SPH-SFP+AOCX

10G SFP+ Active Optical Cables

Features

- Hot pluggable
- Bit rate support from 1G to 11.3Gbps
- Pre-terminated twin axial cable / fiber cable
- Operating environment temperature 0 ~ 70℃
- Low power consumption
- SFP+ housing with enhanced EMI shielding
- Single 3.3V power supply
- Programmable EEPROM for serial identification

Applications

- 10G Ethernet
- Applicable to 1G Ethernet
- 8G Fiber Channel
- Applicable to 4G / 2G / 1G Fiber Channel
- 10G Fiber Channel over Ethernet
- 1X QDR Infiniband
- Applicable to 1X DDR / 1 X SDR Infiniband

- High capacity IO with SFP+ interface
- Data center and in-rack connection

Compliance

- SFF-8431 SFP+ Electrical MSA
- SFF-8432 SFP+ Mechanical MSA
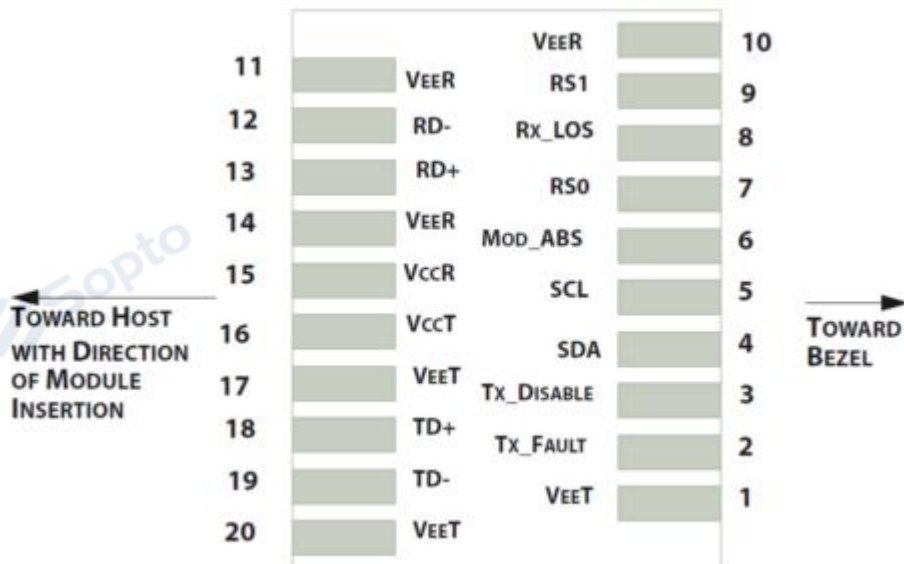- RoHS complaint

Reach

- Up to 7m by twin axial copper cable
- Up to 15m by twin axial copper cable with signal conditioner
- Up to 100m by active optical cable with OM3 fiber

Description

SFP+ Active Optical Cables are direct-attach fiber assemblies with SFP+ connectors. They are suitable for very short distances and offer a cost-effective way to connect within racks and across adjacent racks. SOPTO SFP+ Active Optical Cables' length is up to 300 meters on OM3 MMF.

Host Board Connector Pin (Top View)

Note:

For detail information, please refer to SFF-8083 0.8mm Card Edge Connector for 8/10 Gbps Applications
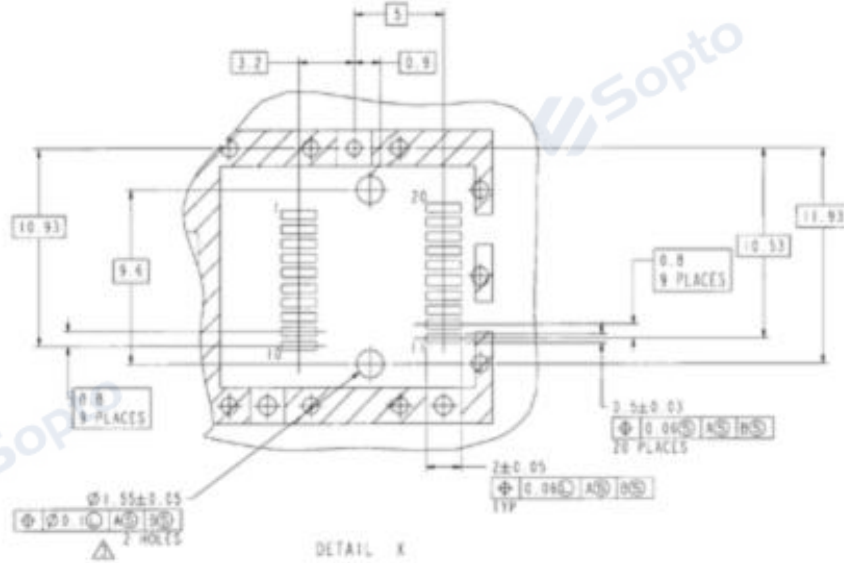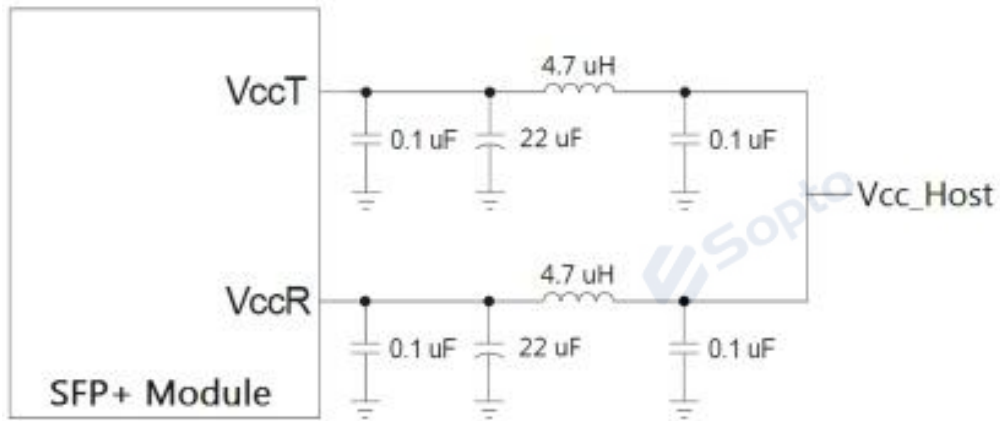
SFP+ Connector Pin

TOWARD HOST WITH DIRECTION OF MODULE INSERTION

BOTTOM OF BOARD AS VIEWED FROM TOP THROUGH BOARD

TOP VIEW OF BOARD

Pin	Symbol	Logic	Description	Note
1	VeeT		Module Transmitter Ground	1
2	Tx_Fault	LVTTL-O	Not supported.	3
3	Tx_Disable	LVTTL-I	Not supported.	3
4	SDA	LVTTL-I/O	2-wire Serial Interface Data Line	2
5	SCL	LVTTL-I/O	2-wire Serial Interface Clock	2
6	Mod_ABS		Module Absent	2
7	RS0	LVTTL-I	Not supported.	3
8	Rx_LOS	LVTTL-O	Not supported.	3
9	RS1	LVTTL-I	Not supported.	3
10	VeeR		Module Receiver Ground	1
11	VeeR		Module Receiver Ground	1
12	RD-	CML-O	Receiver Inverted Data Output	
13	RD+	CML-O	Receiver Non-Inverted Data Output	
14	VeeR		Module Receiver Ground	1
15	VccR		Module Receiver 3.3 V Supply	4
16	VccT		Module Transmitter 3.3 V Supply	4
17	VeeT		Module Transmitter Ground	1
18	TD+	CML-I	Transmitter Non-Inverted Data Input	
19	TD-	CML-I	Transmitter Inverted Data Input	
20	VeeT		Module Transmitter Ground	1

Notes:
1. Module circuit ground pins are isolated from the module chassis ground.
2. Pull up to Vcc_{Host} with 4.7k – 10kW.
3. No connection required.
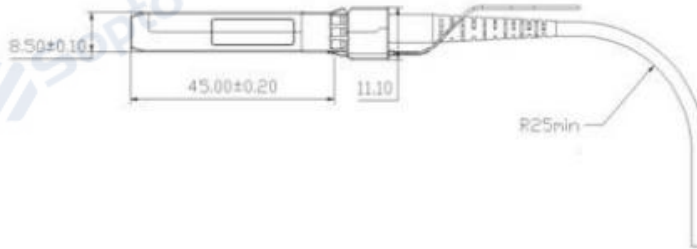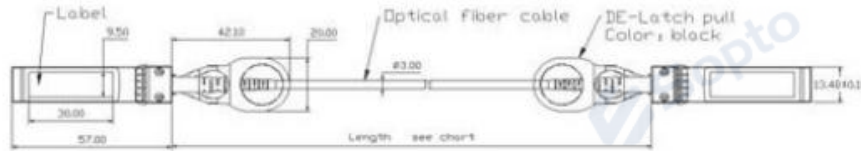4. Power supply filtering circuit required.

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Storage Temperature	Ts	-40	+85	°C
Operating Case Temperature	Tc	-40	+85	°C
Operating Humidity	RH		85	%
Supply Voltage	Vcc	-0.5	3.6	V

Note:

Damage may occur if the transceiver is subjected to conditions beyond the limits.

Recommended Operating Conditions

Parameter	Symbol	Min	Max	Unit
Operating Case Temperature	Tc	0	+70	°C
Supply Voltage	Vcc	3.1	3.5	V
Bit Rate	BR	1	11.3	GBd

Host PCB Layout

Notes:
1. Datum and basic dimensions established by customer
2. Pads and vias are chassis ground, 11 places
3. Thru holes, plating optional

DETAIL X

Recommended Power Supply Filter

References:
1.SFF-8431 "Specifications for Enhanced Small Form Factor Pluggable Module SFP+"
2.SFF-8432 "Specification for Improved Pluggable Form factor"
3.SFF-8472 "Specification for Diagnostic Monitoring Interface for Optical Transceivers"

Mechanical Drawing

ESD

This transceiver is specified as ESD threshold 1KV for high speed data pins and 2KV for all others electrical input pins, tested per MIL-STD-883, Method 3015.4 /JESD22-A114-A (HBM). However, normal ESD precautions are still required during the handling of this module. This transceiver is shipped in ESD protective packaging. It should be removed from the packaging and handled only in an ESD protected environment.

Ordering information

Part Number	Product Description	Fiber Spec.
SPH-SFP+AOC1	10G SFP+ Active Optical Cable 1Meter	OM2 or OM3
SPH-SFP+AOC3	10G SFP+ Active Optical Cable 3Meters	OM2 or OM3
SPH-SFP+AOC5	10G SFP+ Active Optical Cable 5Meters	OM2 or OM3
SPH-SFP+AOC7	10G SFP+ Active Optical Cable 7Meters	OM2 or OM3
SPH-SFP+AOC10	10G SFP+ Active Optical Cable 10Meters	OM2 or OM3
SPH-SFP+AOC15	10G SFP+ Active Optical Cable 15Meters	OM2 or OM3
SPH-SFP+AOC20	10G SFP+ Active Optical Cable 20Meters	OM2 or OM3
SPH-SFP+AOC25	10G SFP+ Active Optical Cable 25Meters	OM2 or OM3
SPH-SFP+AOC30	10G SFP+ Active Optical Cable 30Meters	OM3

SPH-SFP+AOC50	10G SFP+ Active Optical Cable 50Meters	OM3
SPH-SFP+AOC100	10G SFP+ Active Optical Cable 100Meters	OM3

Note:

1、Default fiber specification is OM3.

2、Default jacket material is PVC. Default Cable Diameter is 3.0mm

3、Default operating case temperature is 0 ~ 70℃．If you need -40 ~85℃ products, add "T" after Part Number .

4、If you need more customized services, please contact us..

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