



AMPD-X-S High Speed amplified microwave InGaAs Photodetector

✧ Features

- Wide Bandwidth
- Incorporated Bias-T
- O/E Hybrid integrated
- High Gain, Low Noise, Broadband
- Hermetically sealed, SMA connector

✧ Applications

- High-speed Optical-fiber Communication
- Radar Information Processing
- Electronic Warfare
- Antenna Measurement



✧

The AMPD series of products contain a broadband InGaAs photodiode with a low noise amplifier optoelectronic hybrid integrated optoelectric integrated. InGaAs PIN photodiode provides bandwidth 12GHz and 18GHz, response wavelength covers 1000 to 1650nm, and low noise amplifier can provide 13dB and 23dB RF gain. The module can operate on + 5V~+12V supply voltages. The package is hermetically sealed, input via a single-mode 9/125 μ m fiber is standard, and 50 ohm impedance matched RF output with an SMA compatible connector.



Typical & Absolute Maximum Rating ($T_c = 22 \pm 3^\circ\text{C}$)

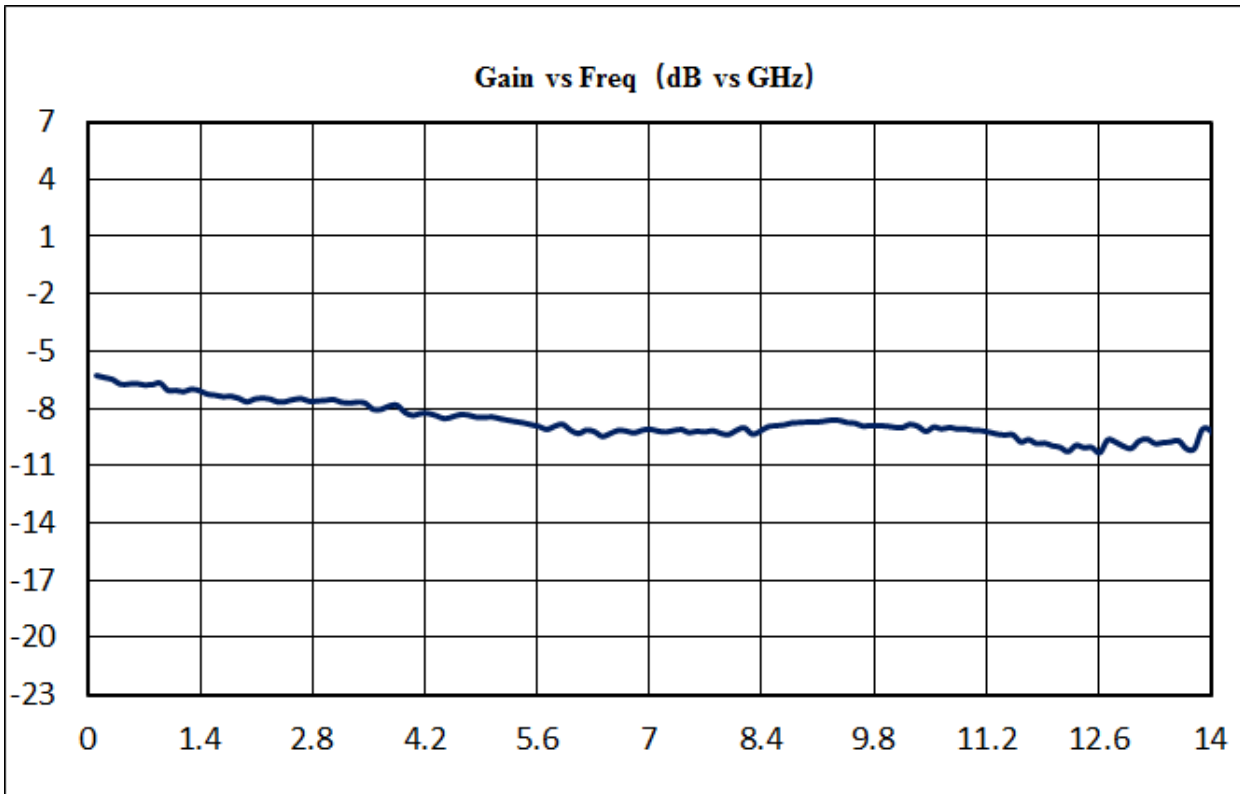
Parameter	Sym.	Typ	Rating	Unit
Storage temperature range	T_{STG}	-45 ~ +85	-55 ~ +100	$^\circ\text{C}$
Operating case temperature range	T_c	25	-40 ~ +85	$^\circ\text{C}$
Bias Voltage	V_R	5	5 ~ 12	V
Optical Input Power	P_{in}	0	13	dBm
Lead soldering temperature	T_p	280 (10s)	330 (10s)	$^\circ\text{C}$

◇ Electrical/Optical Characteristics ($T_c = 22 \pm 3^\circ\text{C}$)

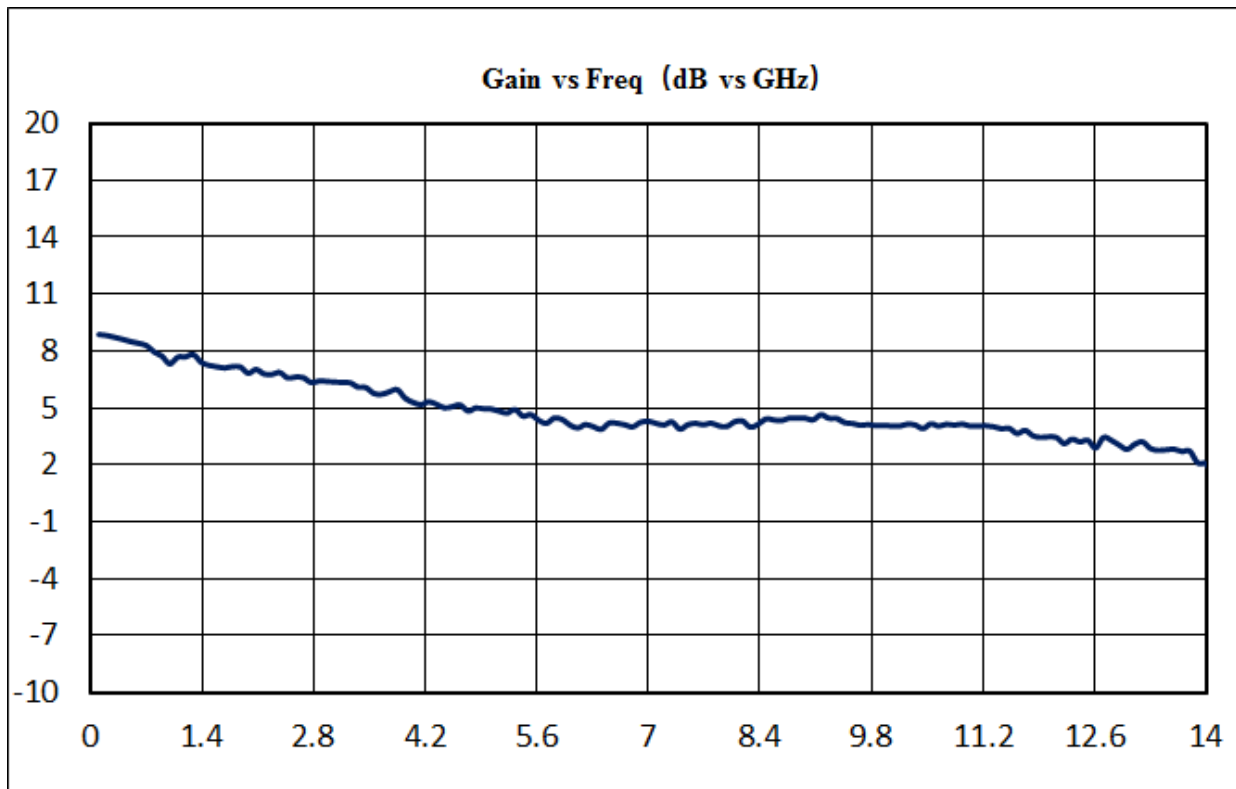
Parameter	Sym	Test Condition	Parameter values				Unit
Wavelength range	λ	—	1000~1650				nm
Frequency range	—	—	X-Band	Ku-Band		—	
Small signal bandwidth	f_{-3dB}	$V_R = 5V, \lambda = 1550\text{nm}$ $P_{in} = 1\text{mW}, R_L = 50 \Omega$	0.1~12	0.3~18		GHz	
Responsivity	R_e	$V_R = 5V,$ $P_{in} = 1\text{mW}$	$\lambda = 1310\text{nm}$	≥ 0.85		A/W	
			$\lambda = 1550\text{nm}$	≥ 0.90			
Amplitude Flatness	A	—	± 1.5				dB
Output VSWR	VSWR	—	$\leq 2:1$	$\leq 2.5:1$		—	
Output Impedance	R_L	—	50				Ω
RF signal Gain (Typical)	G	—	S 型	D 型	S 型	D 型	dB
			13	23	13	23	
Dark current	I_d	$V_R = 5V$	≤ 10				nA
Saturation Optical Power	P_s	$V_R = 5V, \lambda = 1550\text{nm}$ AC Modulated	≥ 10				dBm
Optical insert loss	OIL	—	≤ 0.5				dB
Optical return loss	L_o	$\lambda = 1.55 \mu\text{m}, \phi_e = 100 \mu\text{w}$	≥ 25				dB



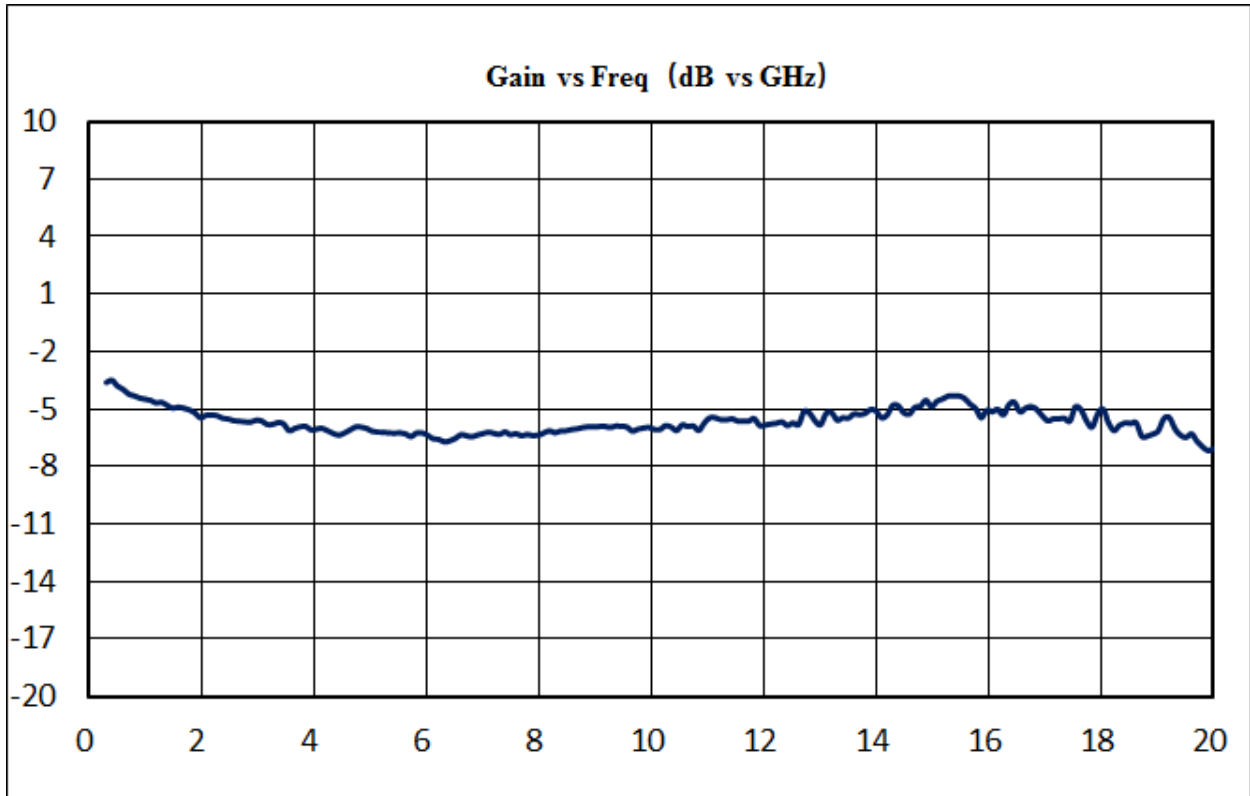
✧ Typical Response Curves



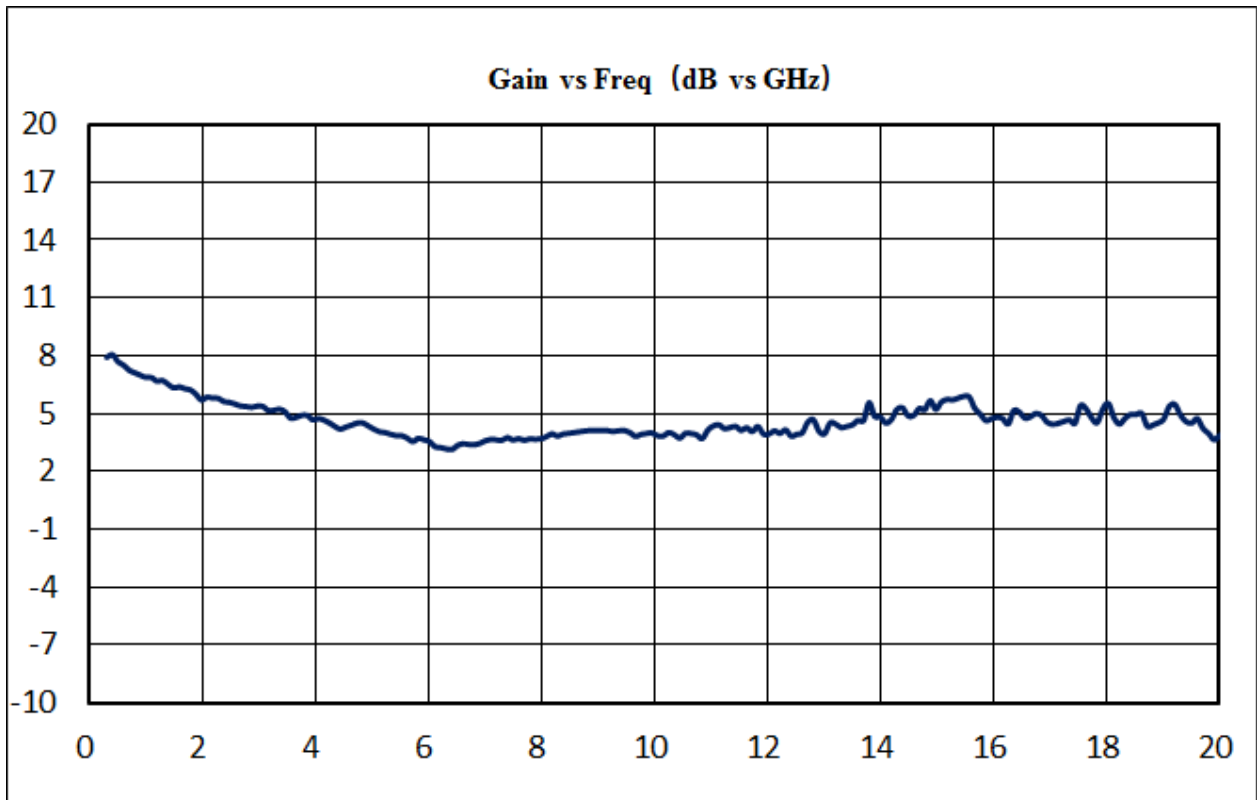
(Fig. 1 X-1-Band Photodetector Frequency Response)



(Fig. 2 X-2-Band Photodetector Frequency Response)



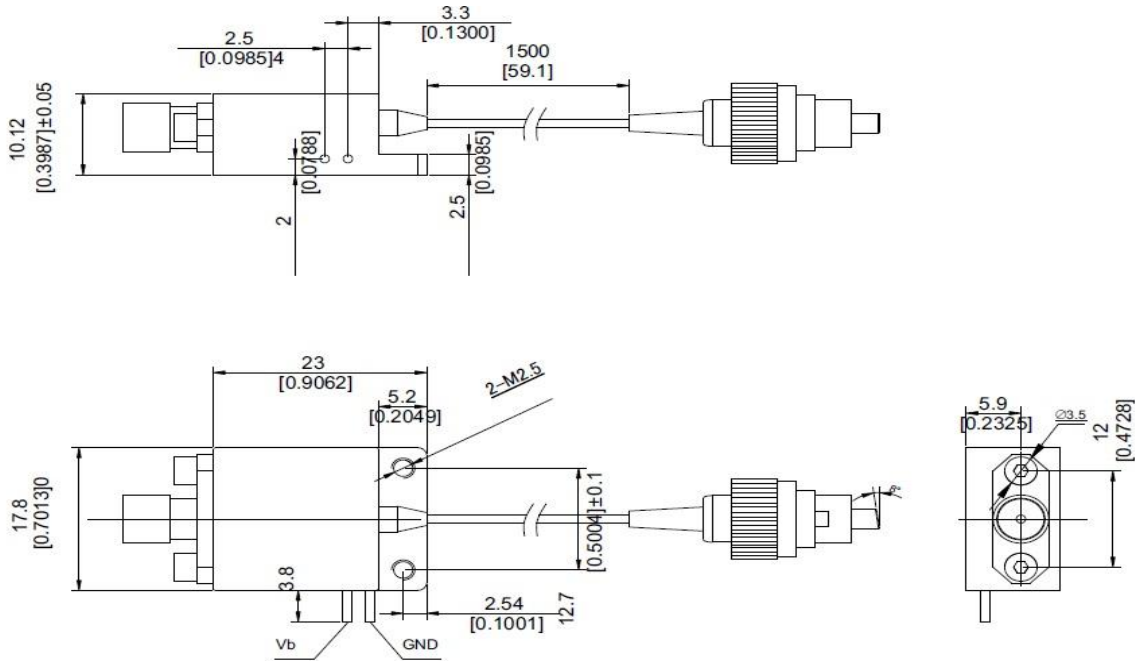
(Fig. 3 Ku-1-Band Photodetector Frequency Response)



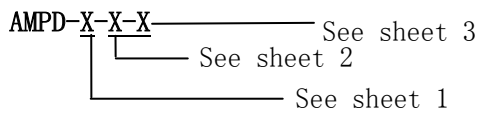
(Fig. 4 Ku-2-Band Photodetector Frequency Response)



The packages and the pins (Unit: inch)



◇ Ordering Information



Sheet 1:

Code	Analog Bandwidth
X	0.1~12 GHz
Ku	0.3~18 GHz

Sheet 2:

Code	Connector Type	Remark
0	No Connector	single-mode 9/125 μm fiber pigtail
1	FC/APC	
2	FC/PC	

Sheet 3:

Code	RF signal Gain	Remark
S	13dB	Typical & center frequency
D	23dB	Typical & center frequency

◇ Precautions

- The fiber bending radius no less than 20mm for avoiding fiber damaged
- Be sure the fiber coupling facet is clean before connecting it to opto-circuit
- The suitable ESD protection is required in storage, transportation and using