AA8-9 SOJ22GL

8 Elements
Avalanche Photodiode Array

Special characteristics:

quantum efficiency >80% at λ 760-910 nm
high speed, low noise
good uniformity between elements
low cross talk
with NTC as temperature control device

Parameters:	**AA8-9 SOJ22GL**
no. of Elements	8
Active Area / Element [µm]	1000 x 405
Gap / Separation [µm]	95
Pitch [µm]	500
Spectral Range	450 … 1050
Spectral Responsivity [1] (at 905 nm, M = 100)	min. 55 A/W typ. 60 A/W
Max. Gain (Ipo= 1nA)	typ. 100
Dark Current [1] (M = 100)	typ. 5 nA
Capacitance [1] / Element (M=100)	typ. 2 pF
Breakdown Voltage U_{BR} (at I_D = 2 µA)	100 … 300 V
Rise Time at 905 nm, 50 Ω	typ. 2 ns
Cross-talk (at 905 nm)	typ. 50 dB
Photo Current Uniformity (at M= 50)	± 20 % typ. ± 5 %
Dark Current Uniformity (at M = 50)	± 20 % typ. ± 5 %
Resistance at +25 °C [2]	10 kΩ
Alpha Value at 25 °C [2]	-4.39 %/°C
Beta Value 25/85 [2]	3976 K
Operating Temperature Storage Temperature	-20 ... +70 °C -40 ... +100 °C

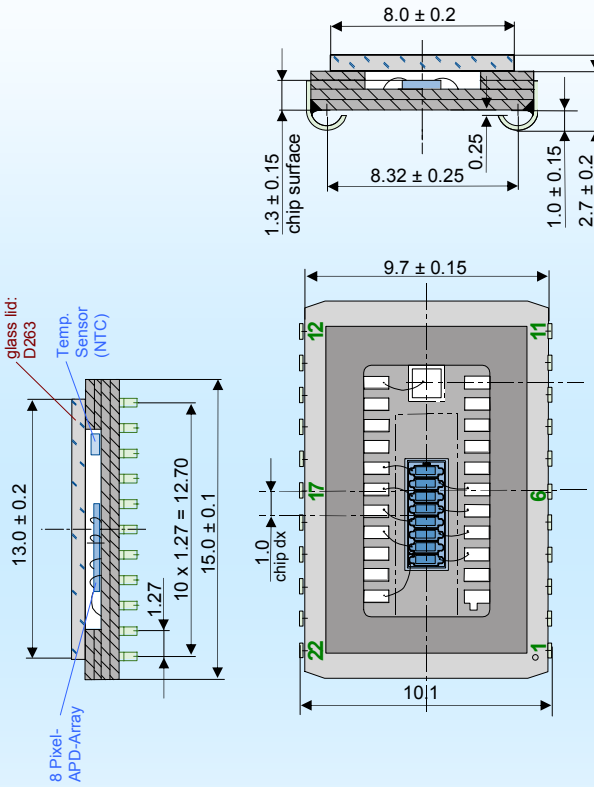
***1) Measurement conditions**:*
Setup of photo current 2.0 nA at M = 1 and irradiation by a IRED (880 nm, 80 nm bandwidth).

Increase the photo current up to 100 nA, (M = 50) by internal multiplication due to an increasing bias voltage.

***2)** Technical parameter of the temperature control device (NTC).*

RoHS compliant

Package SOJ22GL (AA8-9):



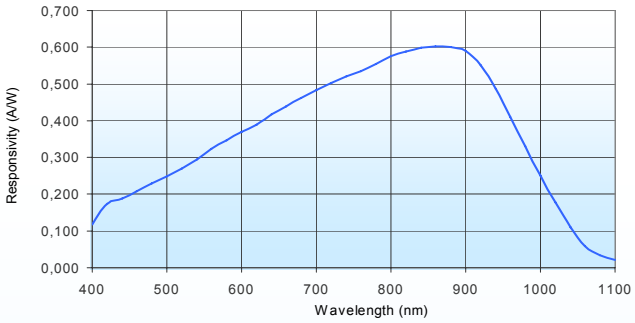
Pin no.	Function	
1	Common Anode	
2	n.c.	
3	Cathode	1
4	Cathode	3
5	Cathode	5
6	Cathode	7
7	n.c.	
8	n.c.	
9	n.c.	
10	n.c.	
11	Temp.-Sensor	

Pin no.	Function	
12	Temp.-Sensor	
13	n.c.	
14	n.c.	
15	n.c.	
16	Cathode	8
17	Cathode	6
18	Cathode	4
19	Cathode	2
20	n.c.	
21	n.c.	
22	guard ring	

Version: 09-08-21
Order number: 501099

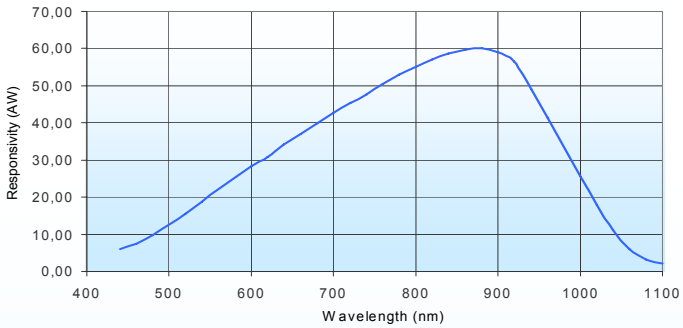
Spectral Responsivity at M = 1

Series - 9



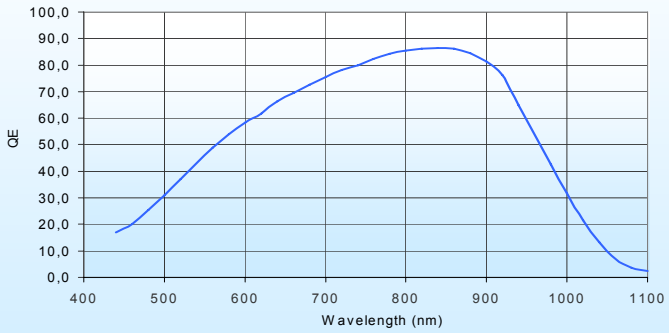
Spectral Responsivity at M = 100

Series - 9



Quantum Efficiency for M = 100

Series - 9

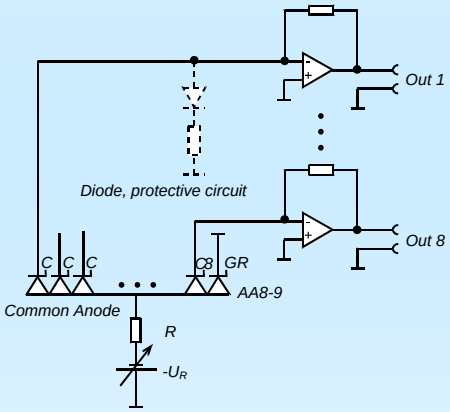


Maximum Ratings:

- max. electrical power dissipation — 800 mW at 22°C
- max. optical peak value, once — 400 mW for 1 s
- max. continous optical operation — I_{Ph} (DC) ≤ 250 µA
  ≤ 1 mA for signal 50 µs "on" / 1 ms "off"
- ($P_{electr.} = P_{opt.} * S_{abs} * M * U_R$)

Example of DC-Operating Circuit:

8 x Transimpedance Amplifier



Application Hints:

- Current should be limited by a protecting resistor or current limiting - IC inside the power supply.
- Use of low noise read-out - IC.
- Use temperature sensor for temperature compensation of the bias voltage.

Handling Precautions:

- SMD mounting: Lead free soldering possible.
- Soldering temperature: The maximum temperature at the component must not exceed 250 °C. The range over 220 °C should not take more than 1 min. The device must be protected against solder flux vapour!
- ESD – protection: Standard precautionary measures are sufficient.
- Storage: Devices stored in Trays or (for bigger volumes) Embossed Carrier Tape
  Maximum storage time 12 months.

- Avoid skin contact with window!
- Clean window with Ethyl alcohol if necessary.
- Do not scratch or abrade window.

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