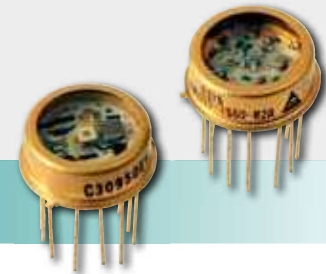


PIN and APD Hybrid Receivers

For Analytical & Industrial Applications



Si PIN and APD Modules – InGaAs APD Modules

Applications

- Laser range finder
- Video scanning imager
- High speed analytical instrumentation
- Free space communication
- UV-VIS-NIR light sensing
- Distributed temperature sensing

Features and Benefits

- Ultra low noise
- High speed
- High transimpedance gain
- Customization available upon request

Product Description

These hybrid receivers comprise of a photodetector (PIN or APD) and a transimpedance amplifier in the same hermetically-sealed package. Having both amplifier and photodetector in the same package allows low noise pickup from the surrounding environment and reduces parasitic capacitances from interconnect allowing lower noise operation.

The C30659 series includes an APD connected to a low noise transimpedance amplifier. 4 models are offered with a Silicon APD and 2 models offered with an InGaAs APD. Standard band-width of 50 MHz and 200 MHz can accommodate a wide range of applications. The C30659 models are offered with the APD mounted on a thermo-electric cooler (the LLAM series) to help improve noise or to keep the APD at constant temperature regardless of the ambient temperature.

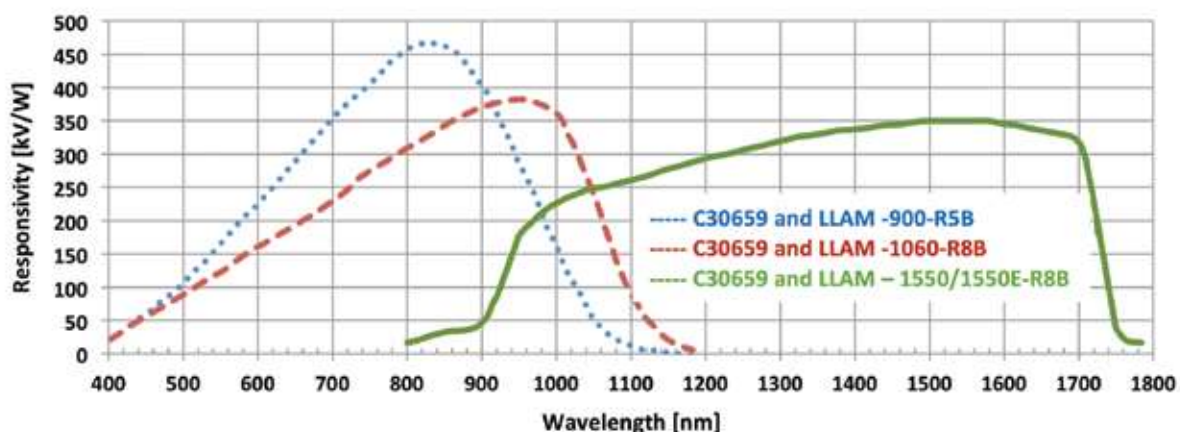
The C30659 can be customized to meet application specific requirements by using one of the Excelitas rear entry APDs, by choosing a custom bandwidth or by qualifying it to your environmental conditions. Pigtailed versions are also available in a 14 pins DIL package allowing nearly 100% coupling efficiency.

Both the C30659 and LLAM series have options for enhanced higher damage thresholds, thus providing greater resilience when exposed to high optical power densities. The C30950EH offers a low cost alternative to the C30659. The amplifier is designed to neutralize the input capacitance of a unity voltage gain amplifier. The C30919E uses the same architecture of the C30950EH with the addition of a high voltage temperature compensation circuit which maintain module responsivity constant over a wide temperature range.

The HUV modules are offered with a PIN detector for low frequency high gain application, covering a broad spectrum range from the UV to the near IR. All optical receiver products can be qualified to meet the most demanding environmental specification as described in MIL-PRF-38534.

Figure 1

APD Receiver Responsivity vs. Wavelength



Si PIN and APD Modules – InGaAs APD Modules

Unit	Detector	Active Diameter	Bandwidth	Responsivity, 900 nm	Responsivity, 1060 nm	Responsivity, 1550 nm	NEP	Output Voltage Swing, 50 Ohm	Package
		mm	MHz	kV/W	kV/W	kV/W	fW/√Hz	V	
C30659-900-R5BH	C30902	0.5	200	400	-	-	40	0.9	TO-8
C30659-900-R8AH	C30817	0.8	50	3000	-	-	12	0.9	TO-8
C30659-1060-R8BH	C30954	0.8	200	370	200	-	100	0.9	TO-8
C30659-1060E-R8BH*	C30954	0.8	200	370	200	-	100	0.9	TO-8
C30659-1060-3AH	C30956	3	50	450	280	-	90	0.9	TO-8
C30659-1550-R08BH	C30645	0.08	200	-	-	90	220	0.9	TO-8
C30659-1550E-R08BH*	C30645	0.08	200	-	-	90	220	0.9	TO-8
C30659-1550-R2AH	C30662	0.2	50	-	-	340	130	0.9	TO-8
C30659-1550E-R2AH*	C30662	0.2	50	-	-	340	130	0.9	TO-8
C30919E	C30817	0.8	40	1000	250	-	20	0.7	TO, 1 in
C30950EH	C30817	0.8	50	560	140	-	27	0.7	TO-8
LLAM-1550-R08BH	C30645	0.08	200	-	-	90	220	0.9	TO-8 FLANGE
LLAM-1550E-R08BH*	C30645	0.08	200	-	-	90	220	0.9	TO-8 FLANGE
LLAM-1550-R2AH	C30662	0.2	50	-	-	340	130	0.9	TO-8 FLANGE
LLAM-900-R5BH	C30902	0.5	200	400	-	-	40	0.9	TO-8 FLANGE
LLAM-1550E-R2AH	C30662	0.2	50	-	-	340	130	0.9	TO-8 FLANGE
LLAM-1060-R8BH	C30954	0.8	200	370	200	-	50	0.9	TO-8 FLANGE
LLAM-1060E-R8BH*	C30954	0.8	200	370	200	-	50	0.9	TO-8 FLANGE
LLAM-1060-R8BH-FC	C30954	0.8	200	370	200	-	55	0.9	TO-8 FLANGE+FC
HUV-1100BGH	UV-100	2.5	0.001	130 MV/W	-	-	30	5 min	CUSTOM
HUV-2000BH	UV-215	5.4	0.001	130 MV/W	-	-	70	6 min	CUSTOM
HeliX-902-200	C30902	0.5	200	650	-	-	50	1	CUSTOM
HeliX-954-200	C30954	0.8	150	650	360	-	110	1	CUSTOM

* "E" versions of the receivers are with enhanced damage threshold over exposure protection feature.

Figure 1

TO-8 Package for C30650 Devices

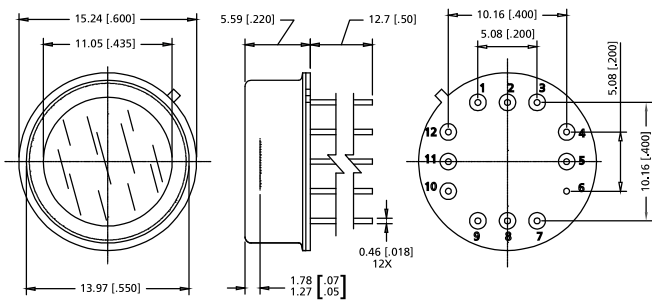


Figure 2

TO Package for HUV-1100BGH

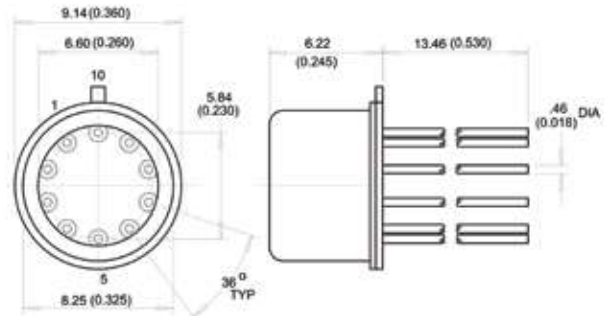


Figure 3

To Flange package for LLAM Devices

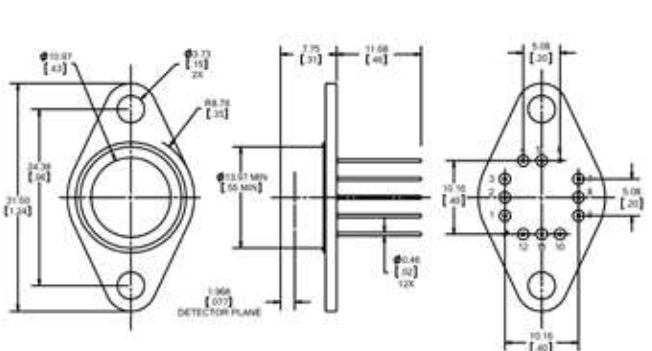


Figure 4

HeliX APD Module

