

## Features

- Transceiver unit with independent transmitter and receiver
- Fast Ethernet 100BASE compliant
- Compliant facility Manufacture in an ISO9001
- SC-Duplex fiber connector compatible
- +3.3V Signal power Supply Operation with PECL Logic Interfaces
- 20km transmission distance with MMF

## Application

- SONET/STM-1, SDH/OC-3, ATM
- 100Base Fast Ethernet links
- FDDI

## General

The optical transceiver is designed for use in 155mbit/s data links. The transceivers provide the SC optical receptacle that is compatible with the industry standard SC connector. Both the transmitter and the receiver are packaged together with a top plastic cover and bottom shield. The transmitter consists of a InGaAsp 1310nm LED while the receiver consists of a PIN and a pre-amplifier. The transceiver operate with single +3.3V DC power supply.

### Transmitter Section

The receiver section uses a hermetic packaged front end receiver (InGaAs PIN and preamplifier).It provides differential retimed data outputs and a signal detect output.

### Receiver Section

As the input optical is decreased, Signal Detect will switch from high to low (deassert point). As the input optical power is increased from very low levels, Signal Detect will switch back from low to high (assert point).The assert level will be at least 0.5dB higher than the de-assert level.

### Regulatory Compliance

The transceivers have tested according to American and European product safety and electromagnetic compatibility regulations (See Table).For further information regarding regulatory certification, please refer to szstar regulatory specification and safety guidelines, or contact with szstar .

**Table –Regulatory Compliance**

| Feature  | Standard  | Performance                          |
|--|---|--------------------------------------|
| Electrostatic Discharge (ESD)<br>To the Electrical Pins      | MIL-STD-883E<br>Method 3015.7                                     | Class 1 (>500V)                      |
| Electrostatic Discharge (ESD)<br>To the Duplex LC Receptacle | IEC 61000-4-2<br>GR-1089-CORE                                     | Compliant with standards             |
| Electromagnetic<br>Interference(EMI)                         | FCC Part 15 Class B<br>EN55022 Class B(CISPR 22B)<br>VCCI Class B | Compliant with standards             |
| Immunity   | IEC 6100-4-3  | Compliant with standards             |
| Laser Eye Safety   | FDA 21CFR 1040.10 and 1040.11<br>EN60950,EN(IEC)60825-1.2         | Compliant with Class I Laser Product |

## Performance Specifications

**Table1. Absolute Maximum Ratings**

| Parameter            | Symbol  | Min  | Max  | Unit |
|----------------------|---------|------|------|------|
| Storage Temperature  | Ts      | -40  | +85  | °C   |
| Humidity             | RH      | 5    | 95   | %    |
| Input Voltage        | -       | GND  | Vcc  | V    |
| Power Supply Voltage | Vcc-Vee | -0.5 | +3.6 | V    |

Note: Stress in excess of maximum absolute ratings can cause permanent damage to the module

**Table 2. Operating Environment**

| Parameter            | Symbol | Min  | Typ | Max  | Unit |
|----------------------|--------|------|-----|------|------|
| Power Supply Voltage | Vcc    | +3.1 | 3.3 | +3.5 | V    |
| Case Temperature     | Tc     | 0    | 25  | +70  | °C   |

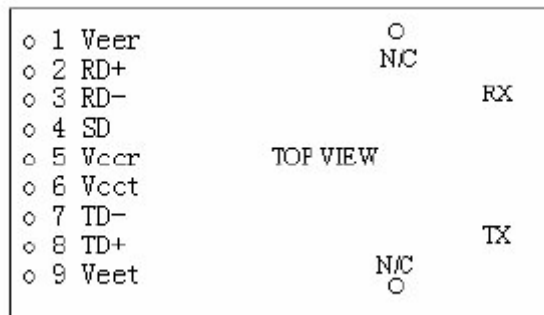
**Table 3. Transmitter O-E Characteristics(TA=273k to 343k, Vcc =3.1V to3.5V)**

| Parameter                    | Symbol                  | Min  | Typ      | Max  | Unit      |   |
|------------------------------|-------------------------|------|----------|------|-----------|---|
| Center Wavelength            | $\lambda_p$             | 1260 | 1310     | 1360 | nm        |   |
| Spectral Width               | $\Delta\lambda$ (RMS)   | -    | -        | 200  | nm        |   |
| Average Optical Output Power | Po                      | -22  | -18      | -14  | dBm       |   |
| Extinction Ratio             | Er                      | 8    | -        | -    | dB        |   |
| Optical Rise/Fall Time       | Trise/fall<br>(20%-80%) | -    | -        | 3.1  | ns        |   |
| Data Input Voltage           | Low                     | -    | Vcc-1.81 | -    | Vcc-1.475 | v |
|                              | High                    | -    | Vcc-1.16 | -    | Vcc-0.88  | v |
| Supply Current               | Icc                     | -    | -        | 200  | mA        |   |

**Table4. Receiver O-E Characteristics( $T_A=273k$  to  $343k$ ,  $V_{cc} = 3.1V$  to  $3.5V$ )**

| Parameter           |      | Symbol     | Min            | Typ | Max           | Unit |
|---------------------|------|------------|----------------|-----|---------------|------|
| Operate wavelength  |      | -          | 1260           | -   | 1360          | nm   |
| Receive Sensitivity |      | $P_r$      | -              | -34 | - 32          | dBm  |
| Saturation          |      | $P_s$      | -14            |     |               | dBm  |
| Data Output Voltage | Low  | -          | $V_{cc}-1.86$  | -   | $V_{cc}-1.57$ | V    |
|                     | High | -          | $V_{cc}-1.075$ | -   | $V_{cc}-0.83$ |      |
| LOS Assert Level    |      | $P_A$      | -              | -   | -32           | dBm  |
| LOS Deassert Level  |      | $P_D$      | -45            | -   | -             | dBm  |
| SD Low Voltage      |      | $V_{Lout}$ | -              | -   | 0.8           | V    |
| SD High Voltage     |      | $V_{Hout}$ | 2.0            | -   | -             | V    |
| Supply Current      |      | $I_{cc}$   | -              | -   | 100           | mA   |

**Pin Definitions**



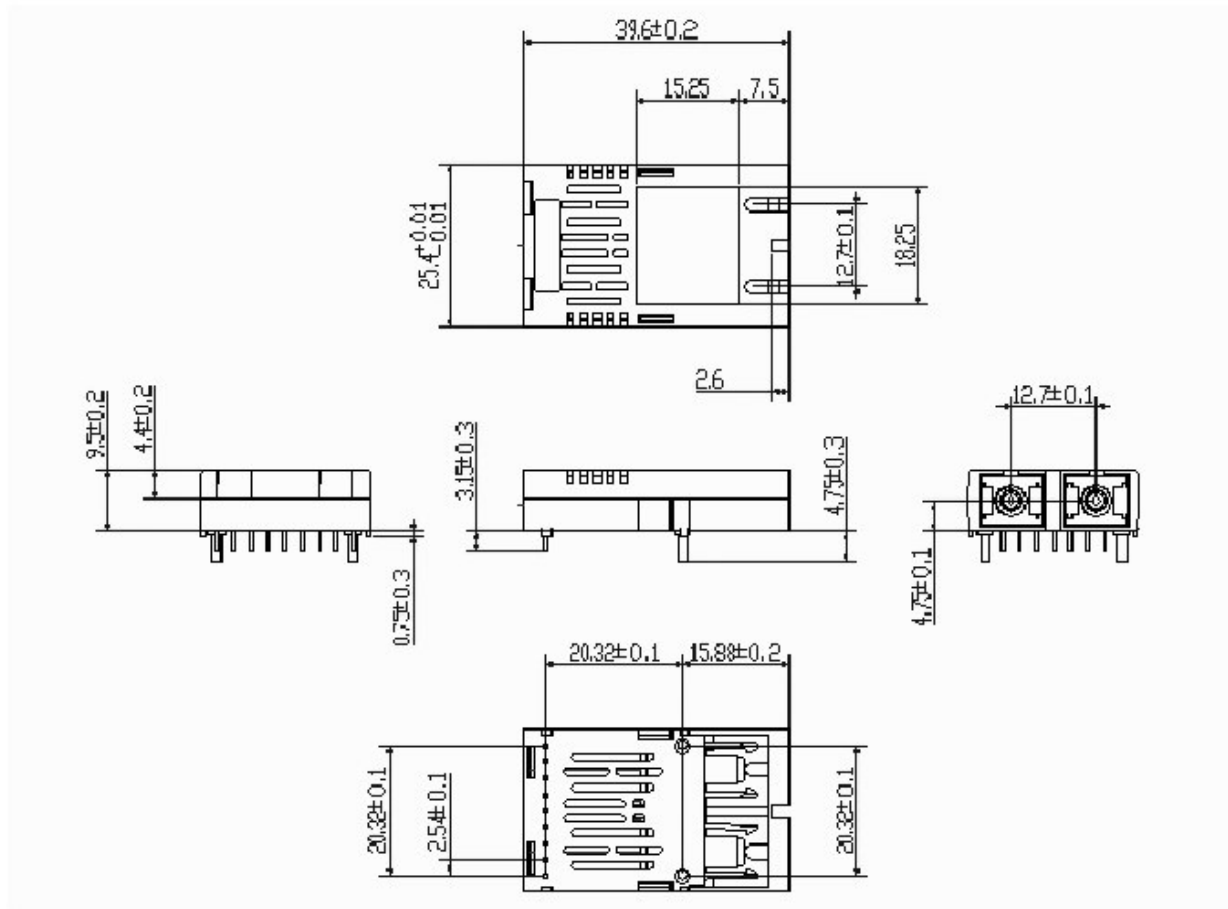
**(pin diagram)**

**Pin Function Definitions**

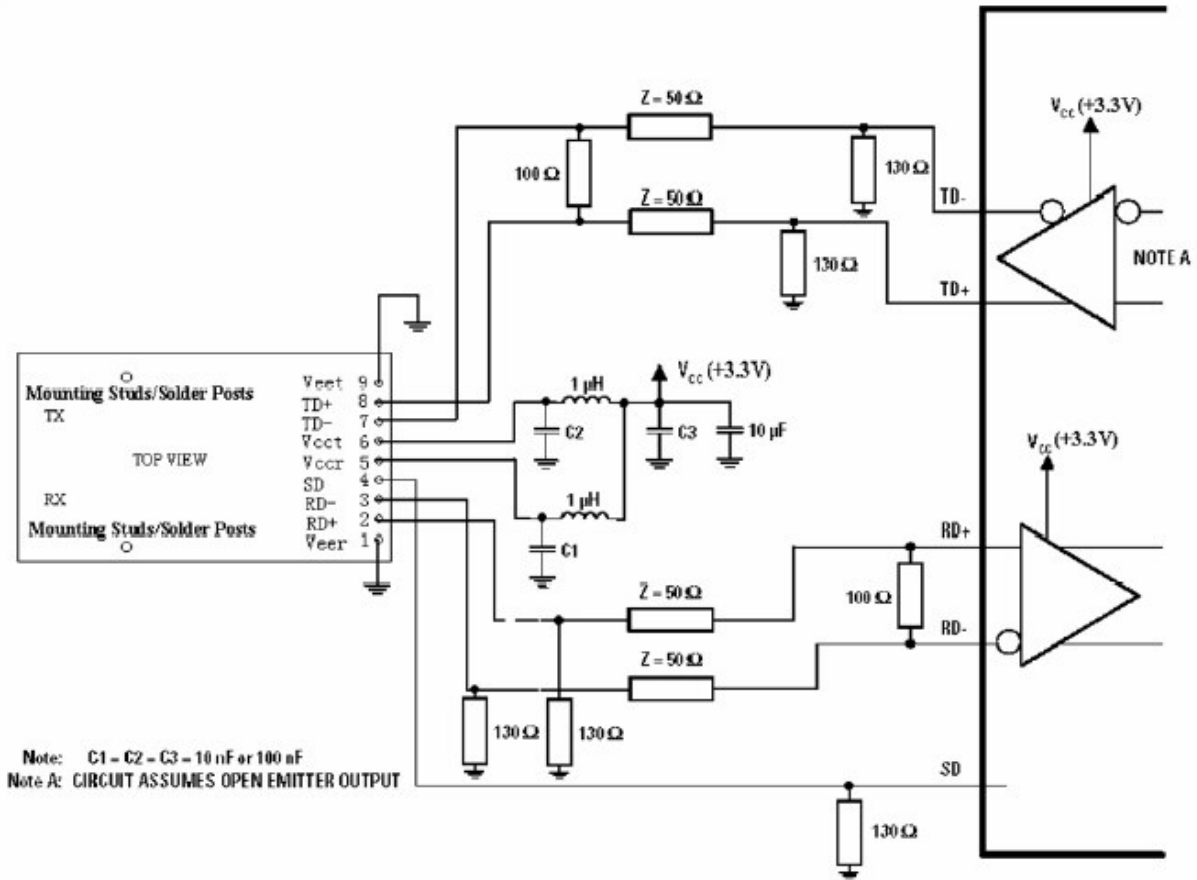
| Pin# | Pin Name         | Descriptions            |
|------|------------------|-------------------------|
| 1    | V <sub>EER</sub> | Rx Ground               |
| 2    | RD+              | Rx Output Data          |
| 3    | RD-              | Rx Output Inverted Data |
| 4    | SD               | Rx Signal Detect        |
| 5    | V <sub>CCR</sub> | Rx power supply         |
| 6    | V <sub>CCT</sub> | Tx power supply         |
| 7    | TD-              | Tx Inverted Data Input  |
| 8    | TD+              | Tx Data Input           |
| 9    | V <sub>EET</sub> | Tx Groud                |

**Package information**

(unit: mm)



**Recommended Circuit**



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