

200M InGaAs APD Preamplifier Module

CR200AH-1550-100M

The CR200AH-1550-100M includes a 200um InGaAs Avalanche Photodiode with a hybrid preamplifier for the use in high speed, ultra-low light detection, in laser range finding, LIDAR and free space communication.

■ Features

- Built in 200um InGaAs+TIA
- High sensitivity: $\geq 400\text{kV/W}$
- High bandwidth: 100MHz
- Wavelength range: 1100~1700nm
- Low noise and high reliability
- TO8 package with flat window

■ Applications

- LIDAR
- Laser range finding
- Free space optical communication (FSO)

■ Absolute Maximum Ratings

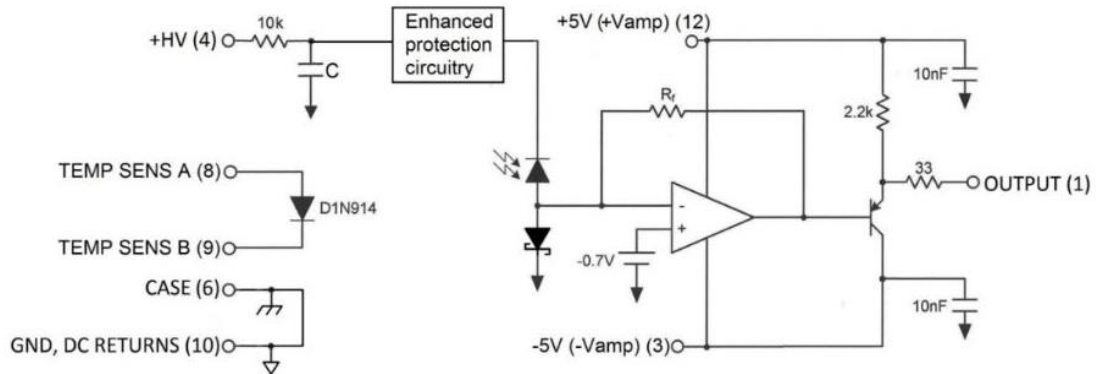
| Parameter | Unit | Symbol | Rating |
|-----------------------------|------|----------|-----------|
| Reverse breakdown voltage | V | V R | VBR |
| Operating temperature | °C | T C | -40~+85 |
| Storage temperature | °C | T STG | -55~+100 |
| Maximum optical input power | mW | P in | 100 |
| Module mains voltage | V | Vcc/V EE | ± 5 |
| Power dissipation | mW | Pw | 250 |
| Soldering temperature(time) | °C | - | 300 (10s) |

■ Optical/Electrical Characteristics (T=25°C, unless otherwise stated)

| Parameter | Symbol | Value | | | Unit | Test conditions |
|---------------------------|-----------|-----------|-----|-----|------|----------------------------------|
| | | Min | Typ | Max | | |
| Response Spectrum | λ | 1100~1700 | | | nm | |
| Active Diameter | D | | 200 | | um | |
| Reverse breakdown voltage | VBR | 30 | | 70 | V | |
| Operating voltage | VR | VR-3 | | | V | M=10 |
| Responsivity | Rv | 400 | | | kV/W | M=10, 1.55um @ $\tau=5\text{ns}$ |

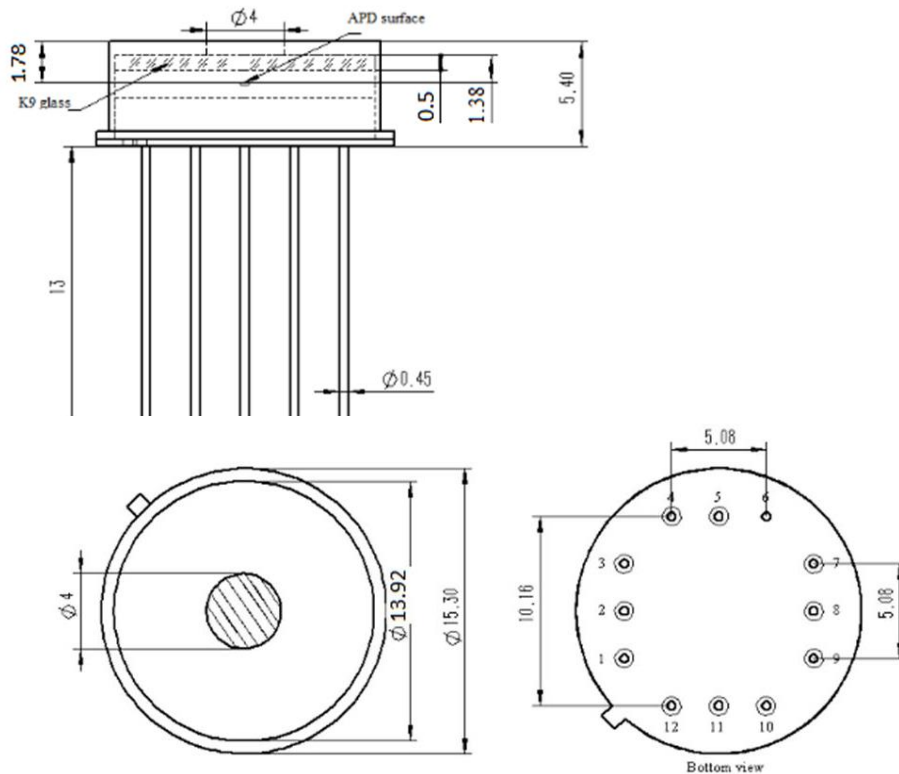
| | | | | | | |
|--|------------|-----|------|----|------------------------|---------------------------------|
| Dynamic range | DY | 25 | | | dB | M=10, 1.55um @ $\tau=5$ ns |
| -3dB bandwidth | BW | | 100 | | MHz | M=10, 1.55um @ $\tau=100$ ns |
| Rise/Fall time | t_r | | 3.5 | | ns | M=10, 1.55um @ $\tau=100$ ns |
| Noise Equivalent Power | NEP | | 120 | | fW/ $\sqrt{\text{Hz}}$ | M=10, f=100kHz, $\Delta = 1$ hz |
| Output impedance | RO | | 50 | | Ω | |
| Output Voltage Swing | VO | 0.7 | | | V | |
| Positive Supply Current | ICC | | | 30 | mA | |
| Negative Supply Current | IEE | | | 10 | mA | 50 Ω Load |
| Temperature coefficient of Vop for constant gain | γ | | 0.12 | | V/ o C | -45 ~ 85 $^{\circ}$ C |
| Concentricity | ΔD | | | 20 | um | |

■Schematic Block Diagram



■Block Diagram and Pin description

Dimensions are in millimeters. All dimensions are ± 0.1 mm unless otherwise specified.



Pin description

| PIN# | DESC | PIN# | DESC |
|------|-------------|------|-------------|
| 1 | OUTPUT | 7 | NC |
| 2 | NC | 8 | TEMP SENS A |
| 3 | -5V | 9 | TEMP SENS B |
| 4 | HV,APD BIAS | 10 | GND |
| 5 | NC | 11 | NC |
| 6 | CASE | 12 | +5V |

■Order information

CR200AH-1550-100M

| CR①-②-③ | | |
|--|------------------------|---------------------------|
| ① High Responsiveness Target Surface | ② Spectrum Response | ③ Responsive Bandwidth |
| 200AH 0.2mm | 1550 1550nm | 30M 30MHz |
| 800AH 0.8mm | 1064 1064nm | 50M 50MHz |
| 1000AH 1.0mm | 940 800~940nm | 70M 70MHz |
| 3000AH 3.0mm | ... | 100M 100 MHz |
| ... | | ... |

Note: The laser module are ESD-sensitive devices. Please insure that proper ESD handling procedures are followed.