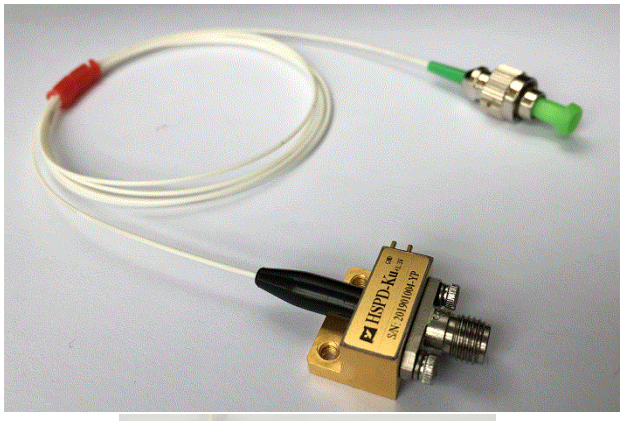
HSPD High Speed InGaAs Photodetector

✧ Features



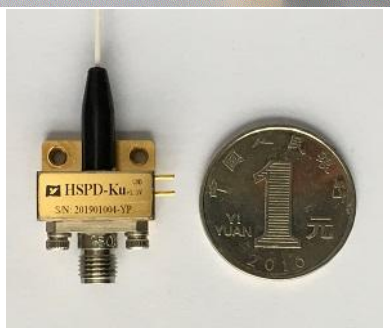
Wide Bandwidth

Incorporated Bias-T

DC Coupled

Hermetically Sealed, SMA Connector

✧ Applications



High-speed Optical-fiber Communication

Radar Information Processing

Electronic Warfare

High-speed Signal Test and Measurement

✧ Introduce of HSPD

The HSPD high-speed detector module is designed for both digital and analog applications. The module contains an InGaAs PIN photodiode which response wavelength covers 1250 to 1650 nm and necessary matching electronics.

HSPD can provide the bandwidth of 8 GHz , 12 GHz , 18 GHz , 22 GHz and 30GHz . The module operates on +3.3 or +5V (depend on the model of HSPD) . It complies with a standard single-mode 9/125μm fiber input. The RF output port is an SMA compatible connector or 2.92 mm connector matched by 50 ohm impedance .

HSPD is hermetically sealed, and weighs less than 15 grams.

ROHS 2.0 certificated .

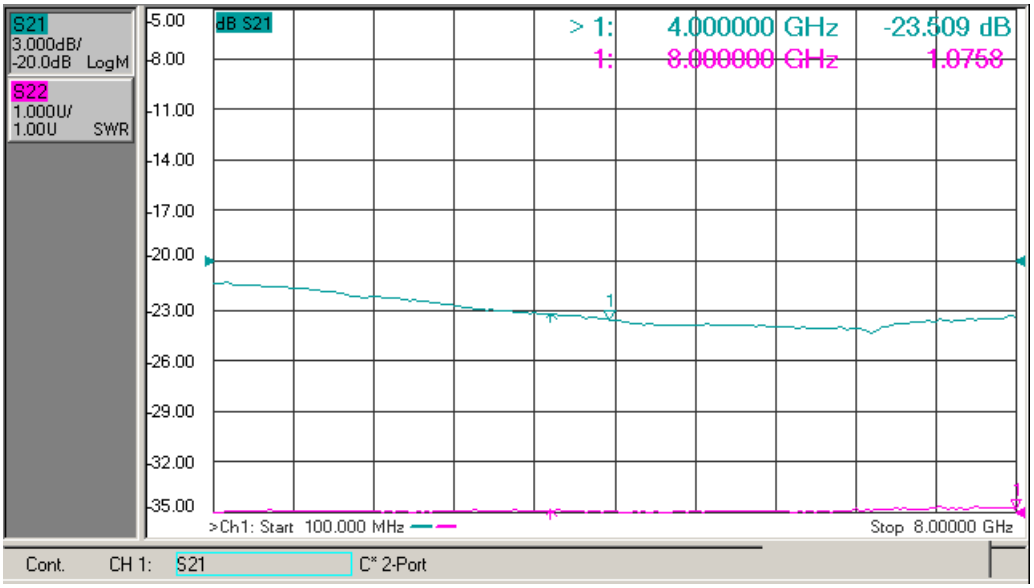
✧ Product Selection

Typical & Absolute Maximum Rating				
Parameter	**Sym.**	**Typ**	**Rating**	**Unit**
Storage temperature range	T_{STG}	-45 ～ +85	-55 ～ +100	℃
Operating case temperature range	T_C	25	-40 ～ +85	℃
Bias Voltage	V_R	3.3	2.8 ～ 5	V
Optical Input Power	Pin	+3	+7	dBm
Burn-out Optical Power	P_B	-	+10	dBm
Lead soldering temperature	Tp	280（10s）	330（10s）	℃

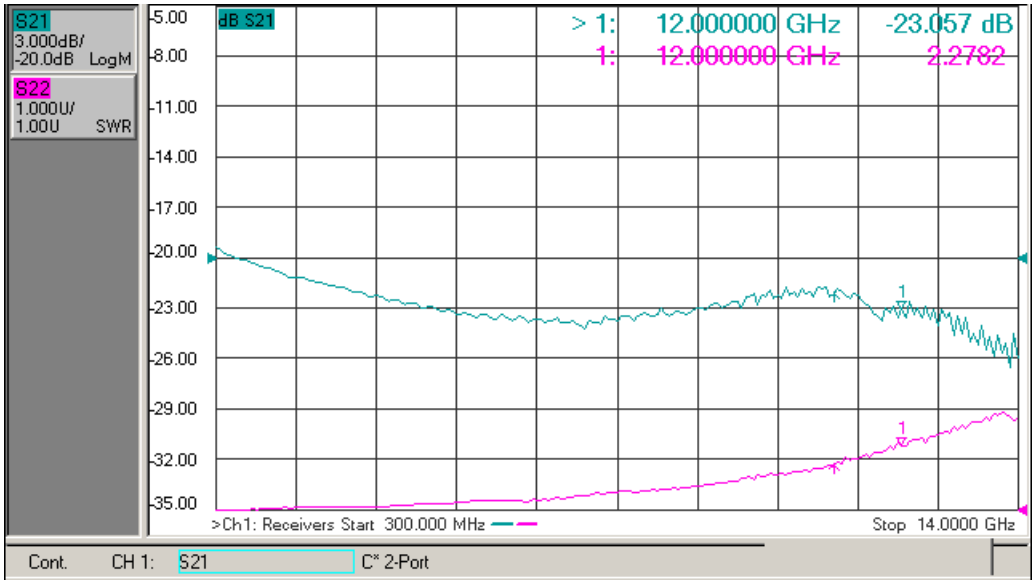
Electrical / Optical Characteristics (T_C = 22 ±3 ℃)									
Parameter	**Sym**	**Test Condition**		**Parameter Values**					**Unit**
Wavelength Range	λ	—		1000～1650					nm
Frequency Range	—	—		C-Band	X-Band	Ku-Band	Ku^+-Band	K^+-Band	—
Small Signal Bandwidth	f_{-3dB}	T_C = 22 ±3℃		0.1～8	0.3～12	0.8～18	2～22	2～30	GHz
Responsivity	R_e	V_R , P_{in}=1mW	λ = 1310nm	≥ 0.85	≥ 0.85	≥ 0.9	≥ 0.85	≥ 0.85	A/W
			λ = 1550nm	≥ 0.9	≥ 0.9	≥ 0.85	≥ 0.80	≥ 0.80	
Amplitude Flatness	A	T_C =-40～+85 ℃		≤±1.5	≤±1.5	≤ ±1.5	≤±2	≤±2	dB
Output VSWR	VSWR	—		≤ 2	≤ 2	≤ 2.2	≤ 2.5	≤ 2.5	—
Bias Voltage	V_R	—		+3.3	+3.3	+3.3	+3.3	+5	V
RF Connector	—	—		SMA	SMA	SMA	2.92mm	2.92mm	—
Saturation Optical Power	Ps	V_R , λ = 1550nm AC Modulated		+7	+7	+7	+7	+7	dBm
Dark Current	I_d	V_R		≤ 10	≤ 10	≤ 10	≤ 10	≤ 10	nA
Saturation RF Output Power	Pout	—		-10					dBm
Output Impedance	R_L	—		50					Ω

✧ Typical Response Curves

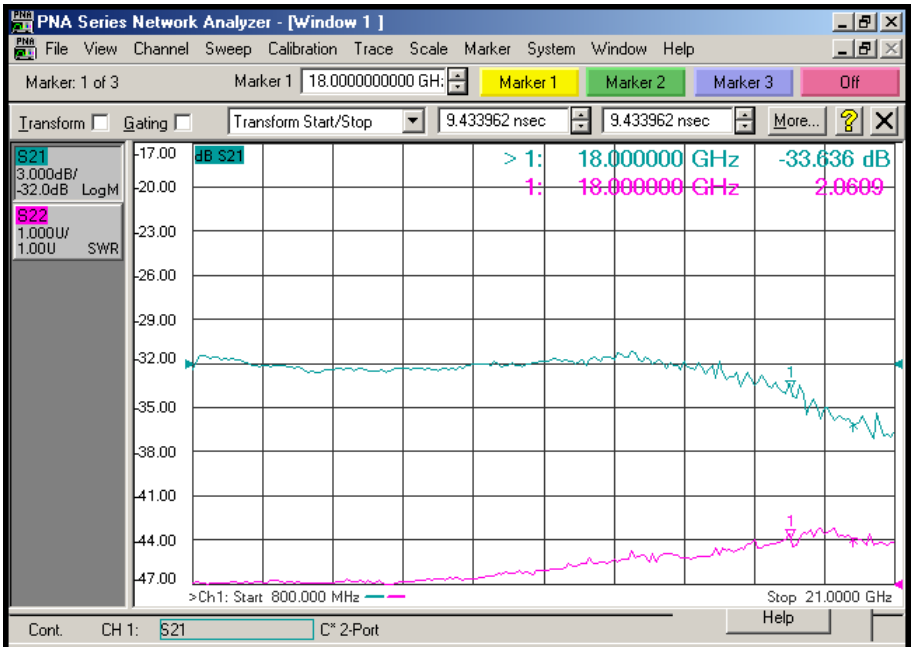
(V_R, λ=1550nm , TC =25 ºC ,Pin=0dBm)



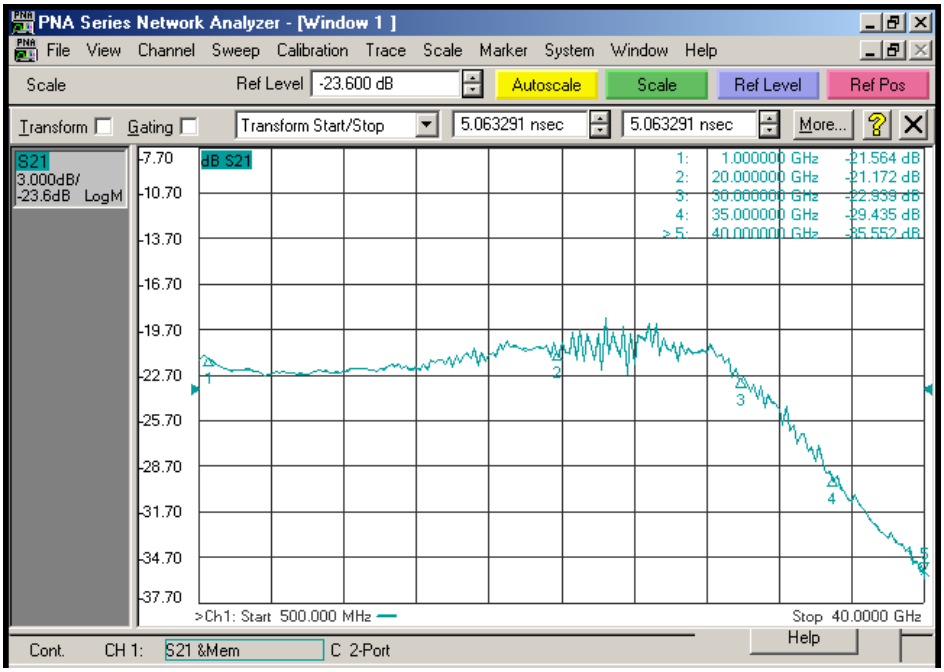
(Fig.1 C-Band Photodetector Frequency Response)



(Fig.2 X-Band Photodetector Frequency Response)

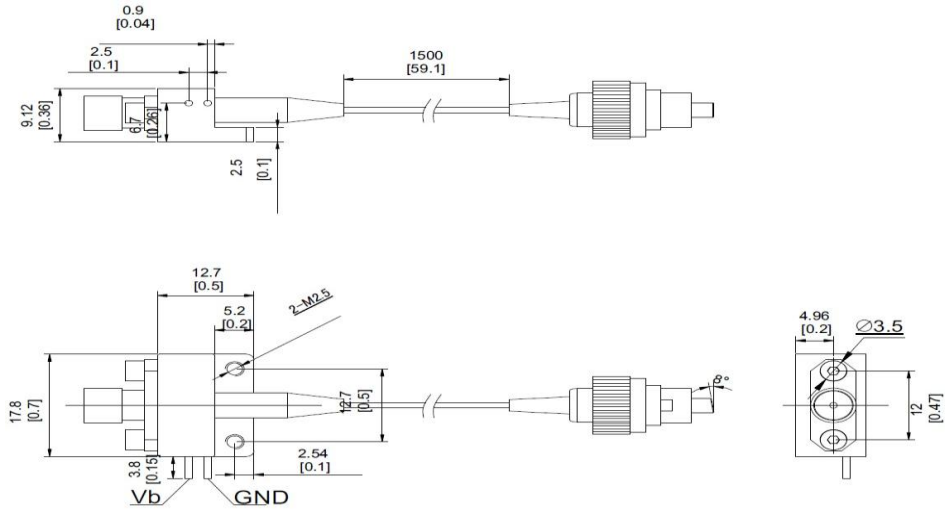


(Fig.3 Ku-Band Photodetector Frequency Response)



(Fig.4 K^+-Band Photodetector Frequency Response)

✧ Dimension and Pins (Unit: inch)



RF Connector： SMA or 2.92mm

✧ Ordering Information

HSPD-X-X

See sheet 2

See sheet 1

Sheet 1：

Code	Analog Bandwidth
C	0.1 ～ 8GHz
X	0.3 ～ 12 GHz
Ku	0.8 ～ 18 GHz
Ku^+	2 ～ 22 GHz
K^+	2 ～ 30 GHz

Sheet 2：

Code	Connector Type	Remark
N	No Connector	Single-mode 9/125 μm fiber pigtail
A	FC/APC	
P	FC/PC	

✧ 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 .