

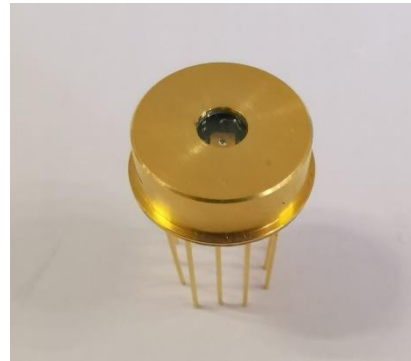
3mm SI APD Preamplifier Module

CR3000AH-905-50M

The CR3000AH-905-50M includes a 3mm SI 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 3mm SI APD+TIA
- High sensitivity: $\geq 600 \text{ kV/W}$
- High bandwidth: 50Mhz
- Wavelength range: 400~1100nm
- Low noise and high reliability
- TO8 package with flat window



■ Applications

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

■ Absolute Maximum Ratings

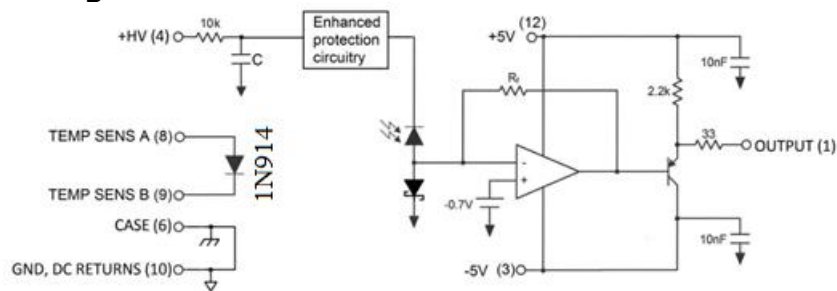
Parameter	Unit	Symbol	Rating
Reverse breakdown voltage	V	V_R	$0.95 \times V_{BR}$
Operating temperature	$^{\circ}\text{C}$	T_C	-40 ~ +85
Storage temperature	$^{\circ}\text{C}$	T_{STG}	-55 ~ +100
Maximum optical input power	mW	P_{in}	100
Module mains voltage	V	V_{cc}/V_{EE}	± 5
Power dissipation	mW	P_w	250
Soldering temperature(time)	$^{\circ}\text{C}$	-	300 (10s)

Optical/Electrical Characteristics (T=25 $^{\circ}\text{C}$, unless otherwise stated)

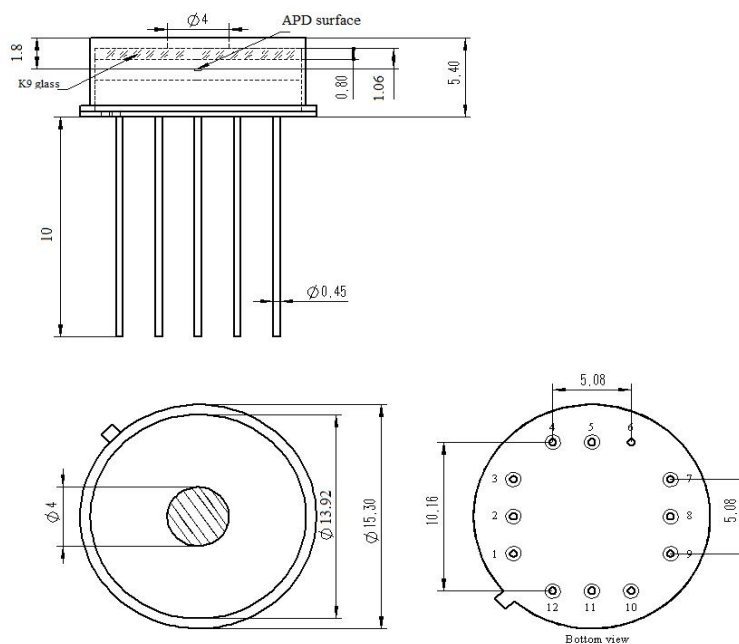
Parameter	Symbol	Value			Unit	Test conditions
		Min	Typ	Max		
Response Spectrum	λ	400~1100			nm	
Active Diameter	D		3		mm	
Reverse breakdown voltage	V_{BR}	130		250	V	
Operating voltage	V_R	$0.95 \times V_{BR}$			V	M=100
Responsivity	R_V	600			kV/W	M=100, 905nm@ $\tau=20\text{ns}$

Dynamic range	DY	25			dB	M=100, 905nm@τ=20ns
-3dB bandwidth	BW		50		Mhz	M=100, 905nm@τ=20ns
Rise/Fall time	t _r		7		ns	M=100, 905nm@τ=100ns
Noise Equivalent Power	NEP		100		fW/√Hz	M=10, f=100kHz, Δ=1hz
Output impedance	R _O		50		Ω	
Output Voltage Swing	V _O	0.7			V	
Positive Supply Current	I _{CC}			30	mA	
Negative Supply Current	I _{EE}			10	mA	50Ω Load
Temperature coefficient of V _{op} for constant gain	γ		1.2		V/°C	-40~+85°C
Temperature sensor Sensitivity (IN914)	α	-1.8	-2.1	-2.4	mV/°C	-55~+85°C
Concentricity	ΔD			50	um	

■ Schematic Block Diagram



■ Block Diagram and Pin description



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

CR3000AH-905-50M

CR①-②-③		
① 高响应度靶面 High Responsiveness Target Surface	② 响应波长 Spectrum Response	③ 响应带宽 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 insurw that proper ESD handling procedures are followed.