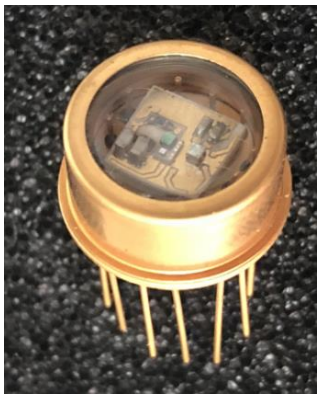
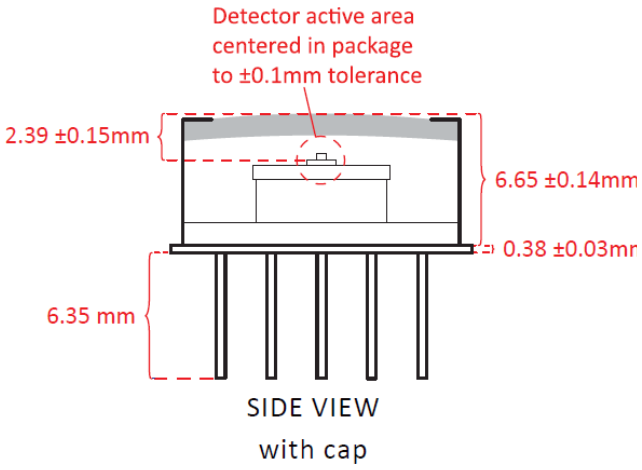
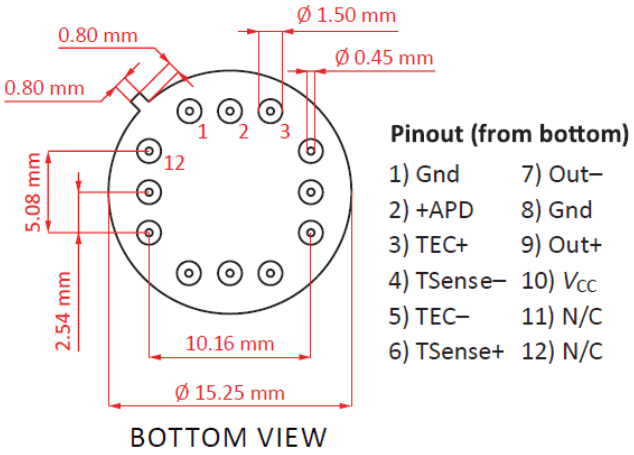
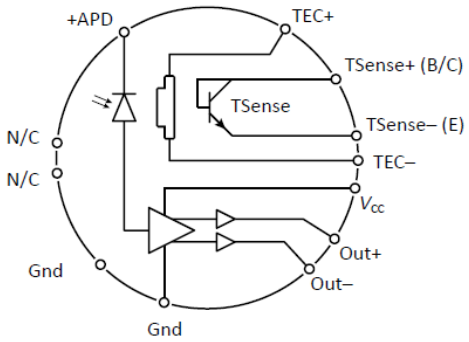
InGaAs APD Preamplifier Module

OSH200-NJAA









All dimension are in millimeters.

Description

The OSH200-NJAA receiver consists of a 200-µm avalanche Photodiode (APD) coupled to a 240 MHz transimpedance Amplifier (RTIA).

Submounted adjacent to the APD is a 2N2222A temperature Sensing diode. Decoupling capacitors are present inside the Receiver package, There are capacitors between the APD's Cathode and ground and between the RTIA's supply voltage And ground.

The hybrid ceramic substrate housing these components is Mounted on a single-stage TEC.

Features

* Low noise
* Fast response speed
* High sensitivity
* *High QE for 850-1064nm

Applications

* Range finding
* *Laser alarming
* Lidar
* Low light level detection

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Min	Typical	Max	Units
Spectral Range, λ	950	1000–1600	1750	nm
Active Diameter		200		μm
Bandwidth		200		MHz
APD Operating Gain, *M*	1	10-15		20
Receiver Responsivity at *M*=10[i]		80/100		kV/W @ 1064/1550 nm
Noise Equivalent Power at *M*=20		4.0/3.1		nW @ 1064/1550 nm
Low Frequency Cutoff[ii]		30		kHz
APD Breakdown Voltage, V_{BR}	45	50	55	V @ *T* = 295 K
TEC Δ*T*		40		K @ *T* = 295 K
TEC Supply		1.8/1.9		A/V
Temp Sensing Diode, Voltage and ΔV/K[iii]	0.48	0.50 -2.18 mV/K	0.51	V
TIA Power		25		mA @ 5V
Output Impedence[iv]	40	50	60	Ω
Overload/Saturation Power[v]	20	35		μW
Max Instantaneous Input Power[vi]		5		mW
Window Thickness	0.76	0.94	1.12	mm
Window Transparency		95/98%		1064/1550 nm

i 10 MHz, -40 dBm signal *ii -3 dB, 1 μA input*

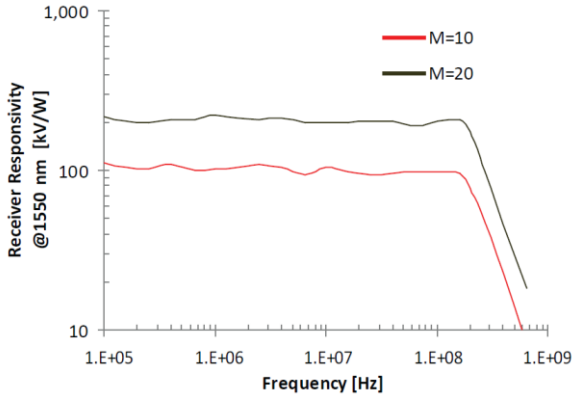
iii Sourcing 10 μA, T=298 K *iv Single-ended; 100 Ω differential*

v 1550 nm signal with APDmultiplication gain of M=10

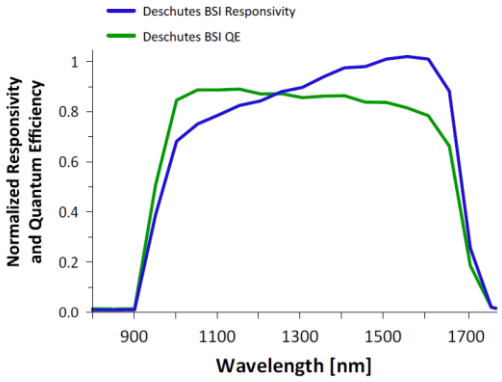
vi APD multiplication gain of M=10 with a 10 ns

1064 nm signal at 20 Hz PRF

■Capacitance of APD vs. Ubias



■ Spectral response （ M=100)



■ Linearity of Response