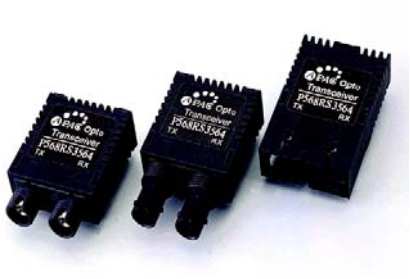
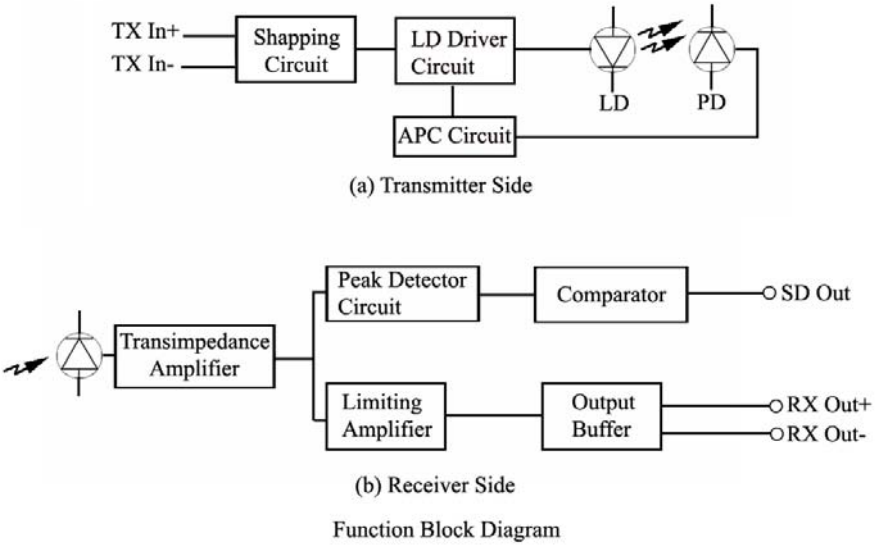
## Part Number：P5H6RS3727

## 1. Description



The P5H6RS3727 transceiver module uses 850nm VCSEL and high-speed/quality PIN-TIA for fiber cable 62.5/125um MMF fiber optical system and link distance up to 550m. The module supplies the differential PECL +5.0V and provides system designer with products to implement a range of Gigabit Ethernet/IEEE Draft P802.3z and Data-Communication Networks. The module was all supplied in the new industry standard 1x9 SIP package style with a duplex SC connector interface..

I /O Description




Function Block Diagram

*Data Input : PECL compatible differential data Input to laser diode*
*Signal Output : PECL compatible differential output of limiting amplifier*
*Alarm Function : Signal Detect(SD)*

## 2. Acronyms

- SD Signal Detect
- BER Bit Error Rate
- TIA Transimpedance Amplifier
- BOL Beginning Of Life
- EOL End Of Life
- PECL Positive Emitter Coupler Logic
- PRBS Pseudo Random Bit Sequence
- LDD Laser Diode Driver

## 3. Related documents

- GR-253. CORE Issue 2. Rev 2. Jan 1999 - SONET Requirements
- IEEE Draft P802.3z Requirements

## 4. Electro-Optical Specification

All specifications apply to an operating range of 0℃ to + 70℃ unless otherwise stated.

All optical powers are mean unless otherwise stated.

### 4.1 Absolute Maximum Ratings

If any of parameters below are exceeded, the performance specified in section 4.2 cannot be guaranteed.

| Parameter | Symbol | Values MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|
| Storage Temperature | Tstg | -40 | | 85 | ℃ |
| Operating Temp. | Top | 0 | | 70 | ℃ |
| Supply Voltage | Vo | 4.75 | | 5.25 | V |
| Lead Soldering(Temperature) | Stemp | | | 260 | ℃ |
| Lead Soldering(Time) | Stime | | | 10 | Sec |

### 4.2 Operating Characteristics

All parameters are EOL and apply over the ambient temperature -40℃ to + 85℃.

#### 4.2.1 Electro-Optical Interface

##### Transmitter Side

Tc=0℃ to 70℃,Vcc=4.75 to 5.25V, Vee = GND , unless otherwise specified.

| Parameter | Symbol | Condition | Values MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Output Optical Power | Po | *Note1 | -9.5 | | -5 | dBm |
| Optical Extinction Ratio | Er | *Note1 | 9 | | | dB |
| Eye Diagram | | | IEEE Draft P802.3z | | | |
| Optical Rise Time(20~80%) | $T_R$ | *Note2 | | | 260 | psec |
| Optical fall Time(80~20%) | $T_F$ | *Note2 | | | 260 | psec |
| Center Wavelength | λ | | 830 | | 860 | nm |
| Spectral Width (RMS) | △λ | | | | 0.85 | nm |

**Note1 ：Measured at the end of 100m length 62.5/125um step index fiber cable using 1.25Gbps,PRBS $2^7$-1. Signal at the beginning of life*

**Note2 ：Measured using 1.25Gbps 1010 signal*

### Receiver Side

Tc=0℃ to 70℃,Vcc=4.75 to 5.25V, Vee=GND, unless otherwise specified.

| Parameter | Symbol | Condition | Values MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Optical Input Wavelength | λ | | 770 | | 860 | nm |
| Sensitivity (Input Power) | Pin | *Note1 | -18 | | -3 | dBm |
| SD Assert Level | Pa | *Note2,3 | | | Ps+0.5 | dBm |
| SD Deassert Level | Pd | *Note2 | -29 | | | dBm |
| SD Hysteresis | Phys | *Note2 | 0.5 | 1.5 | 6 | dB |

**Note1 : BER=1×10$^{-12}$,1.25Gbps,PRBS 2$^{7}$-1*
**Note2 : 1.25Gbps, 1010 signal*
**Note3 : Ps at different sensitivity level*

## 4.2.2 Electrical Interface

### Transmitter Side

Tc=0℃ to 70℃,Vcc=4.75 to 5.25V, Vee=GND, unless otherwise specified.

| Parameter | Symbol | Condition | Values MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage | $V_{CCTX}$ | | 4.75 | 5 | 5.25 | V |
| Supply current | Is | | | | 150 | mA |
| Input Voltage (High) | $V_{IH}$ | *Note1 | $V_{CCTX}$-1.17 | | $V_{CCTX}$-0.73 | V |
| Input Voltage (Low) | $V_{IL}$ | *Note1 | $V_{CCTX}$-1.95 | | $V_{CCTX}$-1.45 | V |
| Rise Time Input Signal | $T_{RIN}$ | *Note2 | | | 260 | psec |
| Fall Time Input Signal | $T_{FIN}$ | *Note2 | | | 260 | psec |

**Note1 : $V_{CCTX}$ =5.0 V , Tc=25℃*
**Note2 : 20%~80%*

### Receiver Side

Tc=0℃ to 70℃,Vcc=4.75 to 5.25V, Vee=GND, unless otherwise specified.

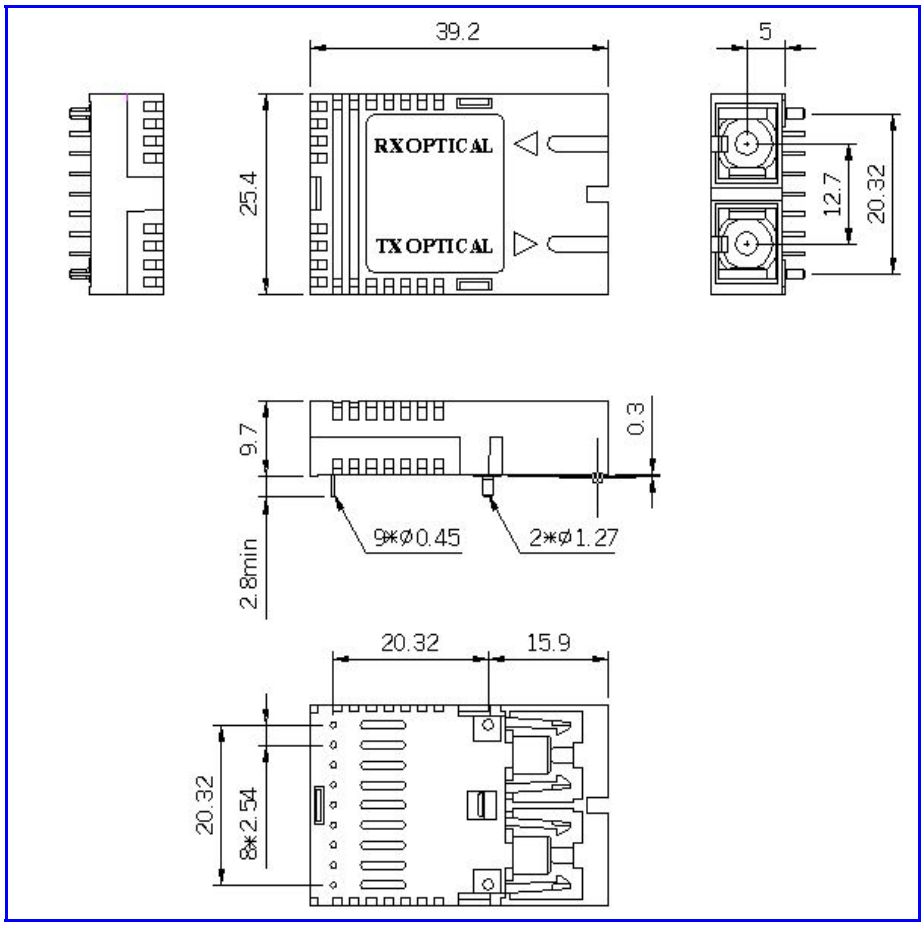
| Parameter | Symbol | Condition | Values MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage | $V_{CCRX}$ | | 4.75 | 5 | 5.25 | V |
| Supply Current | Is | *Note1 | | | 200 | mA |
| Output Voltage (High) | $V_{OH}$ | *Note2,3 | $V_{CCRX}$ -1.03 | | $V_{CCRX}$ -0.88 | V |
| Output Voltage (Low) | $V_{OL}$ | *Note2,3 | $V_{CCRX}$ -1.81 | | $V_{CCRX}$ -1.62 | V |
| Rise Time Output Signal | $T_{ROUT}$ | *Note4 | | | 260 | psec |
| Fall Time Output Signal | $T_{FOUT}$ | *Note4 | | | 260 | psec |

**Note1 : Output currents are not included*
**Note2 : Output load resistor($R_L$=50 Ω) is connected to $V_{CCRX}$ –2.0V*
**Note3 : $V_{CCRX}$=5V,Tc=25℃*
**Note4 : 20~80%*

# 5. Mechanical Specification

## 5.1 Outline Drawing

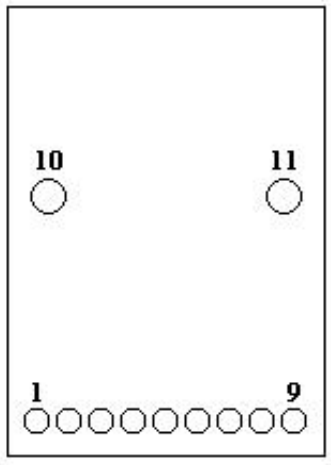
All dimensions are in millimeters.




## 5.2 Pin Locations

View from the above side (i.e. through this module)

| PIN | Function |
|---|---|
| 1 | Vee Rx |
| 2 | Rx Output+ |
| 3 | Rx Output- |
| 4 | SD |
| 5 | Vcc Rx |
| 6 | Vcc Tx |
| 7 | Tx Input- |
| 8 | Tx Input+ |
| 9 | Vee Tx |



## 5.3 Pin Connections

| PIN FUNCTION AND SIGNAL/VOLTAGE | | | | |
|---|---|---|---|---|
| Pin Name | Function | Type | Pin # | Description |
| RxVEE | Receiver Ground | Power Supply | 1 | Ground |
| RXD | Receiver Output Data | PECL Compatible Output | 2 | Receiver Output Data |
| RXDn | | | 3 | Inverted Receiver Output Data |
| SD | Receive Signal Detect | PECL Output | 4 | High = Optical Signal Present |
| RxVCC | Transmit Power | Power Supply | 5 | Positive Power Supply , +5V |
| TxVCC | Receive Power | Power Supply | 6 | Positive Power Supply , +5V |
| TxDn | Transmitter Output Data | PECL Compatible Output | 7 | Inverted Transmitter Input Data |
| TxD | | | 8 | Transmitter Input Data |
| TxVEE | Transmitter Ground | Power Supply | 9 | Ground |
| NC | POST | | 10-11 | Not Connected |

## 5.4 Flammability

The component will comply with flammability rating UL94V-0.