



### Features

- Up to 125 Mb/s Bi-directional data links
- Compliant with SFP MSA
- Hot-pluggable SFP Footprint
- Support 100BASE-T Full Duplex Default Operating Mode
- Support 100BASE-T Operation in Host Systems
- Auto-sense MDI/MDIX
- Single Power Supply 3.3V
- RoHS Compliant
- Two Temperature Range Options:  
C Grade (Commercial Temperature Range): 0°C to 70°C  
I Grade (Industrial Temperature Range): -40°C to 85°C

### Applications

- 125 Mb/s Fast Ethernet

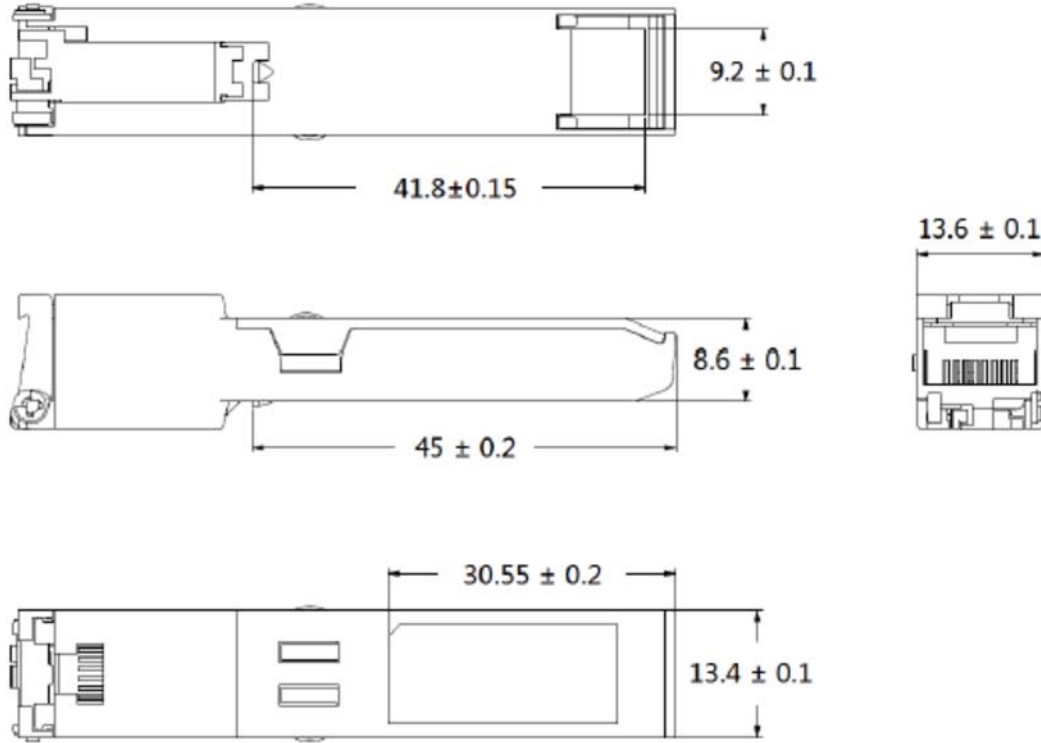
### Overview

Optech OP6A-TX1-00-x copper SFP transceivers are based on Fast Ethernet IEEE 802.3 standard and 100BASE-T standard and provide a quick and reliable interface for the FE application. The 100BASE-T physical layer PHY can be accessed via IIC, allowing access to all PHY setting and features. In addition, they comply with the Small Form Factor Pluggable Multi-Source Agreement (MSA).

**General Specifications**

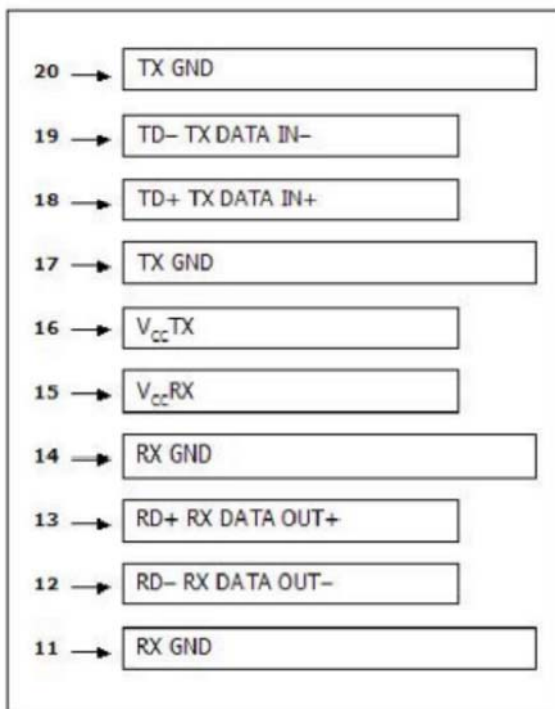
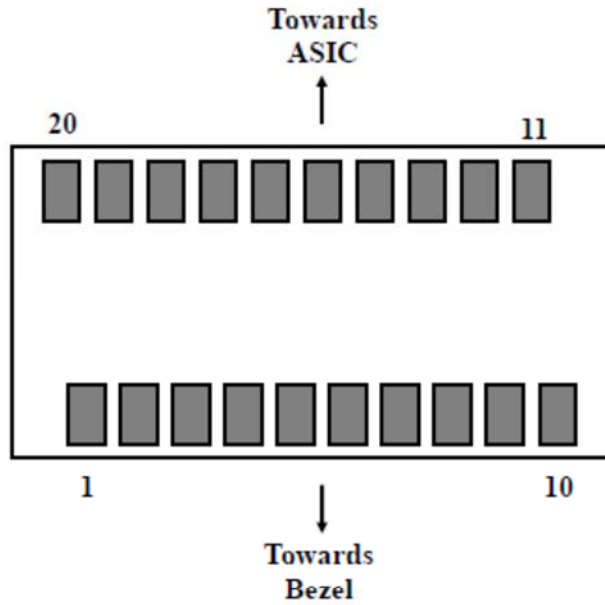
<i>Parameter</i>	<i>Symbol</i>	<i>Min.</i>	<i>Typ.</i>	<i>Max.</i>	<i>Units</i>	<i>Note</i>
Data Rate	<i>DR</i>		100		Mb/sec	
Cable Length	<i>CL</i>			100	m	Category 5 UTP
Bit Error Rate	<i>BER</i>			10 <sup>-12</sup>		
Case Operating Temperature	<i>T<sub>OP</sub></i>	0		70	°C	OP6A-TX1-00-C
		-40		85	°C	OP6A-TX1-00-I
Storage Temperature	<i>T<sub>STO</sub></i>	-40		85	°C	Ambient Temperature
Supply Current	<i>I<sub>S</sub></i>		190	300	mA	For Electrical Power Interface
Input Voltage	<i>V<sub>CC</sub></i>	3.14	3.3	3.46	V	Referenced to GND. For Electrical Power interface
Maximum Voltage	<i>V<sub>MAX</sub></i>			4	V	For Electrical Power Interface
Surge Current	<i>I<sub>SURGE</sub></i>			30	Ma	Hot Plug above Steady State Current. For Electrical Power Interface

Dimensions

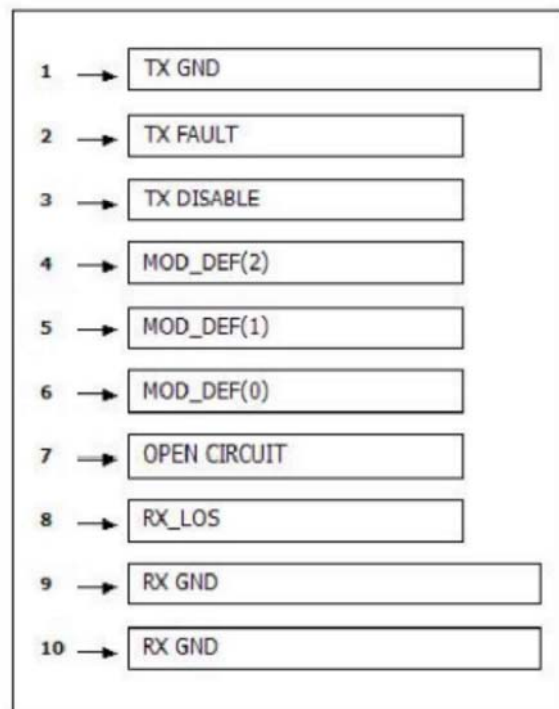


**ALL DIMENSIONS ARE  $\pm 0.2$ mm UNLESS OTHERWISE SPECIFIED  
UNIT: mm**

Electrical Pad Layout



Top of Board



Bottom of Board

## Pin Description

PIN #	Symbol	Description	Remarks
1	V <sub>EET</sub>	Transmitter ground (common with receiver ground)	1
2	T <sub>FAULT</sub>	Transmitter Fault. Not supported	
3	T <sub>DIS</sub>	Transmitter Disable.	2
4	MOD_DEF (2)	Module Definition 2. Data line for serial ID	3
5	MOD_DEF (1)	Module Definition 1. Clock line for serial ID	3
6	MOD_DEF (0)	Module Definition 0. Grounded within the module	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal	4
9	V <sub>EER</sub>	Receiver ground (common with transmitter ground)	1
10	V <sub>EER</sub>	Receiver ground (common with transmitter ground)	1
11	V <sub>EER</sub>	Receiver ground (common with transmitter ground)	1
12	RD <sup>-</sup>	Receiver Inverted DATA out. AC coupled	
13	RD <sup>+</sup>	Receiver Non-inverted DATA out. AC coupled	
14	V <sub>EER</sub>	Receiver ground (common with transmitter ground)	1
15	V <sub>CCR</sub>	Receiver power supply	
16	V <sub>CCT</sub>	Transmitter power supply	
17	V <sub>EET</sub>	Transmitter ground (common with receiver ground)	1
18	TD <sup>+</sup>	Transmitter Non-Inverted DATA in. AC coupled	
19	TD <sup>-</sup>	Transmitter Inverted DATA in. AC coupled	
20	V <sub>EET</sub>	Transmitter ground (common with receiver ground)	1

## Notes:

1. Circuit ground is isolated from chassis ground
2. Disabled: TDIS>2V or open, Enabled: TDIS<0.8V
3. Should be pulled up with 4.7k –10k ohm on host board to a voltage between 2V and 3.6V

## References

1. IEEE standard 802.3. IEEE Standard Department, 2002.
2. Small Form Factor Pluggable (SFP) Transceiver Multi-Source Agreement (MSA), September 2000.

**Ordering Information**

**OP 6 A - T X1 - 00 - X**

↑	↑	↑	↑	↑	↑
<b>Product Code:</b>	<b>Data Rate:</b>	<b>Type:</b> S=Single-mode;	<b>Reach:</b>	<b>Wavelength:</b>	<b>Operating Temperature:</b>
5=GBIC;	A=155Mb/s;	M=Multi-mode;	Normal:	Normal:	C=Commercial Purpose (0~70°C);
6=SFP-LC;	B=622Mb/s;	W=BWDM;	X1=Under 150m;	85=850nm;	I= Industrial Purpose (Extended Range)
7=XFP;	C=1.25Gb/s;	C=CWDM;	X3=300m;	13=1310nm;	
8=XENPAK;	D=2.125Gb/s;	D=DWDM;	X5=550m;	15=1550nm;	
9=X2;	E=2.5Gb/s;	T=Copper-T (RJ-45)	02=2km,	00=Copper T (RJ-45)	
A=SFP+;	F=4.25Gb/s;	E=GEPON ONU;	10=10km;	CWDM:	
C=QSFP;	G=3.1Gb/s;	F=GEPON OLT;	70=70km;	27=1270nm;	
F=CFP;	J=2.97G	G=GPON ONU;	A0=100km;	47=1470nm;	
P=SFP-SC;	P=6.144G;	H=GPON OLT	C0=120km	61=1610nm	
Q=SFP-MTRJ	Q=7.37G;		CWDM:	BWDM:	
	H=8.5Gb/s;		20=20dB;	B3=Tx1310/Rx1550; B5=Tx1550/Rx1310;	
	K=10Gb/s;		24=24dB;	B4=Tx1310/Rx1490; B9=Tx1490/Rx1310;	
	T=1/10Gb/s		28=28dB	51=Tx1510/Rx1570; 57=Tx1570/Rx1510;	
	L=11.09Gb/s;			27=Tx1270/Rx1330; 33=Tx1330/Rx1270;	
	R=20Gb/s;			B2=Tx1270/Rx1577; B7=Tx1577/Rx1270	
	S=40Gb/s;			T2=2TX1310nm; T3=TX1310nm;	
	M=100Base-X SGMII;			T5=TX1550nm	
	N=100/1000Base-X SGMII;			DWDM:	
				17=Channel 17	
				34= Channel 34	
				00=Channel 17~61 Tunable	

Model Number	Part Number	Distance	Voltage	Temperature
SFP-100TX	OP6A-TX1-00-C	100m	3.3V	0°C to 70 °C
SFP-100TX-I	OP6A-TX1-00-I	100m	3.3V	-40°C to 85 °C

**Note: All information contained in this document is subject to change without notice.**