

SFP10G-LR20 / SFP10G-LR20-I

➔ 10Gbps SFP+ optical Transceiver, Single-mode / 20KM, 1310nm

Highlights

- Compliant with IEEE802.3ae 10GBase-LR Ethernet Standard
- Compliant with SFF8472 diagnostic monitoring interface
- Compliant with SFP+ MSA
- Hot Pluggable
- 1310nm DFB laser transmitter
- 2-wire interface for management and diagnostic monitor
- Single power supply 3.3VDC



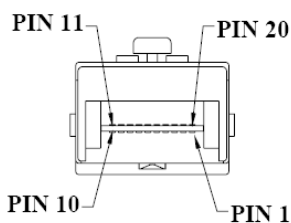
Features

- RoHS compliant
- Industry standard small form pluggable (SFP) package
- 1310nm DFB laser transmitter
- 2-wire interface for management and diagnostic monitor
- Transmission distance of 20Km over single-mode fiber
- Compliant with IEEE802.3ae 10GBase-LR Ethernet Standard
- Duplex LC connector
- Single power detect indicator
- Hot Pluggable

Application

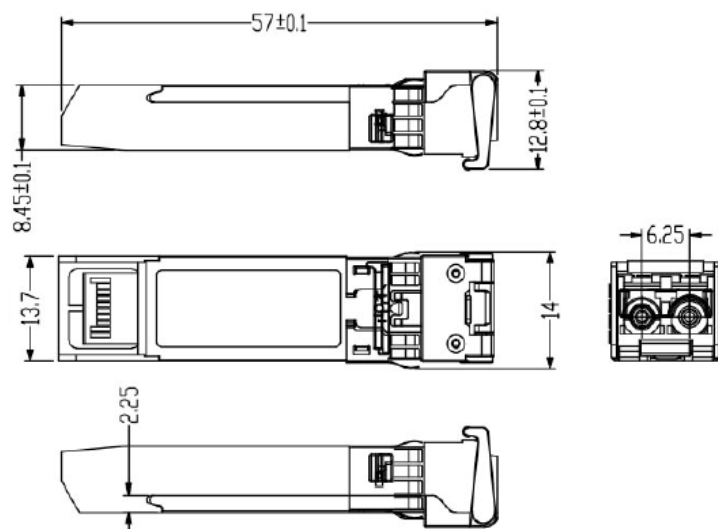
- Distributed multi-processing
- High speed I/O for file server
- Channel extender, data storage
- Switch to switch interface
- Bus extension application

Pin-Assignment



Pin	Signal Name	Description
1	T _{GND}	Transmit Ground
2	TX_FAULT	Transmit Fault
3	TX_DISABLE	Transmit disable
4	MOD_DEF (2)	SDA Serial Data Signal
5	MOD_DEF (1)	SCL Serial Clock Signal
6	MOD_DEF (0)	TTL Low
7	RATE SELECT	Open Circuit
8	RX_LOS	Receiver Loss of Signal, TTL High, open collector
9	R _{GND}	Receiver Ground
10	R _{GND}	Receiver Ground
11	R _{GND}	Receiver Ground
12	RX-	Receiver Data Bar, Differential PECL, ac coupled
13	RX+	Receiver Data, Differential PECL, ac coupled
14	R _{GND}	Receiver Ground
15	V _{CCR}	Receiver Power Supply
16	V _{CCT}	Tranmitter Power Supply
17	T _{GND}	Transmit Ground
18	TX+	Transmit Data, Differential PCEL, ac coupled
19	TX-	Transmit Data Bar, Differential PCEL, ac coupled
20	T _{GND}	Transmit Ground

Dimensions



unit = mm

Specifications

ABSOLUTE MAXIMUM RATINGS :

Parameter	Symbol	Min	Max	Units
Storage Temperature	T_S	-40	85	$^{\circ}\text{C}$
Supply Voltage	V_{CC}	-0.5	4.0	V
Input Voltage	V_{IN}	-0.5	V_{CC}	V

RECOMMENDED OPERATING CONDITIONS :

Parameter	Symbol	Min	Max	Units
Case Operating Temperature	T_C	SFP10G-LR20 = 0 SFP10G-LR20-I = -40	SFP10G-LR20 = 70 SFP10G-LR20-I = 85	$^{\circ}\text{C}$
Supply Voltage	V_{CC}	3.1	3.5	V
Supply Current	$I_{TX} + I_{RX}$	-	300	mA

TRANSMITTER ELECTRO-OPTICAL CHARACTERISTICS : $V_{CC} = 3.1\text{V to } 3.5\text{V}$, $T_C = 0^{\circ}\text{C to } 70^{\circ}\text{C}$ ($-40^{\circ}\text{C to } 85^{\circ}\text{C}$)

Parameter	Symbol	Min	Typ.	Max	Units	Note
Data Rate	B	9.953	10.3125	11.3	Gb/s	
Output Optical Power 9/125 μm fiber	P_{OUT}	-4	-	+0.5	dBm	Average
Bit Error Rate	BER			10^{-12}		
Extinction Ratio	ER	3.5	-	-	dB	
Center Wavelength	λ_C	1260	1310	1355	nm	
Spectral Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Optical Eye Mask	IEEE802.3ae					
Rise / Fall Time , (10-90%)	$T_{r,f}$	-	-	3	ns	
Differential Input Voltage	V_{DIFF}	0.12	-	1.2	V	
Transmit Disable Voltage	V_{DIS}	2.0		V_{CC}	V	

RECEIVER ELECTRO-OPTICAL CHARACTERISTICS : VCC = 3.1V to 3.5V, TC=0°C to 70°C (-40°C to 85°C)

Parameter	Symbol	Min	Typ.	Max	Units	Note
Data Rate	B	9.953	10.3125	11.3	Gb/s	
Optical Input Power-maximum	P_{IN_max}	-	-	+0.5	dBm	
Optical Input Power-minimum (Sensitivity)	P_{IN_min}	-	-	-15	dBm	
Operating Center Wavelength	λ_C	1260	1310	1600	nm	
Data Output Rise, Fall Time (10-90%)	$T_{r,f}$	-	-	30	ps	
Loss of Signal-Asserted	P_A	-30	-	-	dBm	Average
Loss of Signal-Deasserted	P_D	-	-	-15	dBm	Average
Loss of Signal-Hysteresis	$P_A - P_D$	0.5	-	-	dB	
Differential Output Voltage	V_{DIFF}	0.5	-	0.8	V	
Receiver Loss of Signal Output Voltage-Low	RX_LOS_L	0	-	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS_H	2.4	-	V_{CC}	V	

Ordering Information

SFP10G-LR 20 - A

Code Definition	Transceiver Distance	Additional Port Type
Option	- 20: 20 KM	- I: Industrial extended model for -40 ~ 85°C * Regular model : 0 ~ 70°C

	Model Name	Description	Operating Temperature
Available Model	SFP10G-LR20	10Gbps SFP optical Transceiver, Single-mode / 20KM, 1310nm, 0 ~ 70°C	0 ~ 70°C
	SFP10G-LR20-I	10Gbps SFP optical Transceiver, Single-mode / 20KM, 1310nm, industrial grade, -40 ~ 85°C	-40 ~ 85°C