

# SSO-AD-230 NIR-T052-S1

## Avalanche Photodiode NIR

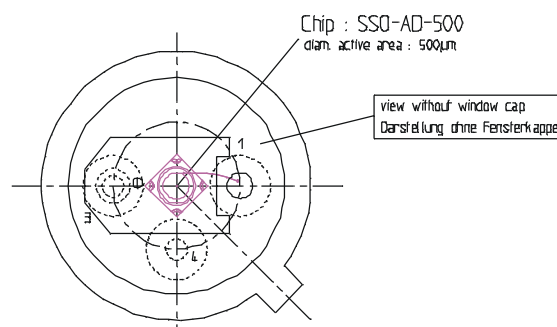
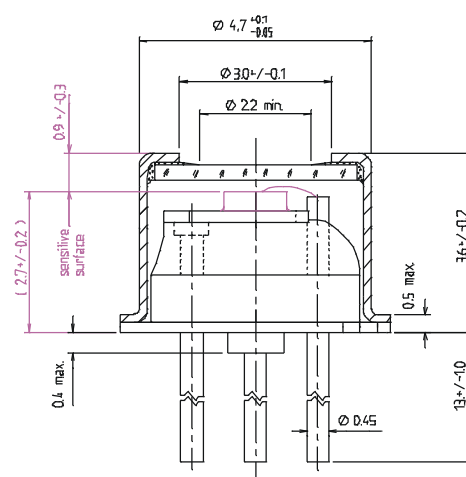
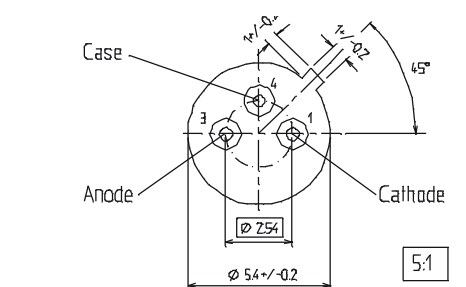
### Special characteristics:

quantum efficiency >80% at ? 760-910 nm  
 high speed, low noise  
 230 µm diameter active area  
 low slope multiplication curve

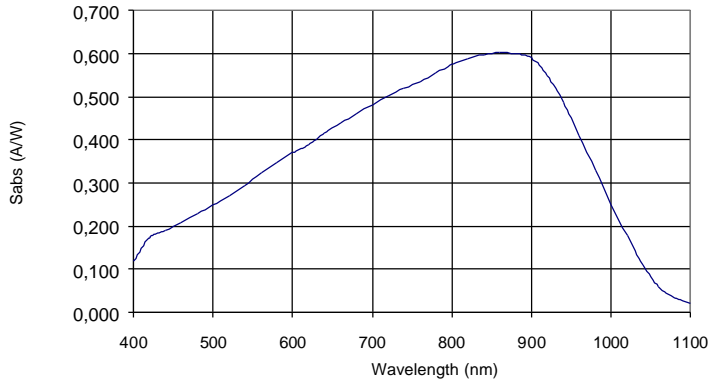


<b>Parameters:</b>	
active area	0,042 mm <sup>2</sup> ? 230 µm
dark current <sup>1)</sup> (M=100)	max. 1,5 nA typ. 0,6 nA
Total capacitance <sup>1)</sup> (M=100)	typ. 0,8 pF
Break-down voltage U <sub>BR</sub> (at I <sub>D</sub> =2µA)	120 ... 300 V
Temperature coefficient of U <sub>BR</sub>	typ. 0,55 %/°C
Spectral responsivity (at 780 nm)	min. 0,55 A/W typ. 0,6 A/W
Cut-off frequency (-3dB)	400 MHz 600 MHz
Rise time	550 ps 250 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. 0,5 pA/Hz <sup>1/2</sup>
N.E.P. (M=100, 880 nm)	typ. 1 * 10 <sup>-14</sup> W/Hz <sup>1/2</sup>
Operating temperature	-20 ... +70°C
Storage temperature	-60 ... +100°C
<b>1) measurement conditions:</b> Setup of photo current 1.0 nA at M=1 and irradiation by a NIR-LED (880 nm, 80 nm bandwidth).  Rise of the photo current up to 100 nA, (M=100) by internal multiplication due to an increasing bias voltage.	

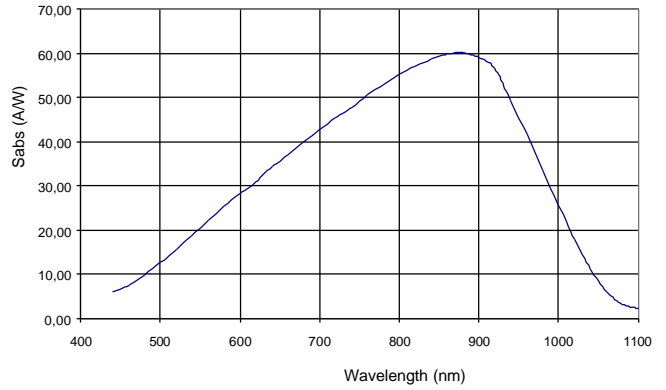
### Package (T052 S1) :



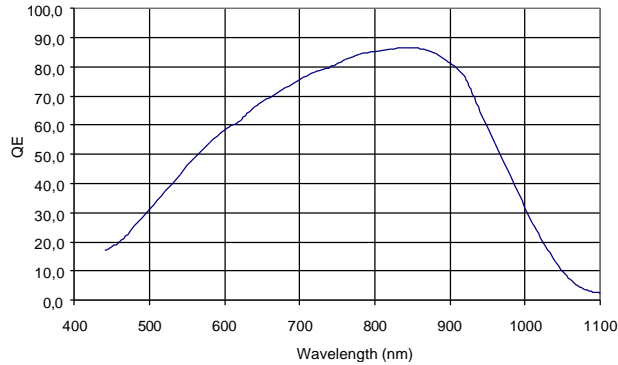
SSO-AD-series  
Spectral Responsivity at M=1



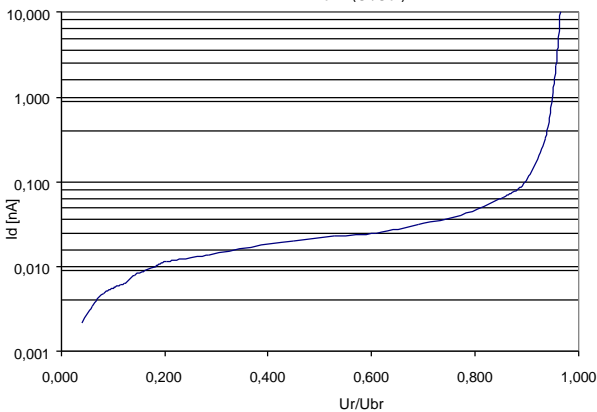
SSO-AD-series  
Spectral Responsivity at M=100



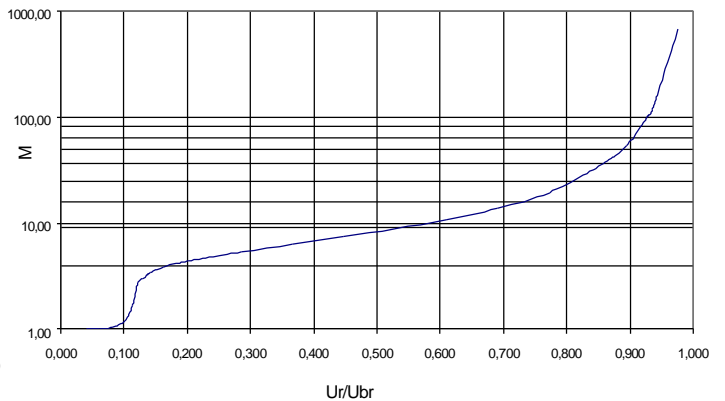
SSO-AD-series  
QE for M=100



SSO-AD 230  
 $I_d = f(U_r/U_{br})$



SSO-AD 230  
 $gain = f(U_r/U_{br})$

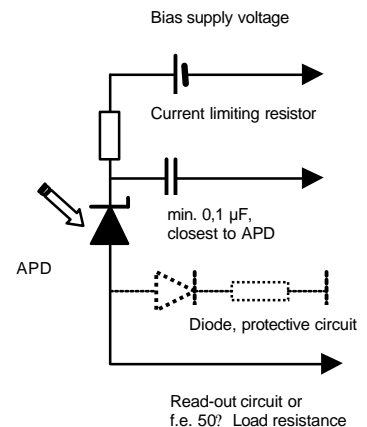


### Maximum Ratings:

- ? 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  $\mu$ A
- ? ? 1 mA for signal 50  $\mu$ s "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.