

Parameter	Symbol	Unit	Min.	Typ.	Max.
Operating Case Temperature Range	Tc	°C	-40		85
Power Supply Voltage	Vcc	V	3.135	3.3	3.465
Bit Rate	BR	Gbps		53.125	
Max Supported Link Length	L	km	10		

PIN FUNCTION DEFINITONS



Pin No.	Symbol	Logic	Description
1,17,20	VeeT		Connected to signal ground on the host board.
2	TX Fault	LVTTL Output	Module transmitter fault output
3	TX Disable	LVTTL Input	Module transmitter disable control
4	SDA	LVTTL Input/Output	2-wire serial interface data
5	SCL	LVTTL Input/Output	2-wire serial interface clock
6	MOD-ABS		Module absent (connected to Module ground)
7	RS0	LVTTL Input	Rate select 0 (Rx) : Low=CDR Bypass; High=CDR Select
8	LOS	LVTTL Output	Receiver loss of signal
9	RS1	LVTTL Input	Rate select 1 (Tx): Low=CDR Bypass; High=CDR Select
10,11,14	VeeR		Connected to signal ground on the host board.
12	RD-	CML Output	Receiver inverted data output, internally AC coupled and terminated.
13	RD+	CML Output	Receiver non-inverted data output, internally AC coupled and terminated.
15	VccR		Receiver Power 3.3V Supply
16	VccT		Transmitter Power 3.3V Supply
18	TD+	CML Input	Transmitter non-inverted data input, internally AC coupled

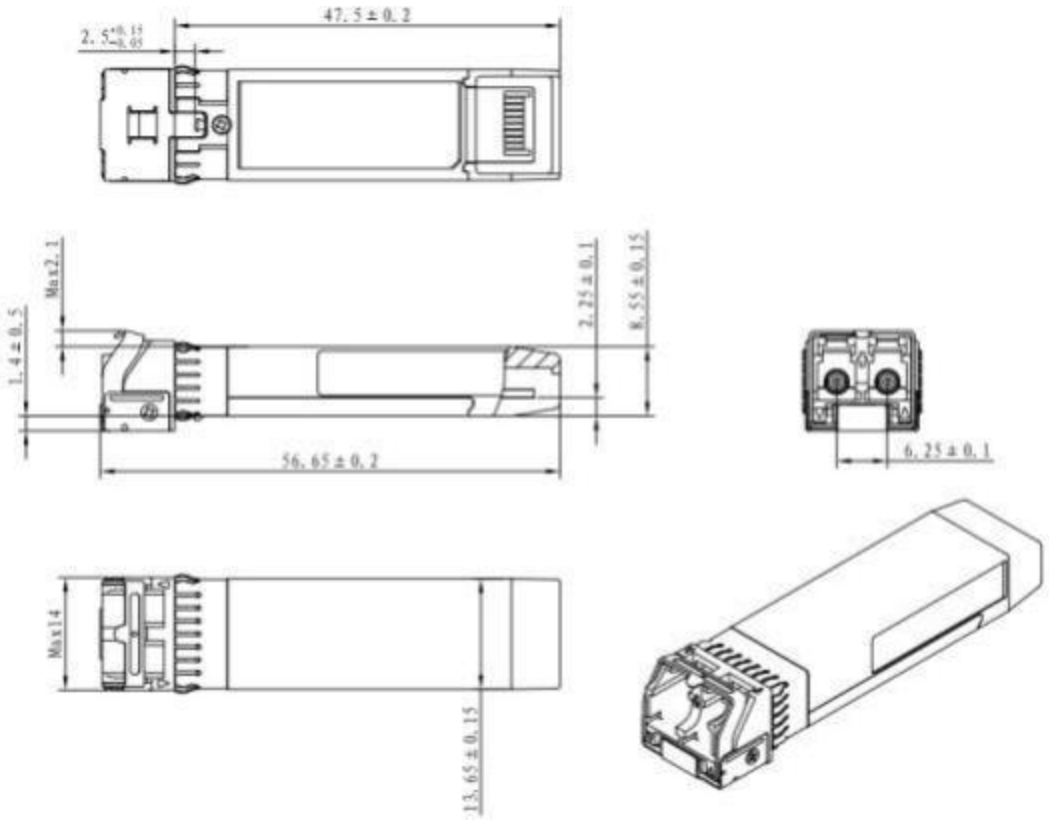
Pin No.	Symbol	Logic	Description
			and terminated.
19	TD-	CML Input	Transmitter inverted data Input, internally AC coupled and terminated.

Oder Information

Part No.	Description
RSFP56-50G0-LR	SFP56 50G 1310nm LR 10KM DDM

MECHANICAL DRAWINGS

Mechanical Structure



REGULATORY COMPLIANCE

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883C Method 3015.7	Class 1 (> 1500 Volts)
Electrostatic Discharge (ESD) Immunity	Variation of IEC 61000-4-2	LV 4(Air discharge :15KV; Contact discharge:8 KV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B EN55022 Class B FCC Class B	Compliant with standards
Immunity	IEC61000-4-3 Class 2 EN55024	Typically show no measurable effect from a 3V/m field swept from 80 to 1000MHz applied to the transceiver without a chassis enclosure.