

# SFP10G-ER40 / SFP10G-ER40-I

➔ 10Gbps SFP optical Transceiver, Single-mode / 40KM, 1550nm

## Highlights

- Compliant with IEEE802.3ae 10GBase-ER Ethernet Standard
- Compliant with SFF8472 diagnostic monitoring interface
- Compliant with SFP+ MSA
- 1550nm EML laser transmitter
- 2-wire interface for management and diagnostic monitor
- Low power consumption, less than 1.5W
- Single power supply 3.3VDC



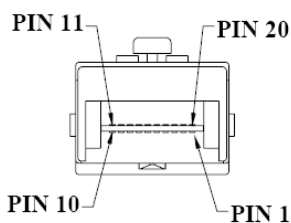
## Features

- RoHS compliant
- Industry standard small form pluggable (SFP) package
- 1550nm EML laser transmitter
- 2-wire interface for management and diagnostic monitor
- Transmission distance of 40Km over single-mode fiber
- Compliant with IEEE802.3ae 10GBase-ER Ethernet Standard
- Duplex LC connector
- Single power detect indicator
- Hot Pluggable
- Low power consumption, less than 1.5W

## Application

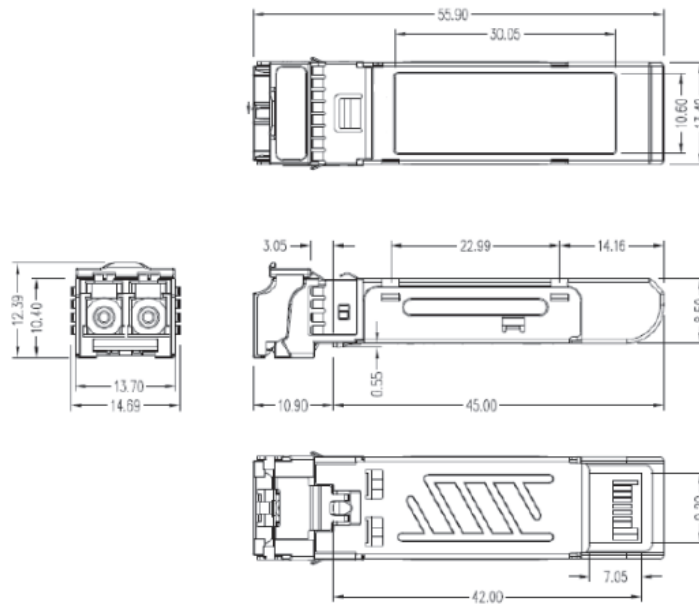
- Distributed multi-processing
- High speed I/O for file server
- Channel extender, data storage
- Switch to switch interface
- Bus extension application

## Pin-Assignment



Pin	Signal Name	Description
1	T <sub>GND</sub>	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 <sub>GND</sub>	Receiver Ground
10	R <sub>GND</sub>	Receiver Ground
11	R <sub>GND</sub>	Receiver Ground
12	RX-	Receiver Data Bar, Differential PECL, ac coupled
13	RX+	Receiver Data, Differential PECL, ac coupled
14	R <sub>GND</sub>	Receiver Ground
15	V <sub>CCR</sub>	Receiver Power Supply
16	V <sub>CCT</sub>	Transmitter Power Supply
17	T <sub>GND</sub>	Transmit Ground
18	TX+	Transmit Data, Differential PCEL, ac coupled
19	TX-	Transmit Data Bar, Differential PCEL, ac coupled
20	T <sub>GND</sub>	Transmit Ground

## Dimensions



unit = mm

## Specifications

### ABSOLUTE MAXIMUM RATINGS :

Parameter	Symbol	Min	Max	Units
Storage Temperature	$T_S$	-40	85	°C
Supply Voltage	$V_{CC}$	-0.5	4.0	V
Input Voltage	$V_{IN}$	-0.5	$V_{CC}$	V
Output Current	$I_O$	-	50	mA

### RECOMMENDED OPERATING CONDITIONS :

Parameter	Symbol	Min	Max	Units
Case Operating Temperature	$T_C$	SFP10G-ER40 = 0 SFP10G-ER40-I = -40	SFP10G-ER40 = 70 SFP10G-ER40-I = 85	°C
Supply Voltage	$V_{CC}$	3.1	3.5	V
Supply Current	$I_{TX} + I_{RX}$	350	450	mA

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

Parameter	Symbol	Min	Typ.	Max	Units	Note
Data Rate	B	9.953	10.3125	11.3	Gb/s	
Output Optical Power 9/125 $\mu m$ fiber	$P_{OUT}$	-4.7	-	+4	dBm	Average
Output Optical Power OMA	$P_{O\_OMA}$	-2.1	-	-	dBm	Average
Extinction Ratio	ER	3	-	-	dB	
Center Wavelength	$\lambda_C$	1530	1550	1565	nm	
Spectral Width (-20dB)	$\Delta\lambda$	-	-	1	nm	
Rise / Fall Time, (10-90%)	$T_{r,f}$	-	-	3	ns	
Differential Input Voltage	$V_{DIFF}$	0.18	-	0.7	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 <sub>IN_max</sub>	-	-	-1	dBm	
Optical Input Power-minimum (Sensitivity)	P <sub>IN_min</sub>	-	-	-15.8	dBm	
Operating Center Wavelength	$\lambda_c$	1250	1550	1600	nm	
Data Output Rise, Fall Time (10-90%)	T <sub>r,f</sub>	-	-	30	ps	
Loss of Signal-Asserted	P <sub>A</sub>	-30	-	-	dBm	Average
Loss of Signal-Deasserted	P <sub>D</sub>	-	-	-16	dBm	Average
Loss of Signal-Hysteresis	P <sub>A</sub> - P <sub>D</sub>	0.5	-	-	dB	
Differential Output Voltage	V <sub>DIFF</sub>	0.3	-	0.85	V	
Receiver Loss of Signal Output Voltage-Low	RX_LOS <sub>L</sub>	0	-	0.5	V	
Receiver Loss of Signal Output Voltage-High	RX_LOS <sub>H</sub>	2.4	-	V <sub>CC</sub>	V	

## Ordering Information

SFP10G-ER **40** - **A**

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

	Model Name	Description	Operating Temperature
Available Model	SFP10G-ER40	10Gbps SFP optical Transceiver, Single-mode / 40KM, 1550nm,	0 ~ 70°C
	SFP10G-ER40-I	10Gbps SFP optical Transceiver, Single-mode / 40KM, 1550nm,	-40 ~ 85°C