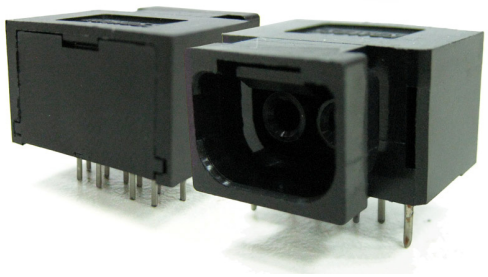
Ver. 1.0

COMOSS SMI POF Transceiver

Data Sheet

More cheaper, quicker and easier termination solution. Fully support IEEE 802.3u and 100Base-FX standard.



Overview

COMOSS SMIDX is a POF digital-to-optical transceiver module that is fully compatible for IEEE 802.3u Fast Ethernet data communication standard. SMIDX owns cheaper, quicker and easier feature in POF network solutions.

The transmitter of SMIDX is combined with RCLED (Resonant Cavity Light Emitting Diode) and integrated CMOS IC that meets LVDS (Low Voltage Differential Signal) and CML (Current Mode Logic). The receiver of SMIDX is combined with PIN photo diode, integrated TIA (Tran Impedance Amplifier) and LA (Limiting Amplifier) IC that also meets LVDS and CML.

Therefore, SMIDX is able to use in Fast Ethernet Hub ports directly. Its applications involve in PCs, consumer electronic devices, digital home network and embedded car network.

Content

COMOSS Electronic Co., LTD
4F, No.11, Chung-Hsin St. Shu-Lin 238 Taiwan R.O.C.
Tel:886-2-26882498 Fax:886-2-2689-9160
Web: http://www.comoss.com/ http://firewire.comoss.com/

Key Features

1. Peak wavelength: 660±10 nm
2. Spectral width: 23 nm.
3. Operating temperature: -40~70 °C.
4. Transmission Length: 100 meters at 100Mbps @NA=0.3 POF.
5. Integrated optical lens.
6. Built in LVDS and CML compatible IC for TX and RX.

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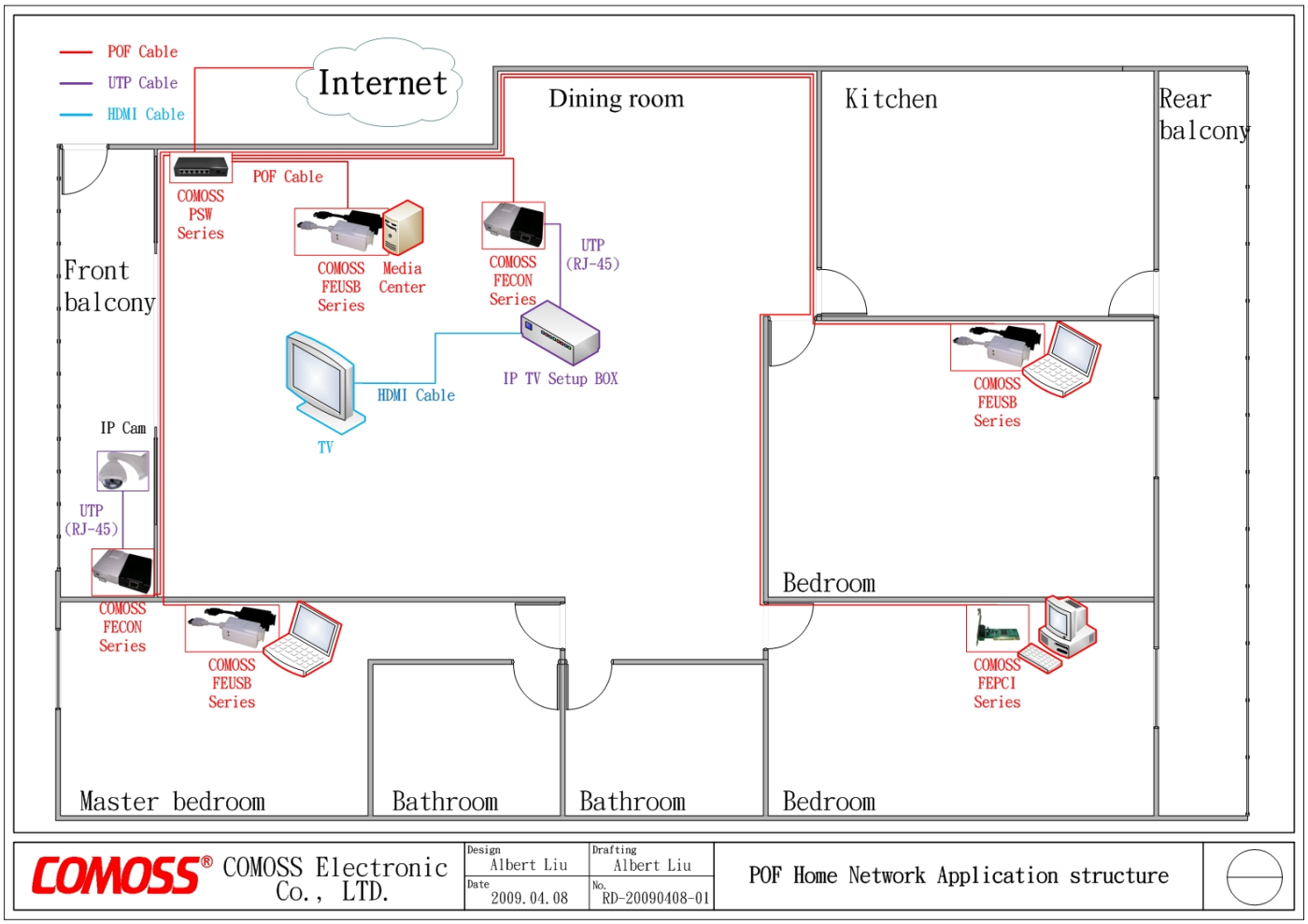
Application

- SMI POF Home Network Structure



POF Home Network Structure

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Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Test Condition
Storage Temperature	T_{stg}	-40	100	°C	
Operating Temperature	T_{op}	-20	70	°C	
Recommended Soldering Temperature	T_{sld}		260(1)	°C	2.2mm below seating plane
Supply Voltage	V_{CC}	-0.5	4.5	V	

Optical and Electrical Characteristics of Transmitter

Parameter	Symbol	Min.	Typ.	Max.	Unit
Peak Wavelength	λ	640	660	670	nm
Spectral Width	Δλ		23	30	nm
Mean Optical Power between –20~70 °C	P_0	-8.5		-2.0	dBm
Optical Rise Time (20%~80%) 250Mbps	t_r		1.5	2.0	ns
Optical Fall Time (80%~20%)	t_f		2.0	3.0	ns
Extinction Ratio	R_E	10.0			dB
Systematic Jitter 100Mbps				855	ps

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Random Jitter 100Mbps				855	ps
Supply Voltage	Vcc	3.0	3.3	3.6	V
Supply Current	Icc			55	mA
Baud Rate for 8B/10B			100		Mbps
Common Mode Input Voltage		GND+0.8		Vcc-0.8	V
Swing Input Voltage		100		1200	mV
Waking Input Voltage				100	mV
Delay time of Optical Power OFF		0.02		20	us
Delay time of Optical Power ON				5	us

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Optical and Electrical Characteristics of Receiver

Parameter	Symbol	Min.	Typ.	Max.	Unit
Receivable Optical Power Sensitivity		-24	-26	-28	dBm
Rise and Fall Time				2.0	ns
Supply Voltage	Vcc	3.0	3.3	3.6	V
Supply Current	Icc			45	mA
Offset Common Mode Voltage			1.2		V
Differential Output Voltage		500		600	mV
Differential Output Impedance			100		ohm
SD (Signal Detect) ON Output Voltage		2.4			V
SD (Signal Detect) OFF Output Voltage		0		0.4	V
SD Assert / Deassert Time		0.5	5	100	us

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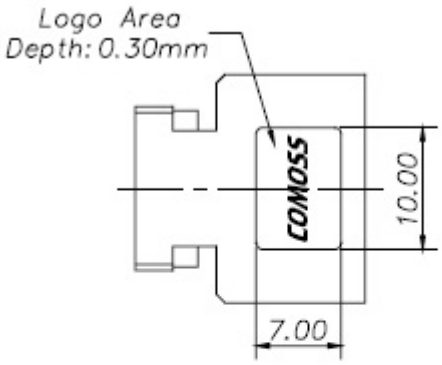
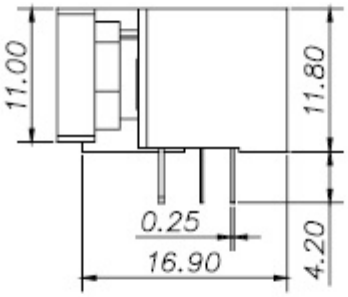
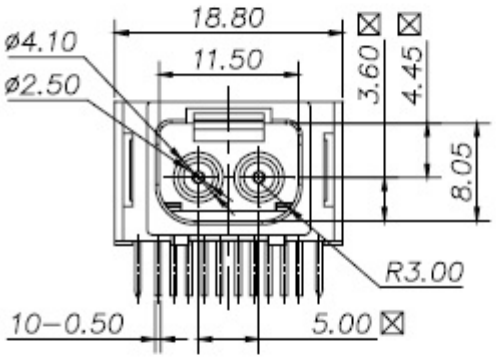
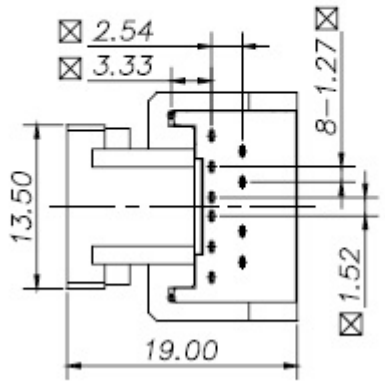
Physical Dimension and PCB layout









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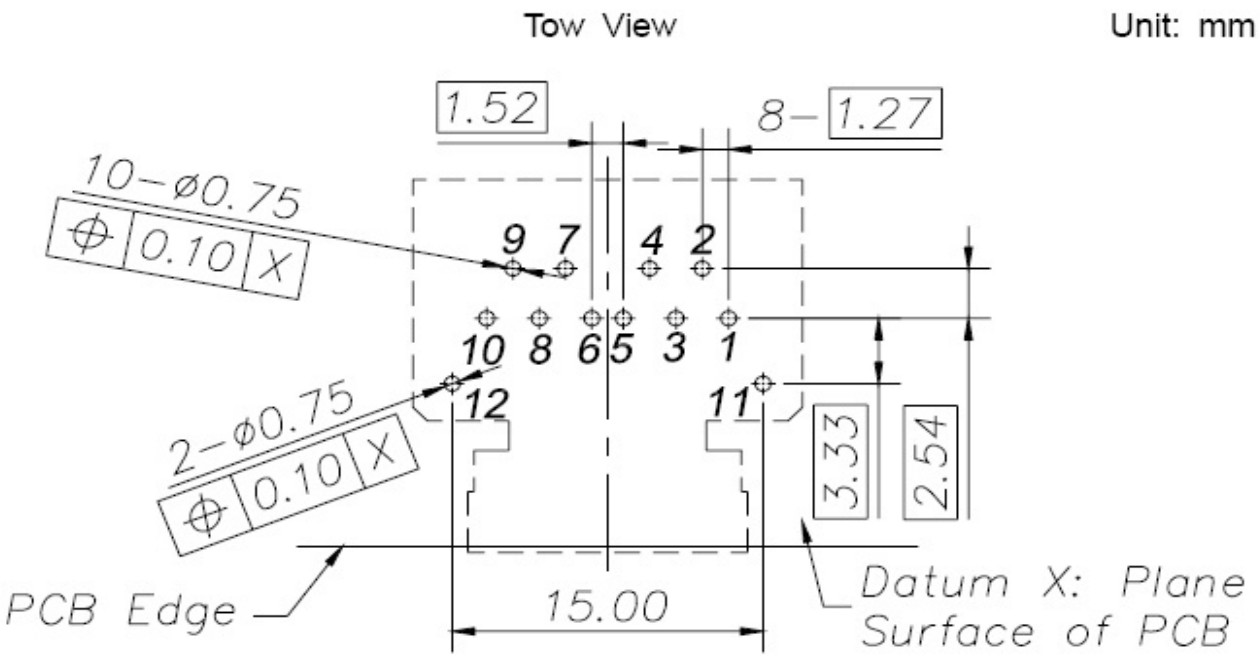
Pin Function



Recommended PCB Layout

Pin No.	Symbol	Function
1	RD+	Data Output +
2	RD-	Data Output -
3	SD	Output Signal Detect
4	GND	Ground
5	Vcc	Input Voltage
6	Rex	-3dB Power Down (Input)
7	Vcc	Input Voltage
8	GND	Ground
9	TD+	Data Input +
10	TD-	Data Input -
11	Case	Metal Shielding
12	Case	Metal Shielding

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Special Functions

1. The function of Rex is to allow the designer to adjust optical power of RCLED. Two settings are as follows:
   i. Rex is tied to ground (set to low). This setting is default and recommended setting for normal operation.
   ii. Rex is tied to 3.3V (set to high). The output power of RCLED is reduced by 3 dBm.
2. SD (Signal Detect) is a LVCMOS signal.

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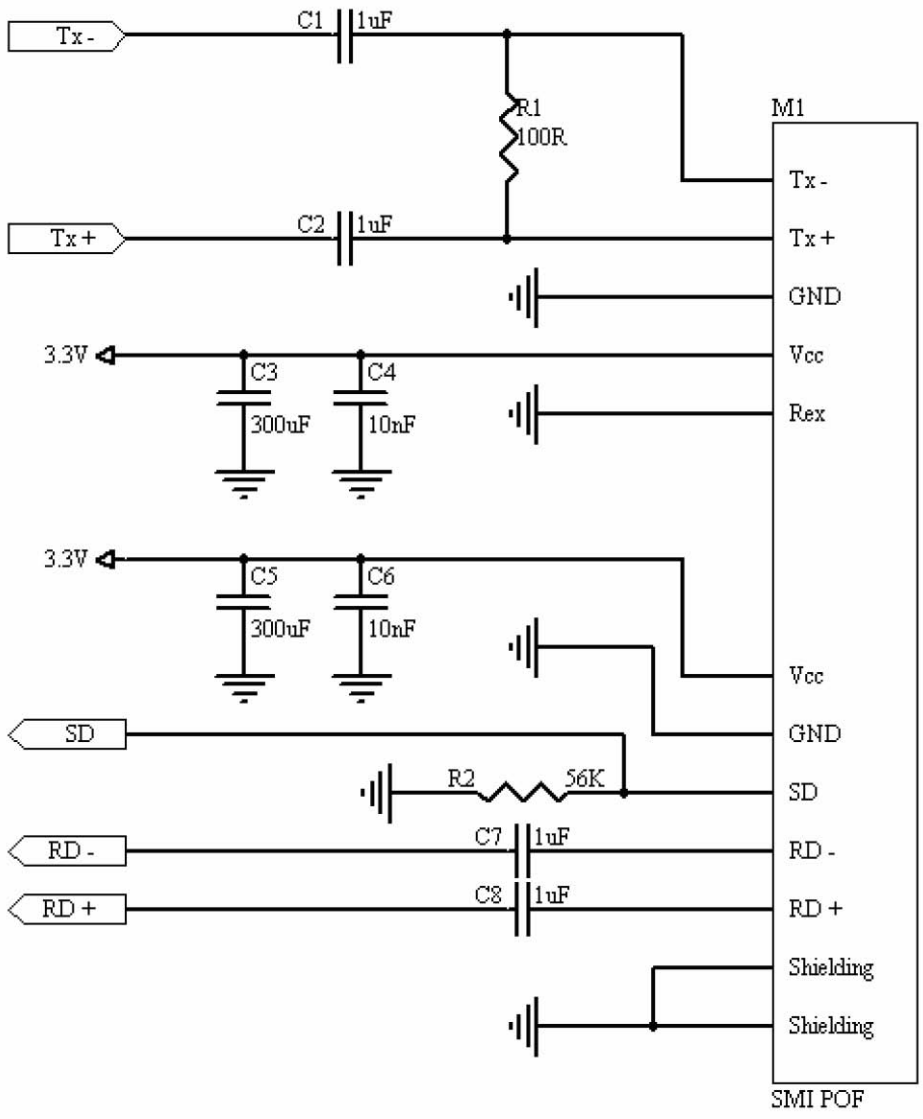
Recommend Circuit



Notes:

1. The capacitors at power line should be placed as close to transceiver possible.
2. The PCB layout of differential pairs must comply with impedance matching and.
3. High - speed standard.

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Order Information

SMIDX	-	B	B	X	X	X
		(1)	(2)	(3)	(4)	(5)

(1) Data Rate Mode

- B：S200 for 1394
- E：100 Mbps for Ethernet

(2) Function Type

- B：

  -40~70°C for Analog and Digital type

  -20~70°C for Ethernet type

(3) Construction Type

- A: Analogy type
- D: Digital type
- E: Ethernet type (100Mbps)

(4) Mounting Type

- G: Gray (Digital type)
- B: Black (Analogy and Ethernet type)

(5) Color Option

- B: Without logo
- C: With COMOSS logo

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