

SSO-AD-500 NIR-TO52-S1

Avalanche Photodiode NIR

Special characteristics:

quantum efficiency >80% at λ 760-910 nm

high speed, low noise

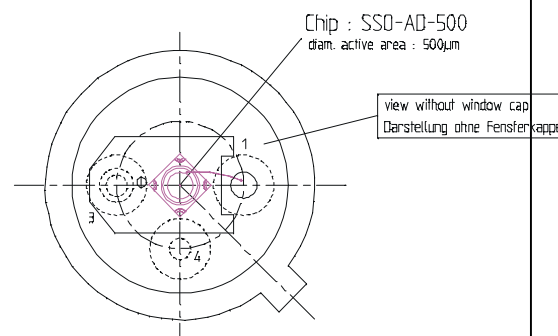
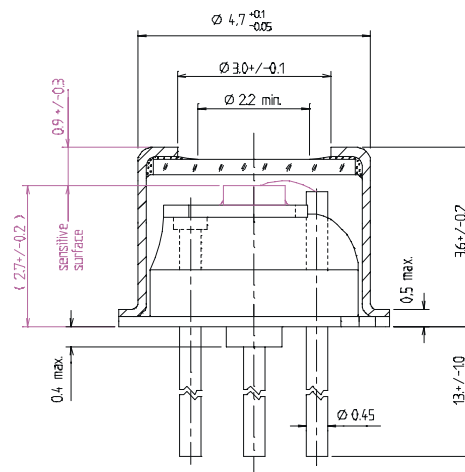
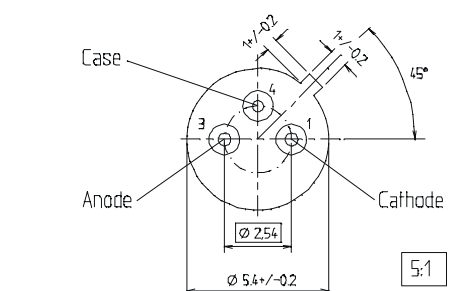
500 μm diameter active area

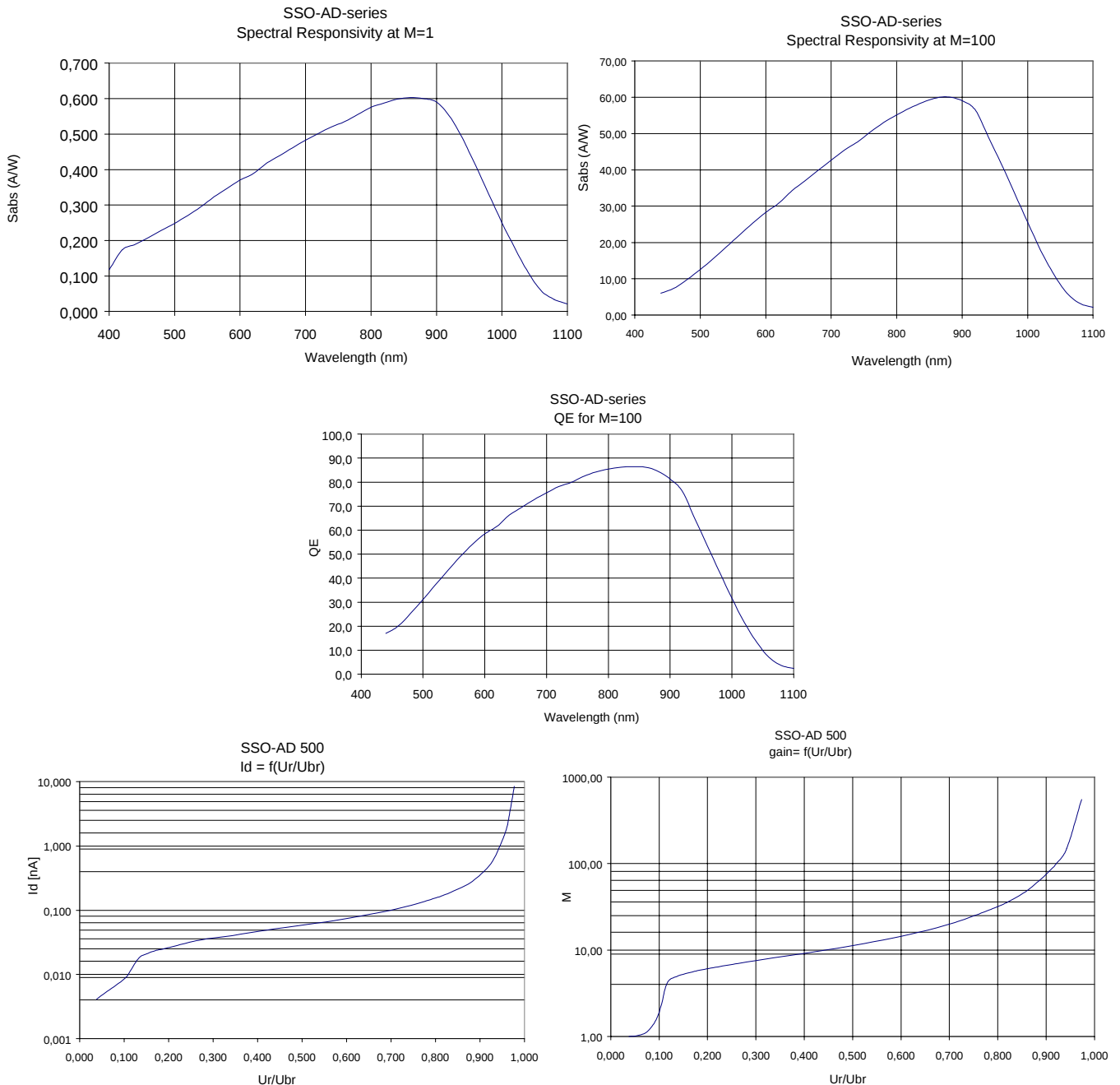
low slope multiplication curve



Parameters:	
active area	0,196 mm ² Ø 500 μm
dark current ¹⁾ (M=100)	max. 5 nA typ. 0,5 - 1 nA
Total capacitance ¹⁾ (M=100)	typ. 1,2 pF
Break-down voltage U _{BR} (at I _D =2 μA)	120 - 300 V
Temperature coefficient of U _{BR}	typ. 0,55 %/°C
Spectral responsivity (at 780 nm)	min. 0,55 A/W typ. 0,60 A/W
Cut-off frequency (-3dB)	400 MHz 550 MHz
Rise time	550 ps 300 ps
Optimum gain	50 - 60
Gain M	min 200
"Excess Noise" factor (M=100)	typ. 2,5
"Excess Noise" index (M=100)	typ. 0,2
Noise current (M=100)	typ. 1 pA/Hz ^{1/2}
N.E.P. (M=100, 880 nm)	typ. 2 * 10 ⁻¹⁴ W/Hz ^{1/2}
Operating temperature	-20 ... +70°C
Storage temperature	-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.	

Package (TO52 S1) :





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 $I_{ph} (DC) \leq 250 \mu A$
 $\leq 1 \text{ mA}$ 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.

