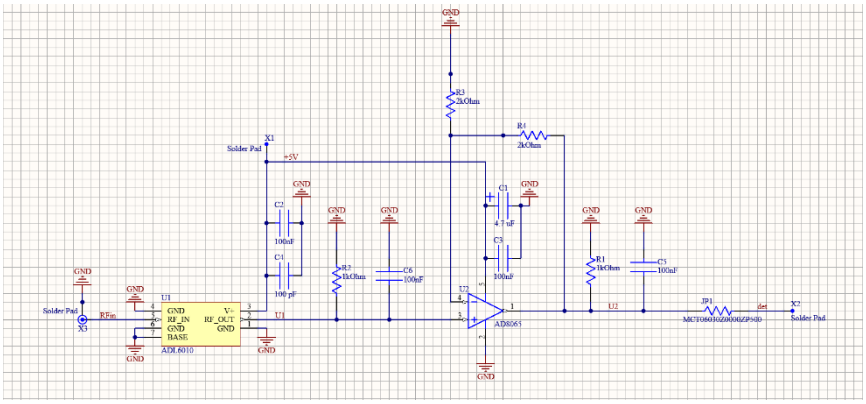
Detector Module for the PAM

- Frequency: 0.5-20GHz
- Impedance: 50Ω

Schematic



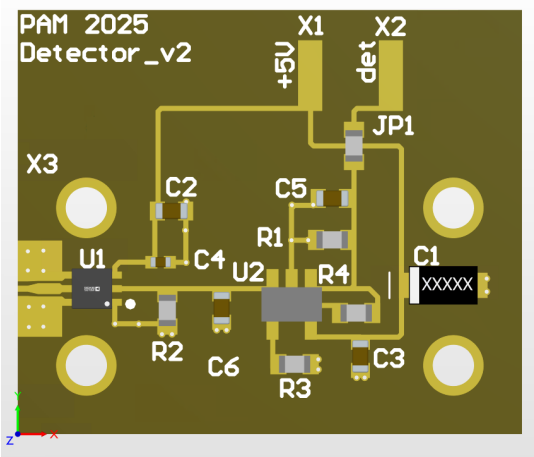
Inputs:

- RFin: Radio signal input
- +5V: positive supply voltage (+5V@1.6mA)
- GND

Outputs:

- Det: Output for power measurement

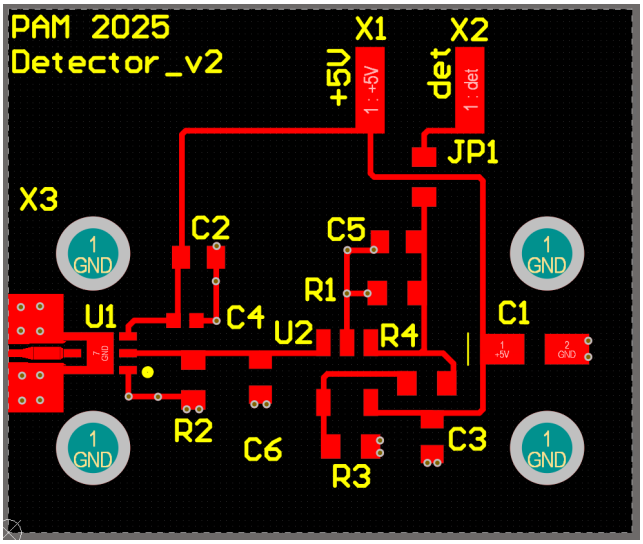
Components - *All Case Codes are metric*



1 – SMA 2Hole (142-1701-201)	[X3]
2 – Feed through cap: 4-40UNC-2A (B3C153B)	[X1,X2]
1 – Turret Terminal 2-56 UNC – 2A (1595-2)	
1 – detector LFCSP-6 (ADL6010ACPZN-R2)	[U1]
1 – op amp SOT-23-5 (AD8065ARTZ-REEL7)	[U2]
1 – 100pF 1005 (GRM1555C2A101FA01D)	[C4]
1 – 4.7uF 3216 (TH3A475K020C5000)	[C1]
4 – 100nF 1608 (GCM188R71C104KA37J)	[C2-3,C5-6]
1 – 0Ω 1608 (MCT06030Z0000ZP500)	[JP1]
1 – 1MΩ 1608 (MCT06030C1004FPW)	[R1]
1 – 2kΩ 1608 (MCT06030C2001FP500)	[R2]
1 – 1.6kΩ 1608 (MCT06030C1601FP500)	[R4]
1 – 402Ω 1608 (MCT06030C4020FP500)	[R3]

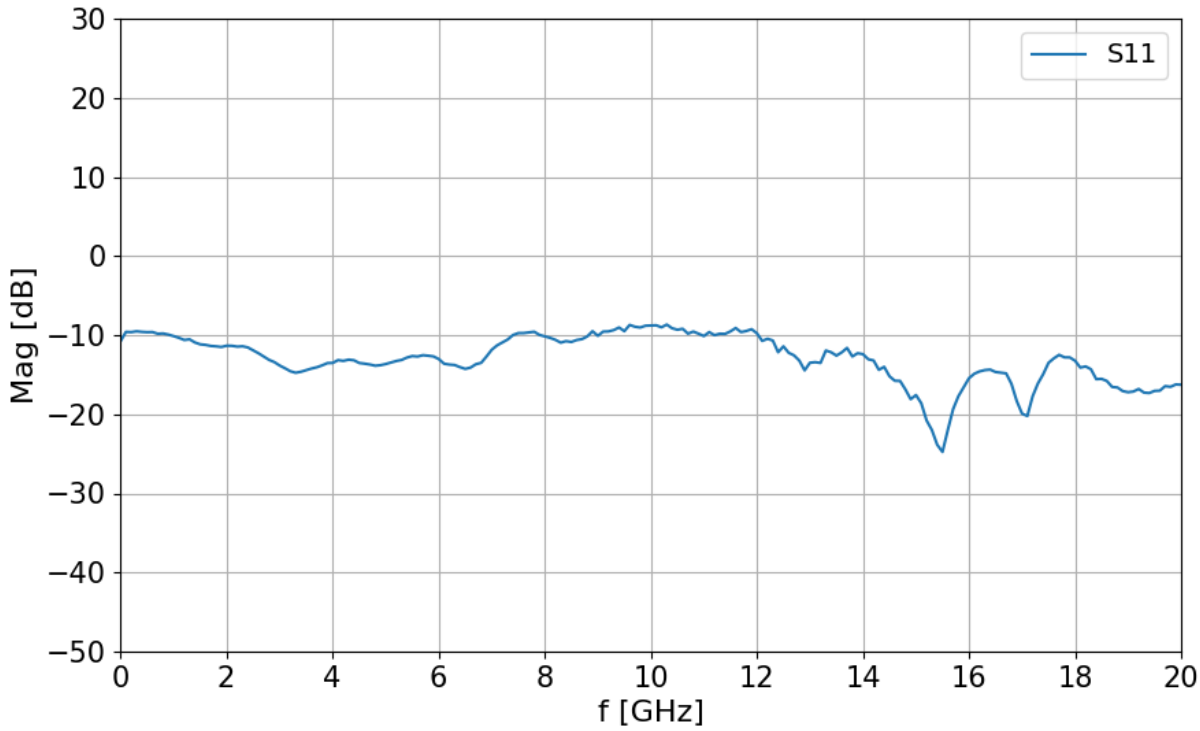
1 – RO4350 PCB
1 – Box
1 – Lid
2 – Screws 3-48 UNC - 2B x 3/16 (92196A091)
4 – Screws 2-56 UNC - 2B x 1/8 (21202)
4 – Screws 2-56 UNC - 2B x 5/32 (91771A884)
1 – RF-absorber PSA 0.08”, ca. 20 x 24 mm (MR42-0008-20)

Footprint



S-parameter

S-parameter measurement with the VNA (N5230C) of detector module v1.



Voltage-to-power Curve

A signal generator (E4420B) was used to apply an RF input with a fixed frequency and varying power levels. It was connected with a 14 inch long SMA cable (AFX-CA-141-14 AtlanTec RF) to the detector module v1. The power was increased stepwise and the corresponding output voltages were measured using a multimeter. A power supply provided the +5 V supply voltage for the detector module.