

## FC95700040-AO

Fujitsu® FC95700040 Compatible TAA 100Base-ZX SFP Transceiver (SMF, 1550nm, 80km, LC, DOM, -40 to 85C)

### Features

- INF-8074 and SFF-8472 Compliance
- Duplex LC Connector
- Industrial Temperature -40 to 85 Celsius
- Single-mode Fiber
- Hot Pluggable
- Excellent ESD Protection
- Metal with Lower EMI
- RoHS Compliant and Lead Free



### Applications

- 100Base Ethernet
- Access and Enterprise

### Product Description

This Fujitsu® FC95700040 compatible SFP transceiver provides 100Base-ZX throughput up to 80km over single-mode fiber (SMF) using a wavelength of 1550nm via an LC connector. It is guaranteed to be 100% compatible with the equivalent Fujitsu® transceiver. This easy to install, hot swappable transceiver has been programmed, uniquely serialized and data-traffic and application tested to ensure that it will initialize and perform identically. Digital optical monitoring (DOM) support is also present to allow access to real-time operating parameters. This transceiver is Trade Agreements Act (TAA) compliant. We stand behind the quality of our products and proudly offer a limited lifetime warranty.

AddOn's transceivers are RoHS compliant and lead-free.

TAA refers to the Trade Agreements Act (19 U.S.C. & 2501-2581), which is intended to foster fair and open international trade. TAA requires that the U.S. Government may acquire only "U.S. – made or designated country end products."



## Regulatory Compliance

- ESD to the Electrical PINs: compatible with MIL-STD-883 Method 3015.
- ESD to the Duplex LC Receptacle: compatible with IEC 61000-4-2.
- Immunity compatible with IEC 61000-4-3.
- EMI compatible with FCC Part 15 Class B EN55022 Class B (CISPR 22B) VCCI Class B.
- Laser Eye Safety compatible with FDA 21CFR 1040.10 and 1040.11 EN60950, EN (IEC) 60825-1,2.
- RoHs compliant with 2002/95/EC 4.1&4.2 2005/747/EC.

## Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit
Maximum Supply Voltage	V <sub>cc</sub>	-0.5	4.0	V
Storage Temperature	T <sub>S</sub>	-40	85	°C
Operating Humidity	RH	5	95	%

## Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V <sub>cc</sub>	3.13	3.30	3.47	V
Power Supply Current	I <sub>cc</sub>			250	mA
Case Operating Temperature	T <sub>c</sub>	-40		85	°C
Data Rate (Gigabit Ethernet)			155		Mbps
9/125µm G.652 SMF	L <sub>max2</sub>			80	km

**Electrical Characteristics (TOP=25°C, Vcc=3.3V)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
<b>Transmitter</b>						
<b>Input differential impedance</b>	Rin		100		Ω	1
<b>Single ended data input swing</b>	Vin, pp	250		1200	mV	
<b>TX Disable-High</b>		Vcc-1.3		Vcc	V	
<b>TX Disable-Low</b>		Vee		Vee+0.8	V	
<b>TX Fault-High</b>		Vcc-0.5		Vcc	V	
<b>TX Fault-Low</b>		Vee		Vee+0.5	V	
<b>Receiver</b>						
<b>Single ended data output swing</b>	Vout, pp	300	400	800	mV	2
<b>Data output rise time</b>	tr			1500	ps	3
<b>Data output fall time</b>	tf			1500	ps	3
<b>LOS-High</b>		Vcc-0.5		Vcc	V	
<b>LOS-Low</b>		Vee		Vee+0.5	V	

**Notes:**

1. AC coupled.
2. Into 100 ohm differential termination.
3. 20% - 80%

## Optical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Transmitter						
Output Opt. Power	PO	-5		0	dBm	1
Optical Wavelength	$\lambda$	1530	1550	1570	nm	
Spectral Width	$\sigma$			1	nm	
Optical Rise/Fall Time	tr/tf			1500	ps	2
Total Jitter Transmitter Jitter	J <sub>TXp-p</sub>			0.07	UI	3
Total Generated Transmitter Jitter (rms)	J <sub>TXrms</sub>			0.007	UI	
Optical Extinction Ratio	ER	10			dB	
Receiver						
RX Sensitivity @155Mbs	RSENS			-34.5	dBm	4
Maximum Received Power	RX <sub>MAX</sub>	0			dBm	
Optical Center Wavelength	$\lambda_C$	1270		1600	nm	
LOS De-Assert	LOSD			-35	dBm	
LOS Assert	LOSA	-45			dBm	
LOS Hysteresis		0.5		5	dB	

### Notes:

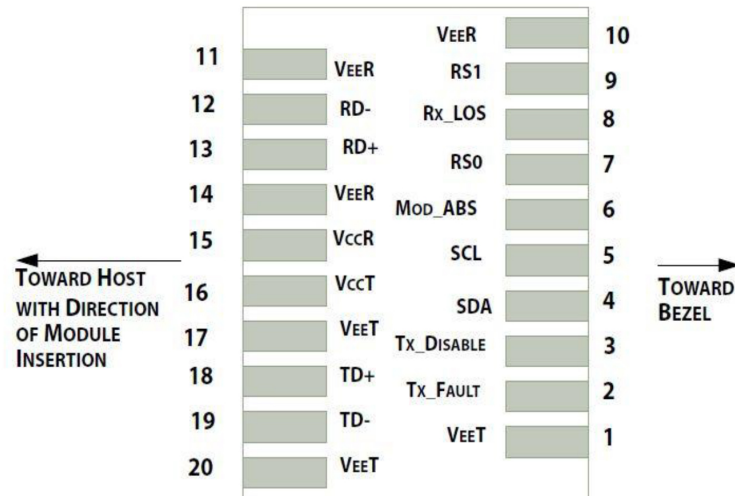
1. Class 1 Laser Safety.
2. Unfiltered, 20%-80%. Complies with OC-3 eye masks when filtered.
3. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and  $\Delta DJ$
4. Measured with PRBS 2<sup>23</sup>-1 at 10<sup>-10</sup> BER.

## Pin Descriptions

Pin	Symbol	Name/Descriptions	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	TX Fault	Transmitter Fault.	
3	TX Disable	Transmitter Disable. Laser output disabled on high or open.	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 indication. Logic 0 indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground)	1
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 Transmitter 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.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	VeeT	Transmitter Ground (Common with Receiver Ground)	1

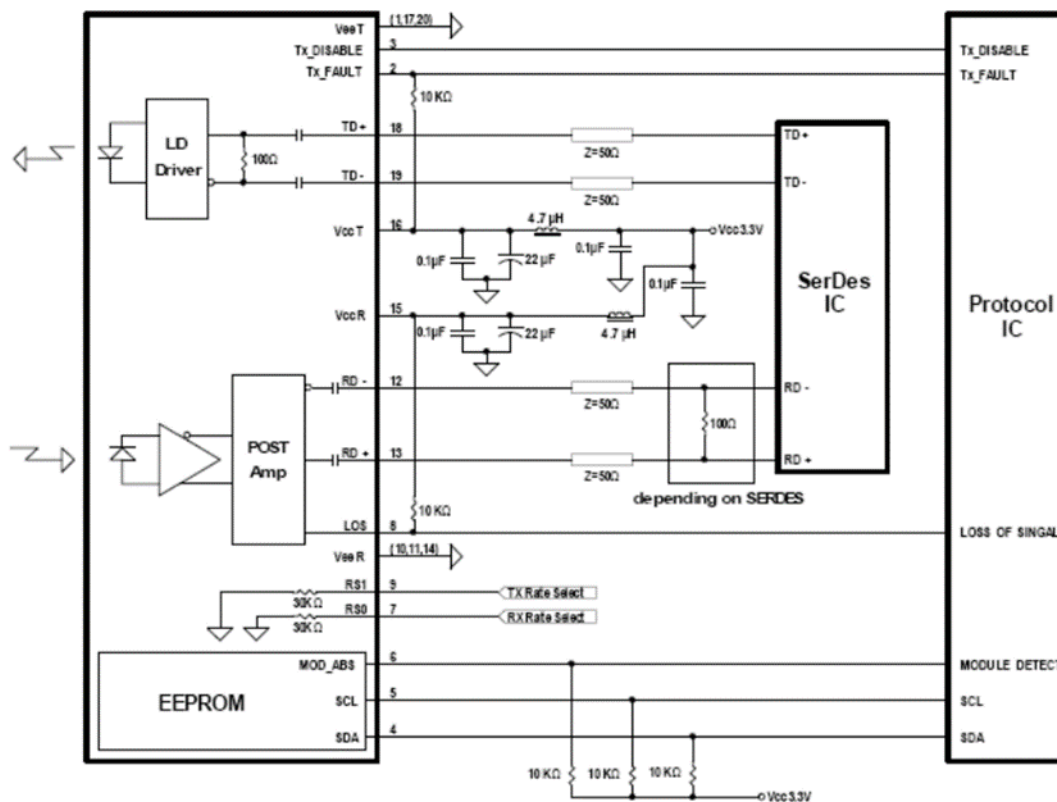
## Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable <0.8V.
3. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. MOD\_DEF (0) pulls line low to indicate module is plugged in.
4. LOS is open collector output. Should be pulled up with 4.7k-10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



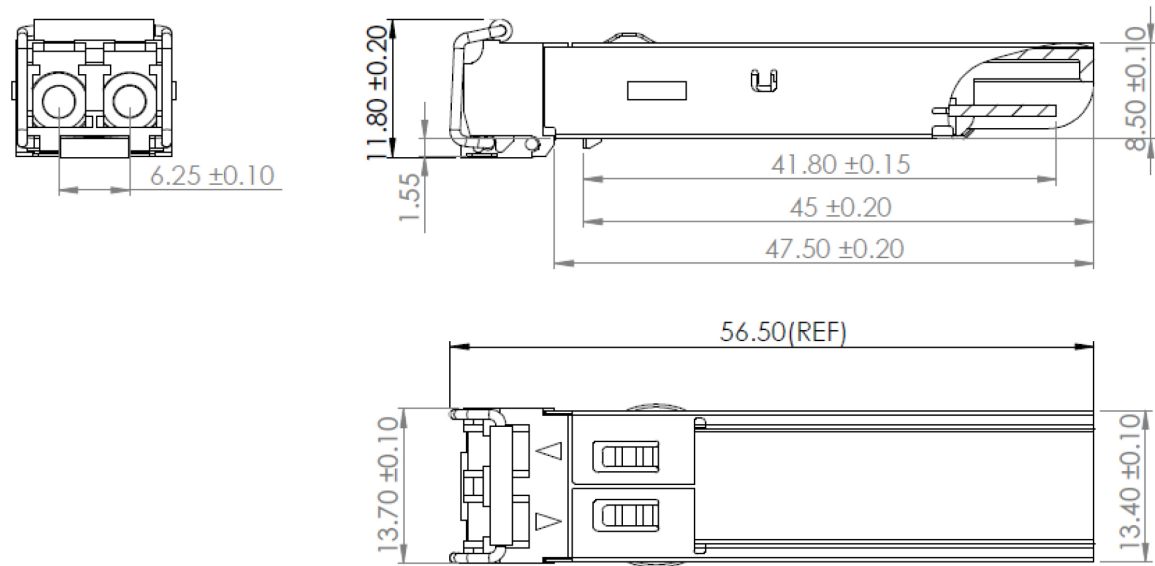
Pin-out of connector Block on Host board

### Recommended Circuit Schematic



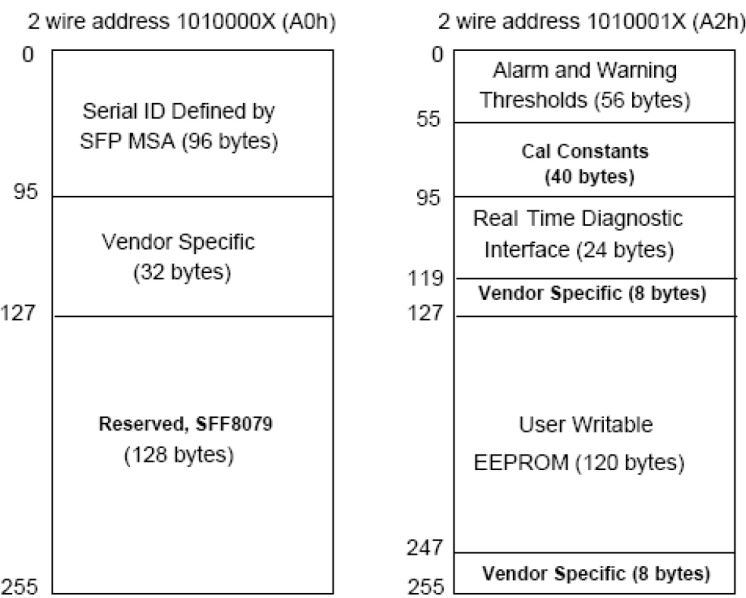
Mechanical Specifications

Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).



EEPROM Information

EEPROM memory map specific data field description is as below:



**About AddOn Networks**

In 1999, AddOn Networks entered the market with a single product. Our founders fulfilled a severe shortage for compatible, cost-effective optical transceivers that compete at the same performance levels as leading OEM manufacturers. Adhering to the idea of redefining service and product quality not previously had in the fiber optic networking industry, AddOn invested resources in solution design, production, fulfillment, and global support.

Combining one of the most extensive and stringent testing processes in the industry, an exceptional free tech support center, and a consistent roll-out of innovative technologies, AddOn has continually set industry standards of quality and reliability throughout its history.

Reliability is the cornerstone of any optical fiber network and is engrained in AddOn's DNA. It has played a key role in nurturing the long-term relationships developed over the years with customers. AddOn remains committed to exceeding industry standards with certifications from ranging from NEBS Level 3 to ISO 9001:2005 with every new development while maintaining the signature reliability of its products.

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