



LOW NOISE, HIGH GAIN, GaAs FET PHOTODETECTOR-AMPLIFIER MODULE

- ULTRA LOW NOISE - DOWN TO 20fW/√Hz
- BANDWIDTH - FROM ≤250Hz TO 80MHz
- HIGH GAIN - UP TO 0.07V/nW
- SILICON OR InGaAs PINS, OR SILICON AVALANCHE PHOTODIODES



DESCRIPTION:

The **712A Series** Low Noise, High Bandwidth Photodetector-Amplifier Modules offer high gain amplifiers with the flexibility of incorporating various silicon and InGaAs photodetectors for low signal level sensing applications. The **712A Series** is based on the **312A Series** transimpedance amplifiers. Consult factory for different detectors.

SPECIFICATIONS:

Input	Silicon or InGaAs photodetector (See table for characteristics.) 3μA maximum DC light-induced current	Power	+15VDC at 60mA typical Internal +12V regulator
Output		Temperature	-20° to +70°C
Load	50Ω	Connections	
Swing	3V pk	Input	Photodetector inside box
Gain	1MV/A transimpedance Multiply transimpedance gain by detector responsivity at peak wavelength to get V/W in table.	Output	BNC
Polarity	Non-Inverting Positive output when flux applied	Power	Filter feed-thru pins and ground lug
		Bias	Pin decoupled with 0.01μF, 1kV capacitor. (See table on reverse.)
		Size	3.49" x 1.92" x 0.92"
		Weight	3.2 ounces



Specifications subject to change without notice.

APPLICATIONS:

High Speed, Low Light Level Sensing, LIDAR

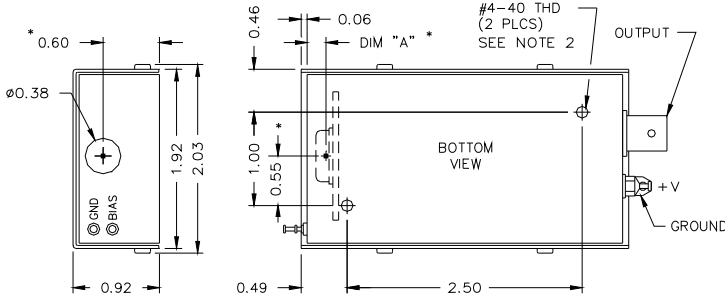
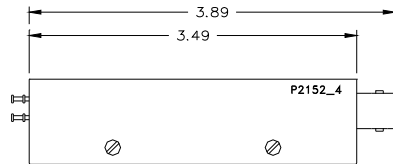
MODEL NO.	PHOTODIODE	DETECTOR PART NO.	ACTIVE AREA DIAMETER	PEAK	OPTIMUM REVERSE BIAS	BANDWIDTH ≤250Hz to:	NOMINAL GAIN	TYPICAL NOISE ⁽⁵⁾
712A-2	Si PIN	C30807E	1.0mm	900nm	+45V ⁽¹⁾	60MHz	0.70V/μW	2.1pW/√Hz
712A-4	Si APD	C30902E	0.5mm	830nm	180-250V ⁽²⁾	80MHz	77V/μW	20fW/√Hz
712A-8	InGaAs PIN	GAP100 ⁽³⁾	100μm	1.55μm	+5V INTERNAL	80MHz	1.0V/μW	1.8pW/√Hz
712A-9	InGaAs PIN	GAP300 ⁽³⁾	300μm	1.55μm	+12V INTERNAL	60MHz	1.0V/μW	2.5pW/√Hz

- (1) Internal bias provided at +12V. For best bandwidth, use *Model 521A* high voltage bias supply to apply optimum reverse bias. Internal bias is protected by diode when external supply is used.
- (2) Adjustable HV supply required. Optional *Model 521A* or *522* available (consult factory).
- (3) Available in ST or FC receptacle (consult factory).
- (5) Actual noise may vary by ±20% due to detector tolerance. Noise is greater with higher capacitance detectors.
- (6) Bandwidth tolerance is ± 20%.
- Note: Equivalent detector may be used.

Typical Part Number: **712A-8** =

Transimpedance Gain: 1MV/A
 Detector: GAP100
 Polarity: Non-Inverting
 Normal Gain: 1.0V/μW
 Noise: 1.8pW/√Hz
 3dB frequency: 80MHz
 Cut-on frequency: ≤250Hz

MODEL	DIM "A"
712A-2	0.22
712A-4	0.17
712A-8	0.19
712A-9	0.19



- NOTES:
- DIMENSIONS ARE IN INCHES.
 - MAXIMUM THREAD ENTRY 0.18
 - TOLERANCE: +/- 0.01
 - 712A-8 AND -9 HAVE NO EXTERNAL BIAS.
 - HIGH DC CURRENTS CAN SATURATE THE DC COUPLED PREAMP. SELECT LOWER GAIN VERSIONS OR CONSULT FACTORY.
- * DETECTOR POSITION MAY VARY BY +/- 0.12"

