



Features

- Supports Links up to 30m using Cat 6a/7 Cable
- Compliant with IEEE 802.3az
- Compliant with SFF-8431 and SFF-8432 MSA
- Low Power Consumption (2.5W MAX @ 30m)
- Auto-negotiates with other 10GBase-T PHYs
- I2C 2-Wire Interface for Serial ID and PHY Register Access
- Auto-sense MDI/MDIX
- RoHS Compliant
- Operating temperature range: 0°C to 70°C

Applications

- 10 Gigabit Ethernet

OPAK-TX1-00-CD, 10GBASE-T is high performance and high speed copper transceiver module over Cat 6a/7 cable with a link of 30m. It is specifically designed for 10 Gigabit Ethernet bidirectional communication. The benefit is that it uses standard-based technology with the familiar RJ45 connector and provides backward compatibility with legacy networks.

The 10GBASE-T SFP+ copper transceiver is expanding the application of the copper based technology. Before, the direct attach cables with the limitation of reach distance is 10 meters, even the active version only could up to 15 meters. However, the 10GBASE-T SFP+ Copper Transceiver can transfer over distances of 30 meters with 10GE data, over Cat 6/6a/7 cable. Though at present the Cat 6/6a/7 cabling provides limited support for 10GBASE-T in some environments, the compelling features of this 10GBASE-T SFP+ copper transceiver make it a favorable choice for long-term consideration. This module has the benefits of backwards compatible and usable for nearly every copper infrastructure, full PHY (physical layer) presentation, and cost-effective for today and future applications.

With platform advancements bringing down the price and power consumption for 10GBASE-T switches, there are a lot of affordable switches entering the market from various manufacturers. This is why 10Gtek made this compatible product, as a leader in the small form pluggable (SFP+) transceiver compatible market.

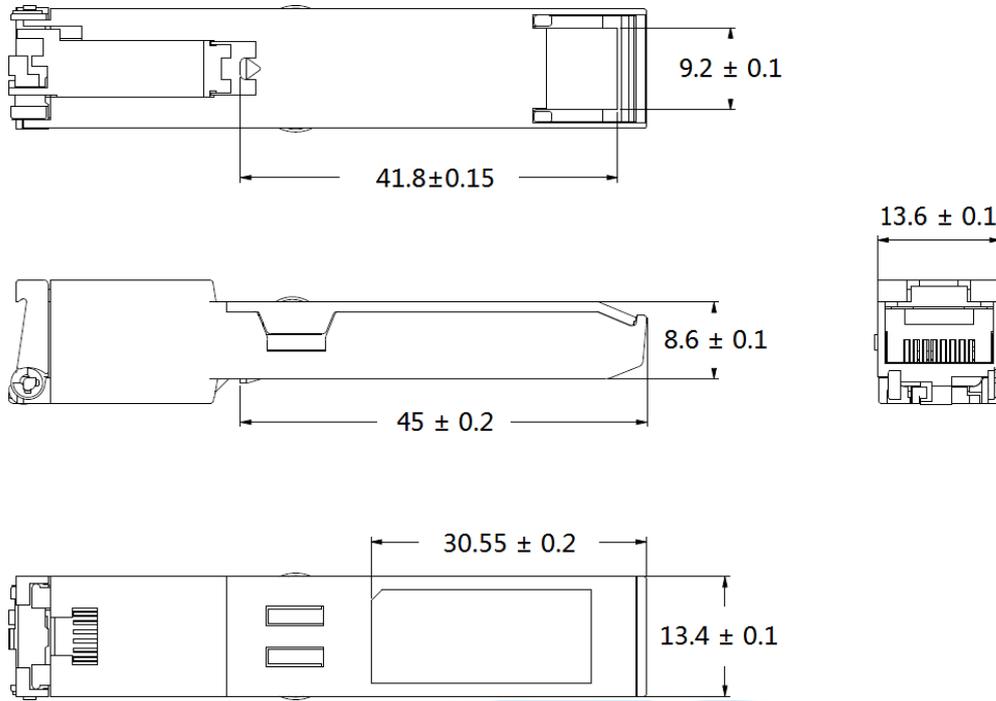
Recommended Operating Conditions

<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>		10		Gb/s	1
Cable Length	<i>CL</i>		30		m	2
Bit Error Rate	<i>BER</i>			10^{-12}		
Operating Temperature	<i>T_{OP}</i>	0		70	°C	3
Storage Temperature	<i>T_{STO}</i>	-40		85	°C	4
Supply Current	<i>I_S</i>		700	750	mA	5
Input Voltage	<i>V_{CC}</i>	3.14	3.3	3.46	V	6
Maximum Voltage	<i>V_{MAX}</i>			4	V	5
Surge Current	<i>I_{surge}</i>			30	mA	7

Notes:

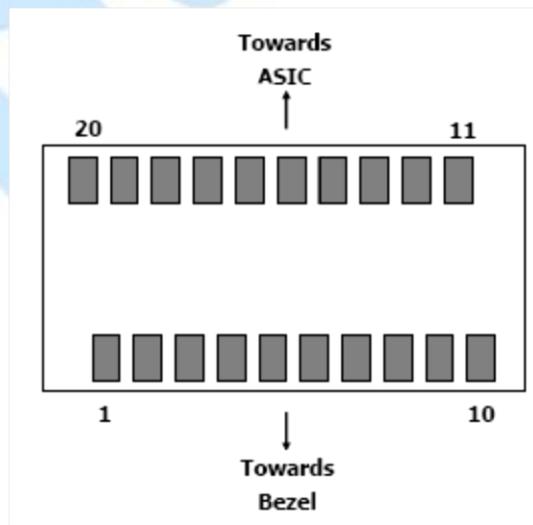
1. IEEE 802.3
2. Cat 6a/7 UTP
3. Case temperature
4. Ambient temperature
5. For electrical power interface
6. Referenced to GND
7. Hot Plug above steady state current

Dimensions



UNIT: mm

Electrical Pad Layout



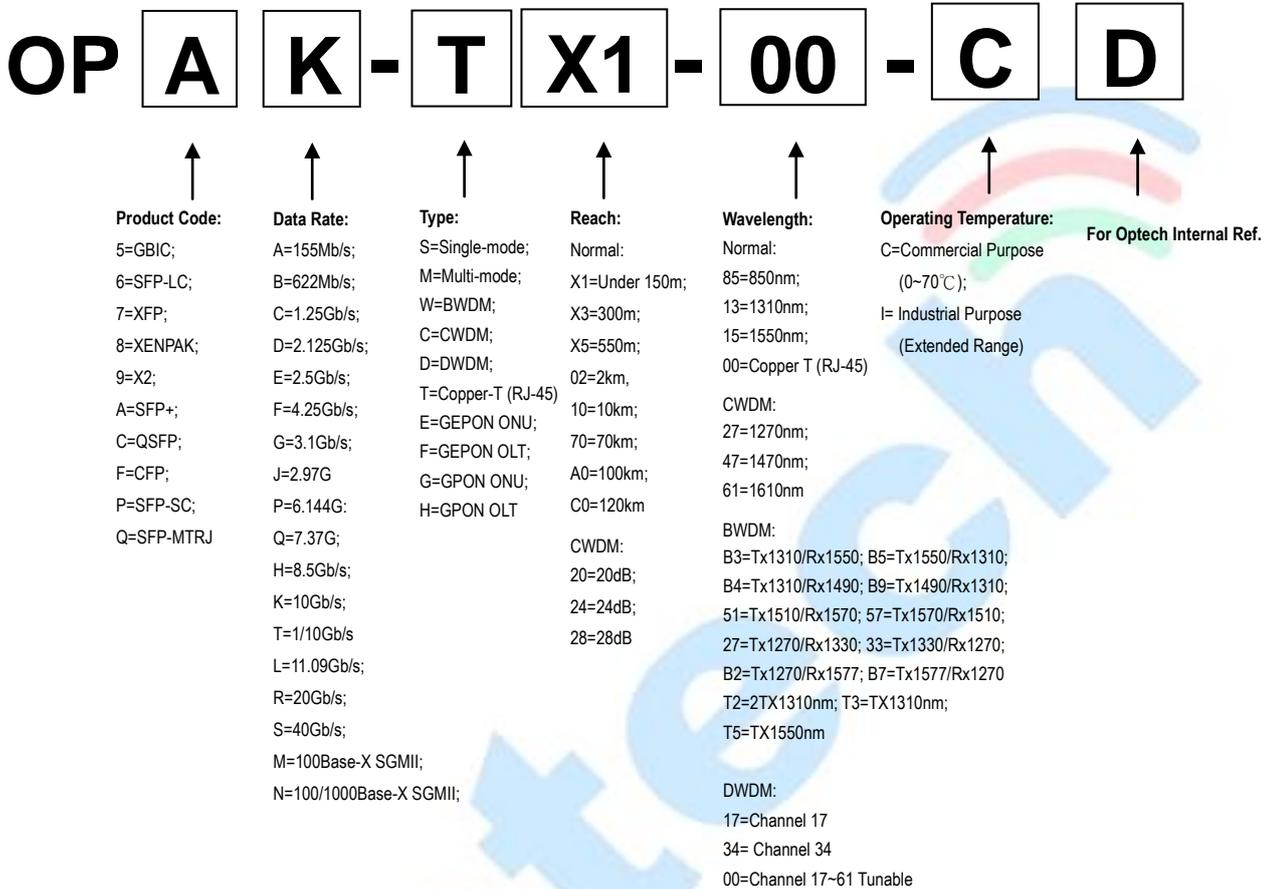
Pin Description

PIN	Symbol	Description	Note
1	VEET	Transmitter ground (common with receiver ground)	1
2	TX_FAULT	Transmitter Fault. Not supported	
3	TX_DISABLE	Transmitter Disable. PHY disabled on high or open	2
4	SDA	2-wire Serial Interface Data Line	3
5	SCL	2-wire Serial Interface Clock Line	3
6	MOD_ABS	Module Absent. Grounded within the module	3
7	RS0	No Connection Required	
8	RX_LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	RS1	No Connection Required	
10	VEER	Receiver ground (common with transmitter ground)	1
11	VEER	Receiver ground (common with transmitter ground)	1
12	RD-	Receiver Inverted DATA out. AC coupled	
13	RD+	Receiver Non-inverted DATA out. AC coupled	
14	VEER	Receiver ground (common with receiver ground)	1
15	VCCR	Receiver power supply	
16	VCCT	Transmitter power supply	
17	VEET	Transmitter ground (common with receiver ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	

Notes:

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

Ordering Information



Model Number	Part Number	Distance	Voltage	Temperature
SFP-10G-TX	OPAK-TX1-00-CD	30m	3.3V	0°C to 70°C

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