

BST8130-12-G
800MHz-1000MHz RF-Optical Transceiver
 REV 1.0

1 Feature

- ◆ High linear analog PD and FP laser
- ◆ With low noise and high linear gain power amplifier
- ◆ With APC and protect circuit for laser
- ◆ With AGC function
- ◆ Build-in Bi-Di component
- ◆ +9V~+12V Single power supply
- ◆ RS232 /RS485 control interface
- ◆ -20°C~+70°C Operating Temperatur



2 Application

- ◆ Optical Repeater for CDMA/GSM
- ◆ Broadband RF Wireless

3 General

The BST8130-12-G is a low noise RF fiber optical transceiver designed for CDMA,GSM network and broadband RF wireless up link/down link applications, respectively. Each pair consists of a master and a slave modules,the link from master to slave is called down link,from slave to master as up link.In down link a 1550nm DFB-LD is selected as transmitter and a high linear analog PD as optical signal receiver, In up link a 1310nm FP-LD is selected to transmit the optical signal and a high linear analog PD as optical signal receiver.These modules can be used for 20km applications and they are fully compliant with the latest issue of Bellcore GR-253-CORE.

4 Performance Specifications

4.1 Absolute Maximum Ratings

| Parameter | Symbol | Min. | Max. | Unit | Comments |
|----------------------|--------|------|------|------|----------|
| Input Voltage | - | 9 | 15 | V | |
| input RF power | | | 10 | dBm | |
| Fiber Bending Radius | R | 30 | | mm | |

4.2 Recommended Operation conditions

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Comments |
|-----------------------|------------------|------|------|------|------|----------|
| Operating Temperature | T _{op} | -20 | | +70 | °C | |
| Storage Temperature | T _{stg} | -40 | | +85 | °C | |

E-O and O-E Characteristics

4.3.1 Optical Characteristics

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|------------------------------|-----------|------|------|------|------|-----------|
| Optical Wavelength | λ | 1290 | 1310 | 1330 | nm | slave |
| Average Optical Output Power | Po | 2 | 4 | 5 | dBm | |
| Optical Return Loss | RL | 40 | | | dB | |
| Optical Isolator | Iso | 25 | | | dB | |

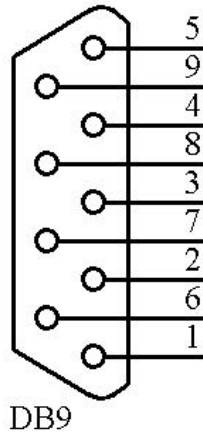
4.3.2 Electrical Characteristics

| Parameter | Symbol | Min | Typ | Max | Unit | Condition |
|--------------------------------|-----------------|-----|---------|------|----------|-------------------|
| Power Supply | V _{cc} | | 12 | | V | |
| Current Consumption | I _{cc} | | | 300 | mA | |
| Bandwidth | | 800 | | 1000 | MHz | |
| Max Gain | G | -1 | 0 | +1 | dB | |
| AGC control points | | | 4 | | dBm | |
| AGC range | | | 20 | | dB | |
| Link Gain | G | +13 | 15 | +17 | dB | |
| Response Flatness@ any 20MHz | | 0.5 | | | dB | |
| Data Rate | | | 19200 | | | bps |
| Input ALC control range | | -5 | 0 | 5 | dB | |
| Input RFpower detection range | | -25 | | 10 | dB | BST8135-12-G |
| Output RFpower detection range | | -25 | | 10 | dB | BST8130-12-G |
| Output Noise Floor | | | | -130 | dBm/Hz | optical no loss |
| Transmit No Optical Alarm | | -3 | | | dBm | Software Settings |
| Receive No Optical Alarm | | -16 | | | dBm | Software Settings |
| OIP3 | | -60 | | | dBc | 2ch/ch/-3dBm |
| RF Isolation | | 65 | | | dB | optical no loss |
| VSWR | | | | 1.4 | | |
| RF Impedance | | | 50 | | Ω | |
| FSK Frequency | | | 433.792 | | MHz | |

4.3.3 The connector

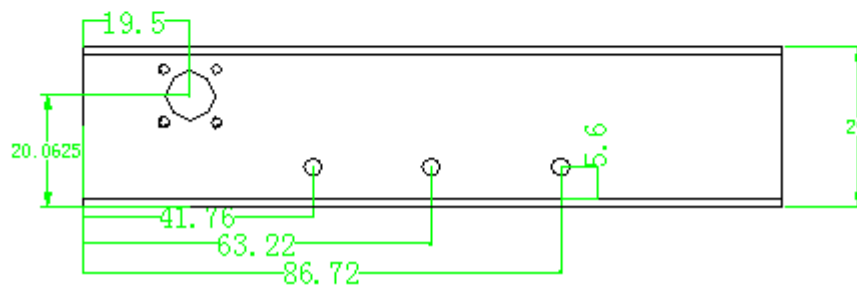
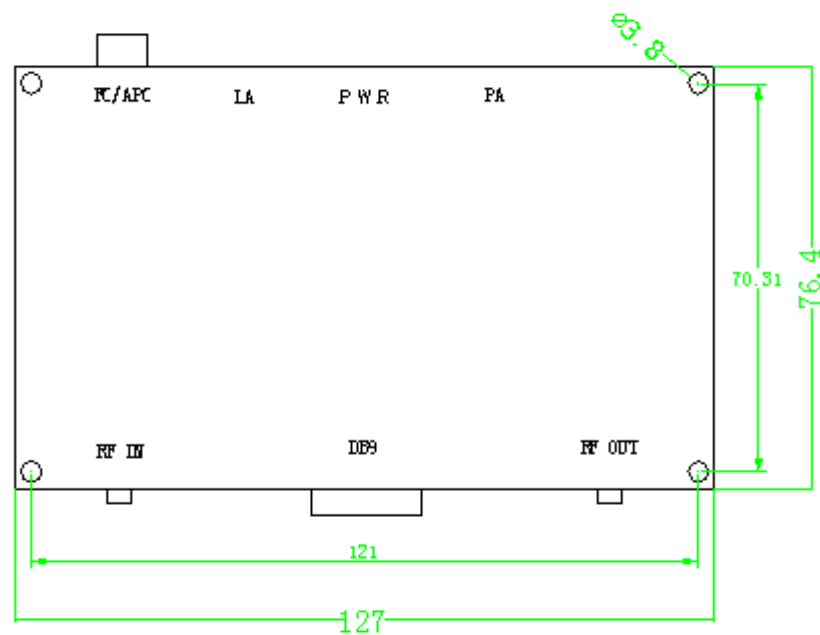
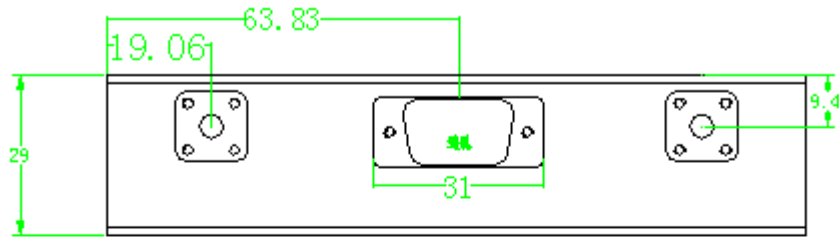
| | |
|-------------------|-----------|
| Optical connector | FC/APC |
| RF connector | SMA-50KFD |

5 Pin Definitions (DB9-FM connector)



| PIN | DEFINE | BST8130-12-RJ45 | BST8130-12-RJ45 |
|-----|--------|--|-----------------|
| 1 | GND | GND | |
| 2 | VCC | +9V | |
| 3 | A | RS485 | |
| 4 | B | RS485 | |
| 5 | Alarm | Optical Alarm: T/R, TTL High level alarm | |
| 6 | NC | | |
| 7 | NC | | |
| 8 | NC | | |
| 9 | NC | | |

6 Package Information (Unit:mm)



7 Specification for Environmental Protection

This product have a quality of “Green product”, all raw materials are avirulence and have no environmental impact, apply new technology, strictly control the manufacturing process, the finished products do not contain any hazardous chemical substances regulated by RoHS, 2002/95/EC,or the trace element impurity concentration of banned substances is less than RoHS.