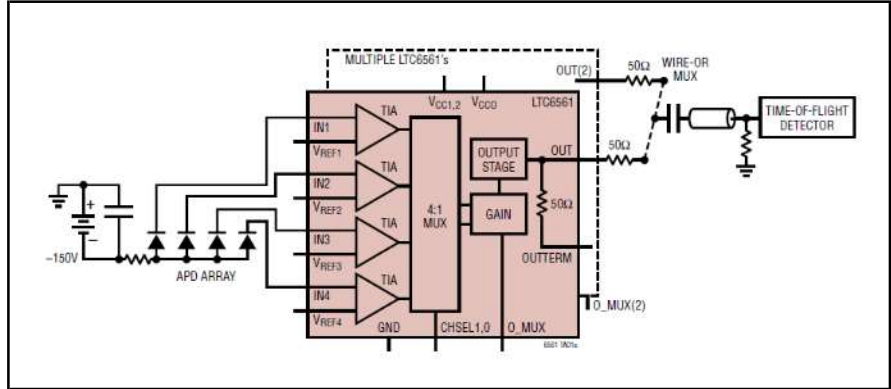
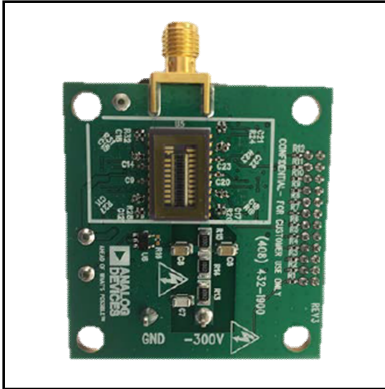


Preliminary



Features

- 16 element APD array
- With 4 (4) channel TIA's
- High speed, low noise

Description

Hermetic matrix APD array with soldered glass lid. Integrated transimpedance amplifier(s) and temperature sensor on Analog Devices evaluation board.

Application

- LIDAR applications
- Industrial imaging

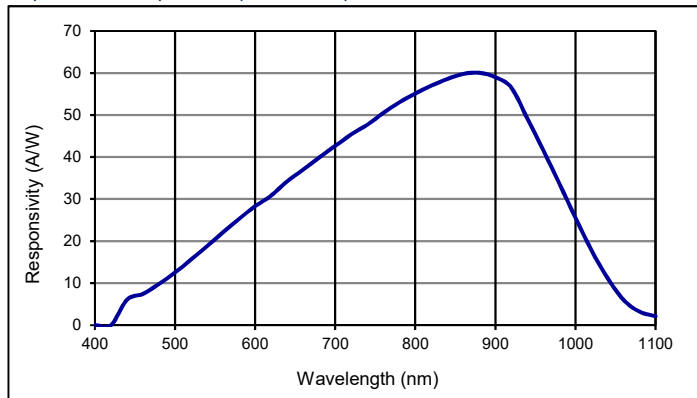
RoHS

2011/65/EU

Absolute maximum ratings

Symbol	Parameter	Min	Max	Unit
T <sub>STG</sub>	Storage temp	-40	100	°C
T <sub>OP</sub>	Operating temp	-20	85	°C
M <sub>max</sub>	Gain (I <sub>PD</sub> = 1 nA)	200		
I <sub>PEAK</sub>	Peak DC current		0.25	mA

Spectral response (M = 100)

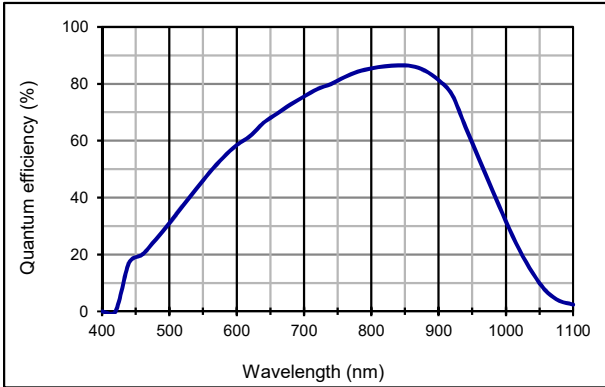


Electro-optical characteristics @ 23°C

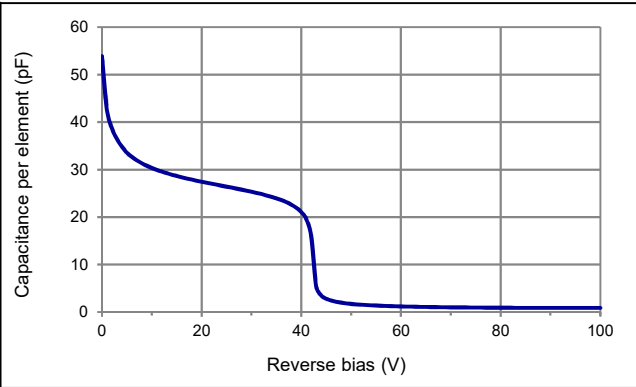
Symbol	Characteristic	Test Condition	Min	Typ	Max	Unit
	No of elements			16		
	Active area			1000 x 405		µm
	Gap; Pitch			95 ; 500		µm
I <sub>D</sub>	Dark current	M = 50; per element		2.0		nA
C	Capacitance	M = 50; per element, 100kHz		1.0		pF
	Responsivity	M = 100; λ = 905 nm	52	58		A/W
t <sub>R</sub>	Rise time	M = 100; λ = 905 nm; R <sub>L</sub> = 50 Ω		2		ns
V <sub>BR</sub>	Breakdown voltage	I <sub>R</sub> = 2 µA	160	200	240	V
	Temperature coefficient			1.45		V/K
	Cross talk	λ = 905 nm		50		dB
	Photo current uniformity	M = 50		± 5	± 20	%

Preliminary

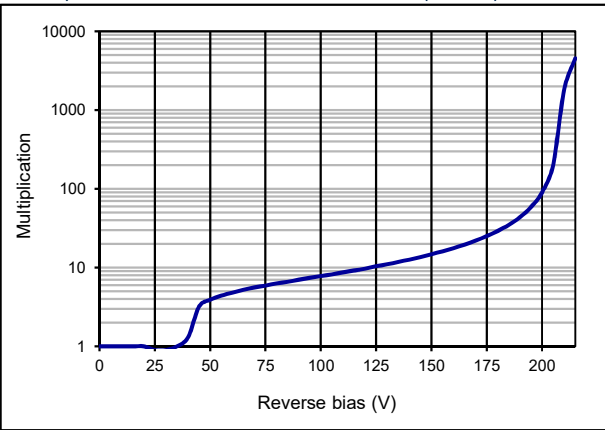
Quantum efficiency (23 °C)



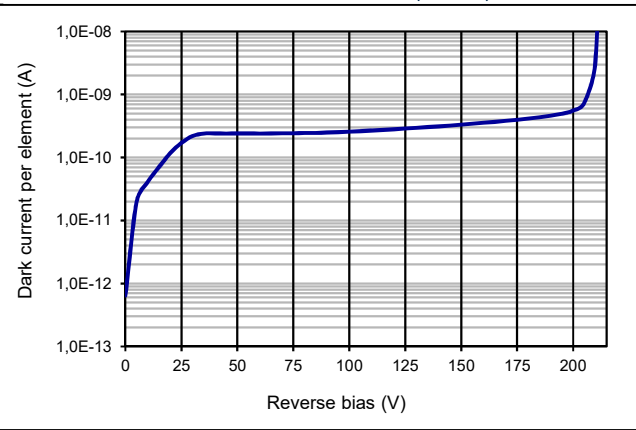
Capacitance as fct of reverse bias (23 °C)



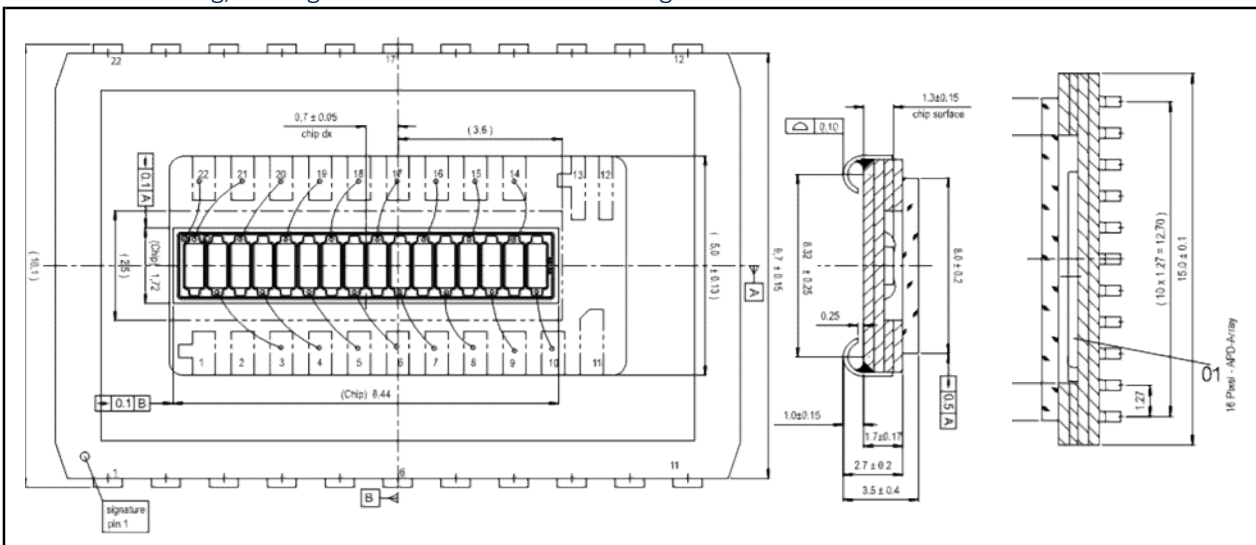
Multiplication as fct of reverse bias (23 °C)



Dark current as fct of reverse bias (23 °C)



Technical Drawing, Package: SMD SOJ22 with soldered glass lid



Preliminary

**Quick start procedure**

Connect J2 to an oscilloscope that is 50 Ω terminated. The output is AC coupled. Connect the dipswitch daughter board as shown in Figure 1. The high position sets the switch to 5V, the low position to GND. Connect a 5V low-noise analog power supply as shown in Figure 1. Apply -70V to -240V at 23°C to J3 according to the desired APD gain. Apply a 905nm pulsed laser to the APD array which is located on the bottom of the FT2724.

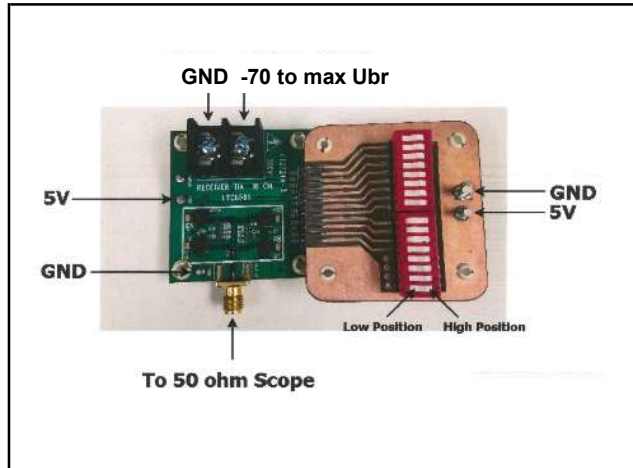


Figure 1: Connection Diagram

**Using output MUX and channel allocation**

A pin header enables easy connection to the output MUX and the channel allocation of the four TIAs. OSx corresponds to the output MUX pins and CSx pins are connected to the channel allocation. Figure 2 shows connection details. A daughter card is provided to select different channels and enable or decouple the output MUX.

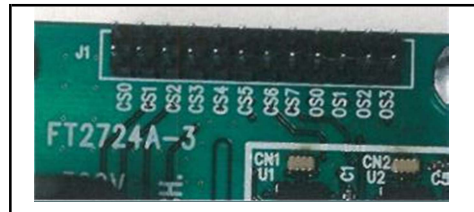


Figure 2: Header J1

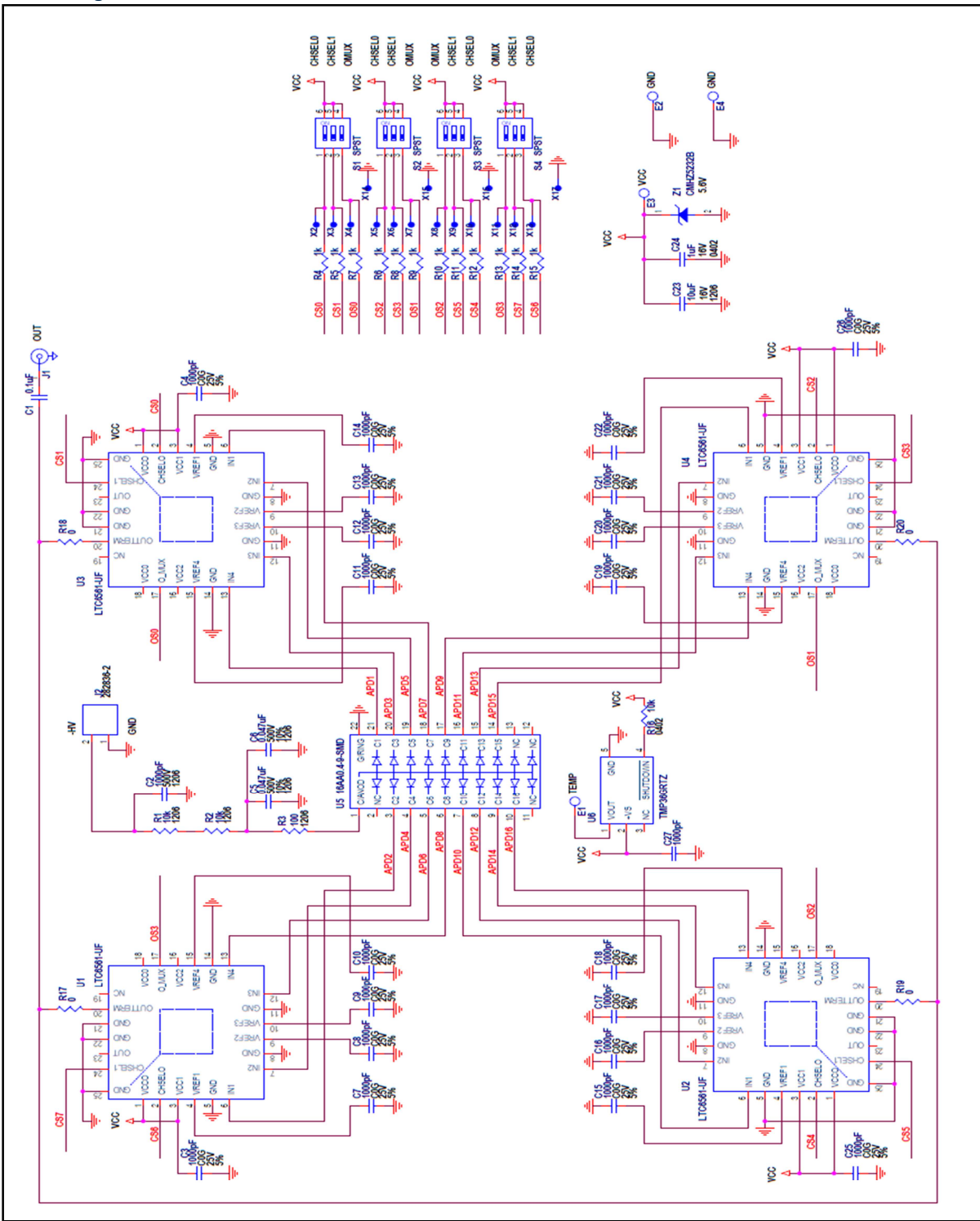
**Channel/APD allocation**

	CS0	CS1	CS2	CS3	CS4	CS5	CS6	CS7	OS0	OS1	OS2	OS3
1	LOW	LOW	NC	NC	NC	NC	NC	NC	LOW	HIGH	HIGH	HIGH
2	NC	NC	NC	NC	NC	NC	HIGH	HIGH	HIGH	HIGH	HIGH	LOW
3	HIGH	LOW	NC	NC	NC	NC	NC	NC	LOW	HIGH	HIGH	HIGH
4	NC	NC	NC	NC	NC	NC	LOW	HIGH	HIGH	HIGH	HIGH	LOW
5	LOW	HIGH	NC	NC	NC	NC	NC	NC	LOW	HIGH	HIGH	HIGH
6	NC	NC	NC	NC	NC	NC	HIGH	LOW	HIGH	HIGH	HIGH	LOW
7	HIGH	HIGH	NC	NC	NC	NC	NC	NC	LOW	HIGH	HIGH	HIGH
8	NC	NC	NC	NC	NC	NC	LOW	LOW	HIGH	HIGH	HIGH	LOW
9	NC	NC	LOW	LOW	NC	NC	NC	NC	HIGH	LOW	HIGH	HIGH
10	NC	NC	NC	NC	HIGH	HIGH	NC	NC	HIGH	HIGH	LOW	HIGH
11	NC	NC	HIGH	LOW	NC	NC	NC	NC	HIGH	LOW	HIGH	HIGH
12	NC	NC	NC	NC	LOW	HIGH	NC	NC	HIGH	HIGH	LOW	HIGH
13	NC	NC	LOW	HIGH	NC	NC	NC	NC	HIGH	LOW	HIGH	HIGH
14	NC	NC	NC	NC	HIGH	LOW	NC	NC	HIGH	HIGH	LOW	HIGH
15	NC	NC	HIGH	HIGH	NC	NC	NC	NC	HIGH	LOW	HIGH	HIGH
16	NC	NC	NC	NC	LOW	LOW	NC	NC	HIGH	HIGH	LOW	HIGH

**Temperature compensated APD**

FT2724 allows the option to measure temperature using the TMP35. A turret labelled TMP35 is connected to its output. At 25°C the TMP35 provides 250 mV output and has a scale factor of 10 mV/°C. This feature is useful to temperature compensate the APD bias.

Block diagram



Evaluation board

For further information regarding the evaluation board please refer to the Analog Devices datasheet "LTC 6561 - Four-channel multiplexed transimpedance amplifier with output multiplexing" Package description ESD bag in box