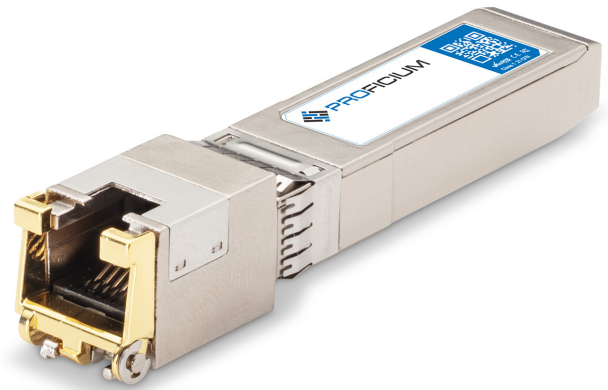


Product Features

- Supports 10GBase-T using 30m Cat 6a/7 cable
- Supports 5GBase-T using 70m Cat 5e cable
- Supports 2.5GBase-T using 100m Cat 5e cable
- Supports 10/100/1000Base-T using 100m Cat 5e cable
- Low power consumption (2.3W TYP @10Gbps 30m)
- Auto-sense MDI/MDIX
- Compliant with IEEE 802.3az
- Compliant with SFF-8431 and SFF-8432 MSA
- Compliant with RoHS 2.0, Reach, CE, FCC standards



Applications

- 10 Gigabit Ethernet

Overview

- Proficium's S10-T-I-P is a small hot-pluggable RJ45 electrical port module, compliant with 10 Giga-bit Ethernet standards and SFP Multi-Source Agreement (MSA) standards, supporting 10G transmission rate, transfer distances up to 30 meters using Cat 6a/7 network cable, it is also backward compatible with 10M/100M/1000M/2.5G/5GBase-T applications. Low power consumption (2.3W TYP @ 10Gbps 30m), compatible with various brands of hosts, widely used in data centers and enterprise networks. Comply with certification requirements such as RoHS 2.0, Reach, CE and FCC.
- The product is based on a standard RJ45 interface, compatible with traditional networks, the Ethernet transfer rates can be increased without changing existing wiring. It is a lowcost alternative to Ethernet upgrades.

Ordering Information

Part Number	Product ID	Description	Operating Temperature Range
S10-T-I-P	M551428	10M/100M/1000M/2.5G/5G/10GBase-T SFP+ Copper RJ-45 Connector	-40°C to 85°C



Notes

1. Rx with auto squelch.
2. Rx_LOS report copper interface link status.
3. A0 and A2 table 00/01 with write protection function.
4. Operating Temperature Range is case temperature.

General Specifications

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Data Rate	DR		10		Gb/s	1
Bit Error Rate	BER			10^{-12}		
Storage Temperature	T _{STO}	-40		85	°C	2
Supply Current	I _{CC}		700	750	mA	3
Input Voltage	V _{CC}	3.14	3.3	3.46	V	
Maximum Voltage	V _{MAX}	-0.5		4	V	

Parameter	Symbol	Min	Typ	Max	Unit	Remarks
Surge Current	I_{surge}			30	mA	
Power Consumption	P		2.16	2.60	W	



Notes

1. IEEE 802.3ae
2. Ambient temperature
3. Test at 10Gbps rate using 30m CAT 6A cable

I2C Memory Map

Address A0					
IIC Addr	Size	Name	Description	Values (HEX)	Remarks
0	1	Identifier	SFP or SFP+	03	
1	1	Ext. Identifier	GBIC/SFP function is defined by two-wire interface ID only	04	
2	1	Connector	RJ45 (Registered Jack)	22	
3-10	8	Transceiver	Code for electronic or optical compatibility	00 00 00 00 00 04 00 00	
11	1	Encoding	64B/66B	06	
12	1	BR, Nominal	Nominal Bit Rate 10.3Gb/s	67	
13	1	Rate Identifier	Type of rate select functionality	00	
14	1	Length(SMF,km)	Link length supported for single mode fiber, units of km	00	
15	1	Length (SMF)	Link length supported for single mode fiber, units of 100 m	00	
16	1	Length (50um)	Link length supported for 50 um OM2 fiber, units of 10 m	00	
17	1	Length (62.5um)	Link length supported for 62.5 um OM1 fiber, units of 10 m	00	
18	1	Length (OM4 or copper cable)	30m	1E	
19	1	Length (OM3)	Link length supported for 50 um OM3 fiber, units of 10 m	00	
20-35	16	Vendor name	Proficium	4D 4F 44 55 4C 45 54 45 4B 20 20 20 20 20 20 20	

36	1	Transceiver	Code for electronic or optical compatibility	00	
37-39	3	Vendor OUI	SFP vendor IEEE company ID	00 00 00	
40-55	16	Vendor PN	Part number in Order information	-	
56-59	4	Vendor rev	Revision level for part number provided by vendor (ASCII)	-	
60-61	2	Wavelength	Laser wavelength (Passive/Active Cable Specification Compliance)	00 00	
62	1	Unallocated		00	
63	1	CC BASE	Check code for Base ID Fields (addresses 0 to 62)	-	
64-65	2	Options	Indicates which optional transceiver signals are implemented	00 00	
66	1	BR, max	Upper bit rate margin	00	
67	1	BR, min	Lower bit rate margin	00	
68-83	16	Vendor SN	Serial number provided by vendor	Programmed by Factory	
84-91	8	Date code	Year,Month,Day	Programmed by Factory	
92	1	Diagnostic Monitoring Type	Indicates which type of diagnostic monitoring is implemented (if any) in the transceiver	00	
93	1	Enhanced Options	Indicates which optional enhanced features are implemented (if any) in the transceiver	00	
94	1	SFF-8472 Compliance	Indicates which revision of SFF-8472 the transceiver complies with	00	
95	1	CC EXT	Check code for the Extended ID Fields (addresses 64 to 94)	-	
96-127	32	Vendor Specific	Vendor Specific EEPROM	-	
128-255	128	Vendor Specific	Vendor Specific EEPROM	-	

Address A2 Low

IIC Addr	Size	Name	Description	Values (HEX)	Remarks
0-94	95	Reserved	Reserved	FF	
95	1	Checksum	0-94 Byte Checksum	-	
96-121	26	Reserved	Reserved	FF	
122	1	Security Level	Security Level; 00=Normal Mode; 01=User Mode (Level 1); 02=Factory Mode (Level 2);	-	
123-126	4	Password Entry	Password Entry Area	00 00 00 00	
127	1	Table Selection	Page Select Byte	00	

Address A2 Page 00h/01h					
IIC Addr	Size	Name	Description	Values (HEX)	Remarks
128- 255	128	Upper Memory Map	User Code Area	-	
Address A2 Page 8Ah					
IIC Addr	Size	Name	Description	Values (HEX)	Remarks
128-131	4	Firmware Version Number [4]	Firmware Version Number	-	
132-135	4	Total Running Time In Second	Total Running Time In Second	-	
Address A2 Page F0h					
IIC Addr	Size	Name	Description	Values (HEX)	Remarks
128-131	4	Password1 Long	Level 1 Password	00 00 10 11	
132	1	DisableA0WP	00=A0 With Write Protection; 01=A0 Without Write Protection	00	
133	1	DisableA2T00T01WP	00=A2 T00T01 With Write Protection; 01=A2 T00T01 Without Write Protection	00	



Notes

1. Password entry area default 00000000, read out as last written value
2. Module with write protection, enter the security level 1 writeable

User Mode

Module	Level 1 Default Password	Password Can Be Changed	Permissions
SFP-10G-T-x-D19	00 00 10 11	YES(A2 TF0)	1、Read And Write A0、A2 T00
			2、Read A2 T8A
			3、Read And Write A2 TF0



Notes

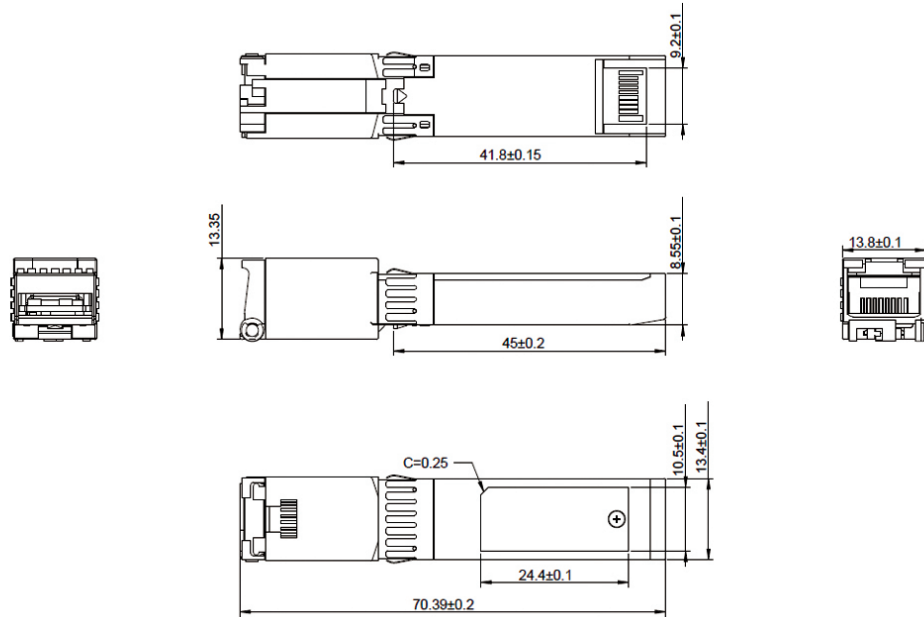
1. detail in I2C memory map

Dimensions

Weight: 26g

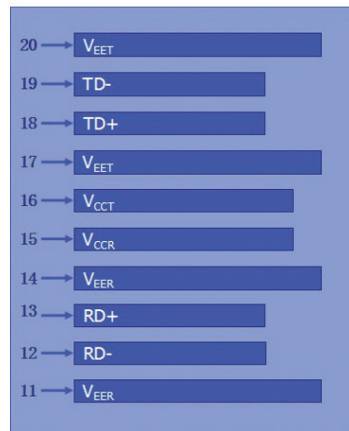
S10-T-I-P

10GBase T SFP+, Copper, No wavelength,
30m, RJ45, Industrial Temperature

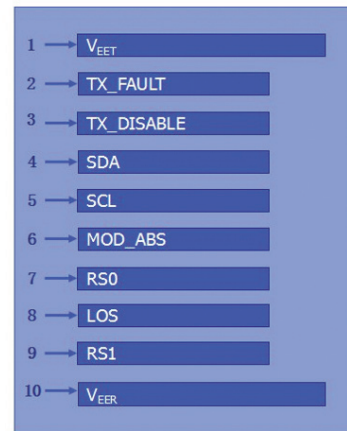
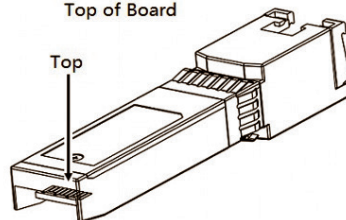


ALL DIMENSIONS ARE ±0.2mm UNLESS OTHERWISE SPECIFIED
UNIT: mm

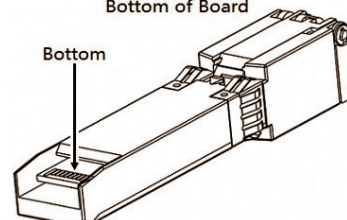
Electrical Pad Layout



Top of Board



Bottom of Board



Pin Assignment

PIN #	Symbol	Description	Remarks
1	V _{EET}	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	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	
9	RS1	No Connection Required	
10	V _{EER}	Receiver ground (common with transmitter ground)	1
11	V _{EER}	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	V _{EER}	Receiver ground (common with receiver ground)	1
15	V _{CCR}	Receiver power supply	
16	V _{CCT}	Transmitter power supply	
17	V _{EET}	Transmitter ground (common with receiver ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC coupled	
19	TD-	Transmitter Inverted DATA in. AC coupled	
20	V _{EET}	Transmitter ground (common with receiver ground)	1



Notes

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

For More Information

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 www.proficium.com