



10G InGaAs APD Photodiode TIA ROSA-FC Package

Description

A 10 Gb/s InGaAs APD photodiode packaged with a transimpedance amplifier (TIA). This device is packaged in a TO-Can with FC bulkhead receptacle. It comes configured with a Flex PCB. Offering flat response and a broad temperature operating range. This device can be easily soldered to a PCB for mechanical rigidity.

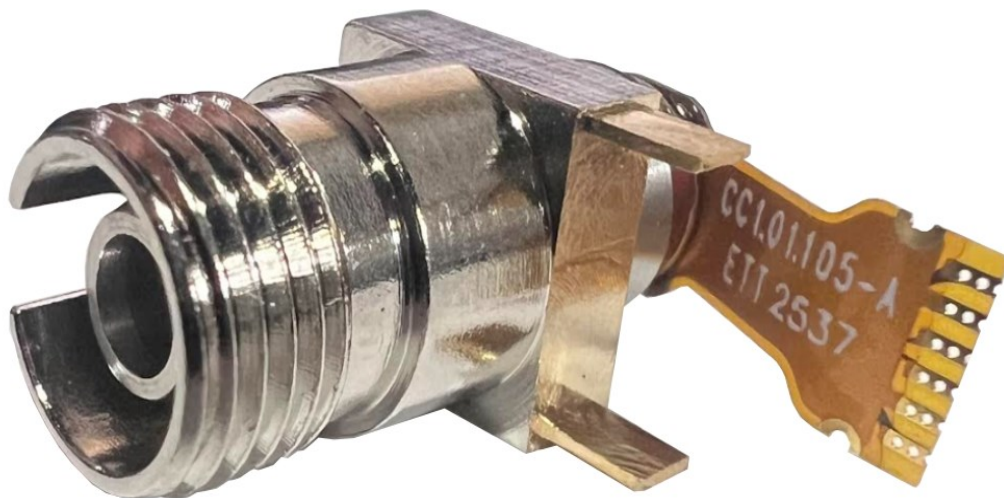
Features

- TO-Can Package
- FC-Receptacle
- 10 Gbps
- Wide temperature operating range
- Received signal strength indicator
- TIA Built in
- 4K Ohm Transimpedance Gain
- PCB solderable mount
- -27 dBm sensitivity



Applications

- 5G
- RF over Fiber (RFoF)



IMPORTANT NOTICE: more information on warranty, changes, rights, notices, and other information are presented at the back of this data sheet. If the back sheet is not present, refer to www.nuphotonics.com for the company issued data sheet.

Photodiode Electro-Optical Characteristics ($T_{op} 23 \pm 3^{\circ}\text{C}$, unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Supply Voltage	V_{cc}	2.9	3.3	3.6	V	
Supply Current	I_{cc}		26	35	mA	$V_{cc} = 3.3 \text{ V}$
Response Spectrum	λ	1260		1610	nm	$V_{cc} = 3.3 \text{ V}$
Bandwidth	BW		8		GHz	-3 dB bandwidth
Saturation	Sat		3		dBm	$V_{cc} = 3.3 \text{ V}$
Sensitivity	Sen		-30	-27	dBm	10.30 Gbps, 1310 nm, ER = 4.5 dB, BER = 10^{-12}
Optical Return Loss	ORL			-28	dB	CW = 1310 nm
RSSI Offset Current	I_{RSS}			100	nA	$V_{cc} = 3.3 \text{ V}$
Responsivity	R	0.7	0.8		A/W	1310 nm, 50 % VBR, M=2, Pin -20 dBm
Dark Current	I_d		30	100	nA	VBr
Output Impedance	Z_o		100			Differential
Maximum Output Voltage	V_o		300		mV _{p-p}	Differential
Low Frequency Cutoff	F_{low}		10		KHz	

Photodiode Absolute Maximum Ratings

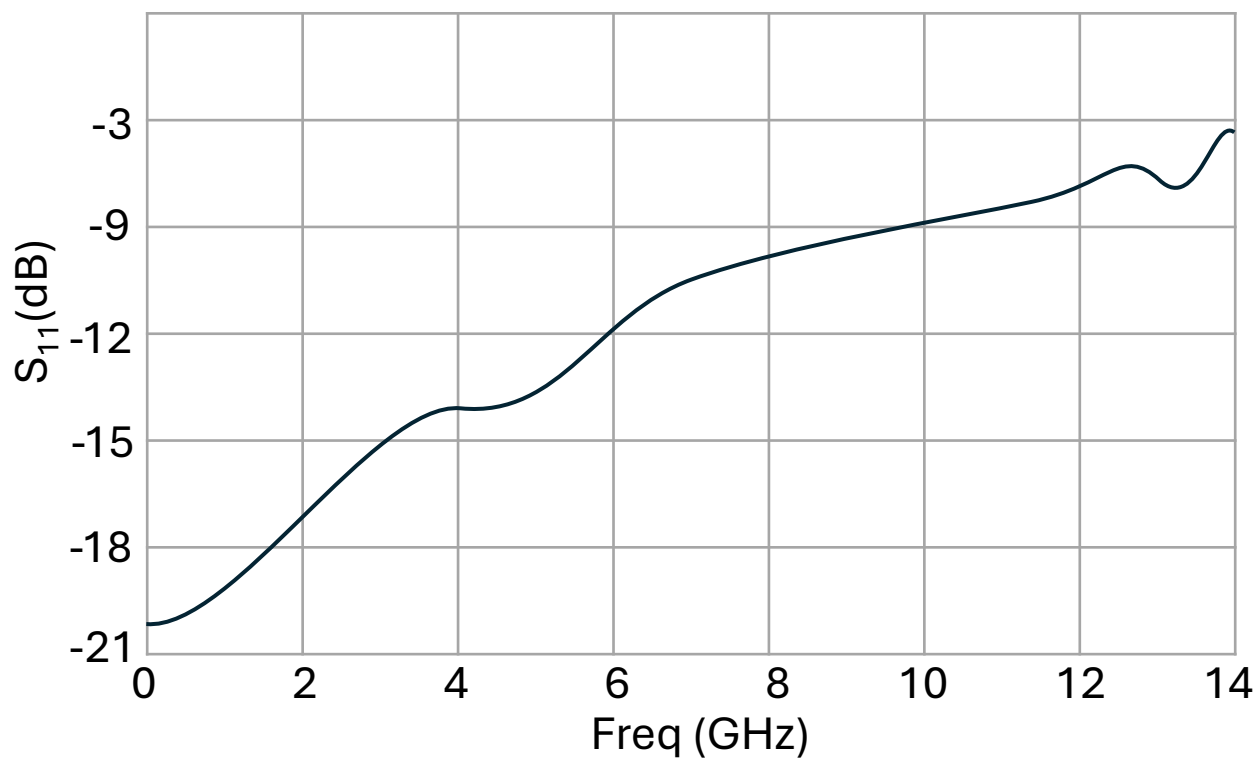
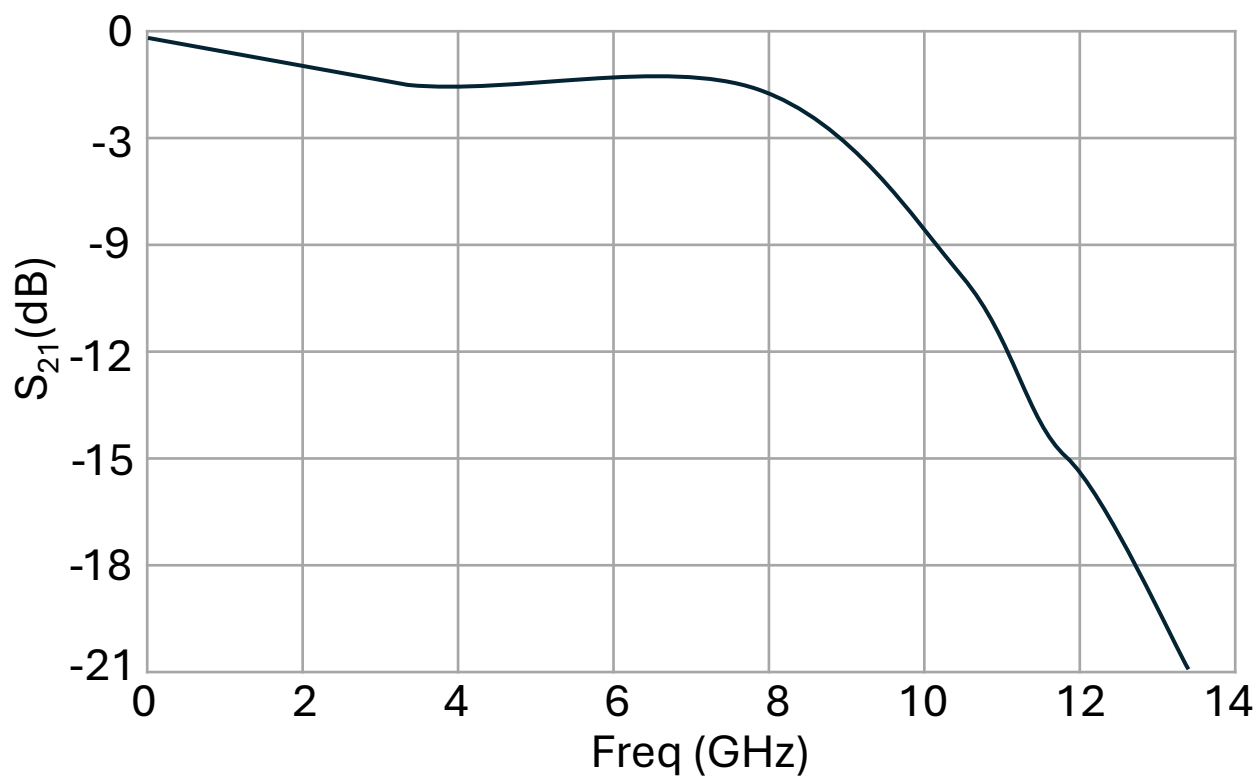
Parameter	Symbol	Condition	Min.	Max.	Unit
Voltage	V			3.6	V
Vapd	V			40	V
Input Optical Power	P_{in}			5	dBm
Storage Temperature	T_{stg}		-40	90	$^{\circ}\text{C}$
Storage Humidity	H_{stg}			85	% r.H.
Operating Temperature	T_{op}		-40	85	$^{\circ}\text{C}$
Soldering Temperature	T_{st}	10 sec		260	$^{\circ}\text{C}$
ESD Susceptibility		HBM	100		V

Operating at maximum operating specs for prolong periods of time will damage the device.

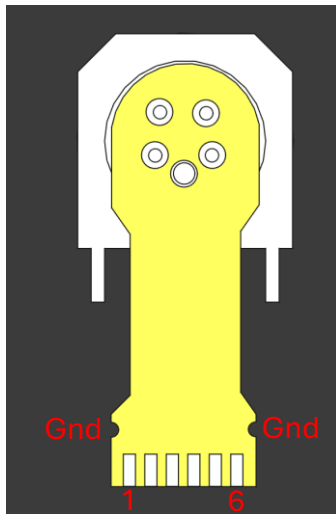


Typical Performance Curves (Top 23°C, 801 PTs, 16 AVGs, 1.5% smoothing)

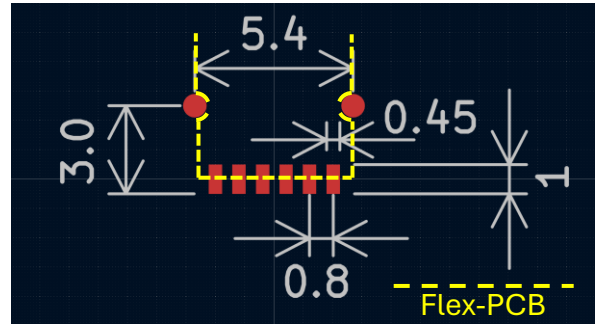
RF performance dependent on PCB design and optimization. Data shown for Rogers® RO3003 with Ground-backed Co-planar waveguide (GB-CPW). The GB-CPW was de-embedded. Single ended measurement, port two is terminated with 50 Ohm load



Device Pinout

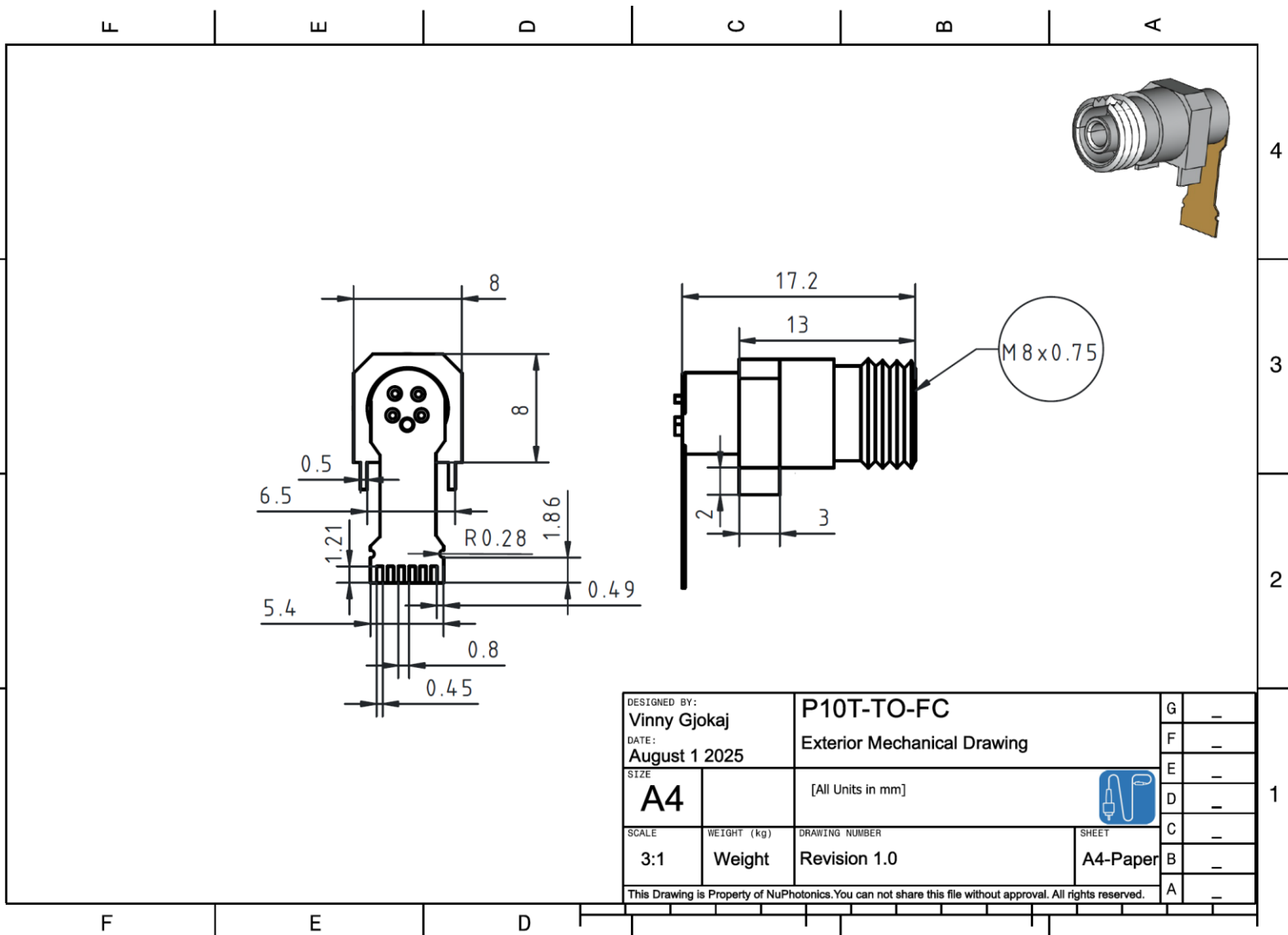


Pin	Function
1	VCC
2	Gnd
3	Dout +
4	Dout -
5	Gnd
6	Vapd



Recommended PCB Footprint (all units in mm)

Mechanical Drawing



Device dimensions are subject to change without notice.



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