

SSO-AD-1900-TO5i

SSO-AD-2500-TO5i

Avalanche Photodiode

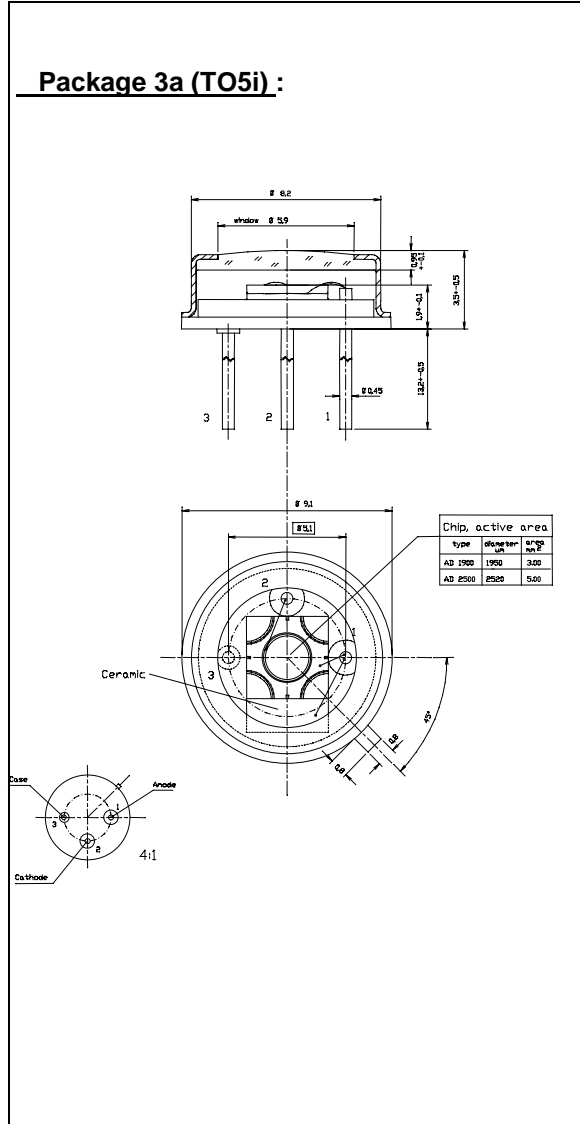
Special characteristics:

High gain at low bias voltage
 Fast rise time
 1900 or 2500 μm diameter active area
 low capacitance

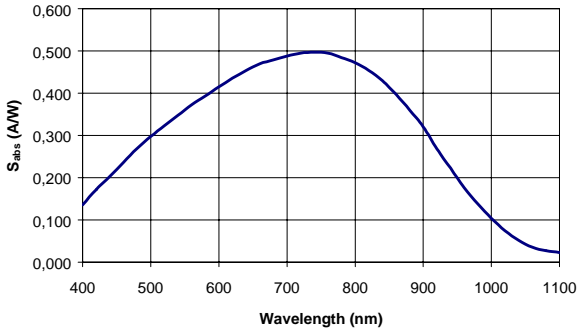


Parameters:	SSO-AD-1900 TO5i	SSO-AD-2500 TO5i
active area	1950 mm ² Ø 3,0 μm	2520 mm ² Ø 5,0 μm
dark current ¹⁾ (M=100)	typ. 10,0 nA	typ. 20,0 nA
Total capacitance ¹⁾ (M=100)	typ. 20 pF	typ. 40 pF
Break-down voltage U _{BR} (at I _D =2 μA)	160 V	160 V
Temperature coefficient of U _{BR}	typ. 0,4 %/°C	typ. 0,4 %/°C
Spectral responsivity (at 780 nm)	typ. 0,45 A/W	typ. 0,45 A/W
Cut-off frequency (-3dB)	typ. 0,18 GHz	typ. 0,27 GHz
Rise time	typ. 1,3 ns	typ. 2 ns
Gain M	100	100
"Excess Noise" factor (M=100)		typ.
"Excess Noise" index (M=100)		typ.
Noise current (M=100)		typ. pA/Hz ^{1/2}
N.E.P. (M=100, 880 nm)	typ. 1,5 * 10 ⁻¹³ W/Hz ^{1/2}	typ. 3 * 10 ⁻¹³ W/Hz ^{1/2}
Operating temperature	-20 ... +70°C	-20 ... +70°C
Storage temperature	-60 ... +100°C	-60 ... +100°C

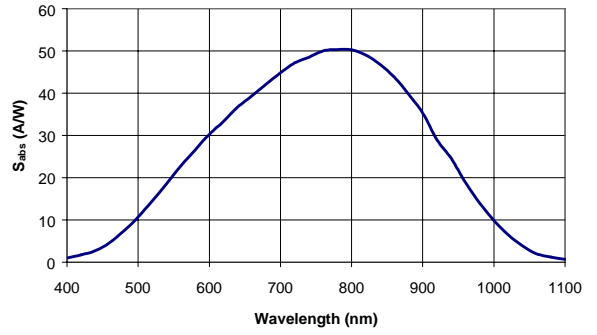
1) **measurement conditions:**
 Setup of photo current 10nA at M=1 and irradiation by a NIR-LED (880 nm, 80 nm bandwidth).
 Rise of the photo current up to 1 μA , (M=100) by internal multiplication due to an increasing bias voltage.



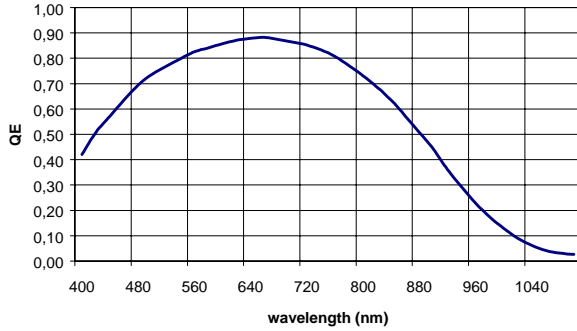
SSO - AD - serie
Spectral Responsivity at M=1



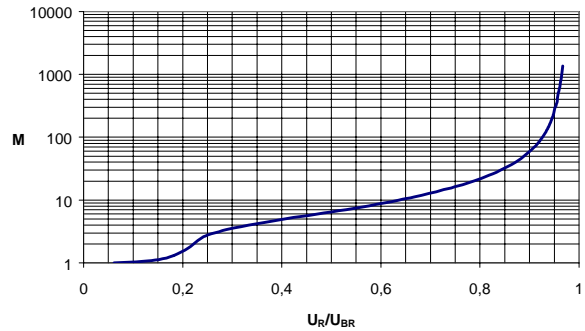
SSO - AD - serie
Spectral Responsivity at M=100



SSO - AD - serie
quantum efficiency for M=1



SSO - AD - serie (versions 500, 800, 1100, 2500)
gain = f(U_R/U_{BR}) at λ=880 nm



Maximum Ratings:

- max. electrical power dissipation 100 mW at 22°C
 - max. optical peak value, once 200 mW for 1 s
 - max. continuous optical operation I_{Ph} (DC) ≤ 250 μA
 - ≤ 1 mA for signal 50 μs "on" / 1 ms "out"
- (P_{electr.} = P_{opt.} * S_{abs} * M * U_R)

Application hints:

- Current limit is to be realized via protecting resistor or current limiting - IC inside the supply voltage.
- Use of low noise read-out - IC.
- For higher gain a regulation of bias voltage due to the temperature is to be realized.
- For very small signals stray light (noise source) is to be excluded by filters in order to improve the signal-noise relation.
- Avoid touching the window with fingers!
- Careful cleaning with Ethyl alcohol possible.
- Avoid use of pointed and scratching tools!

Handling precautions:

- Soldering temperature 260°C for max. 10 s. The device must be protected against solder flux vapour!
- min. Pin - length 2mm
- ESD - protection Only small danger for the device. Standard precautionary measures are sufficient.
- Storage Store devices in conductive foam.

