AD230-8 TO52S1

Avalanche Photodiode

Special characteristics:

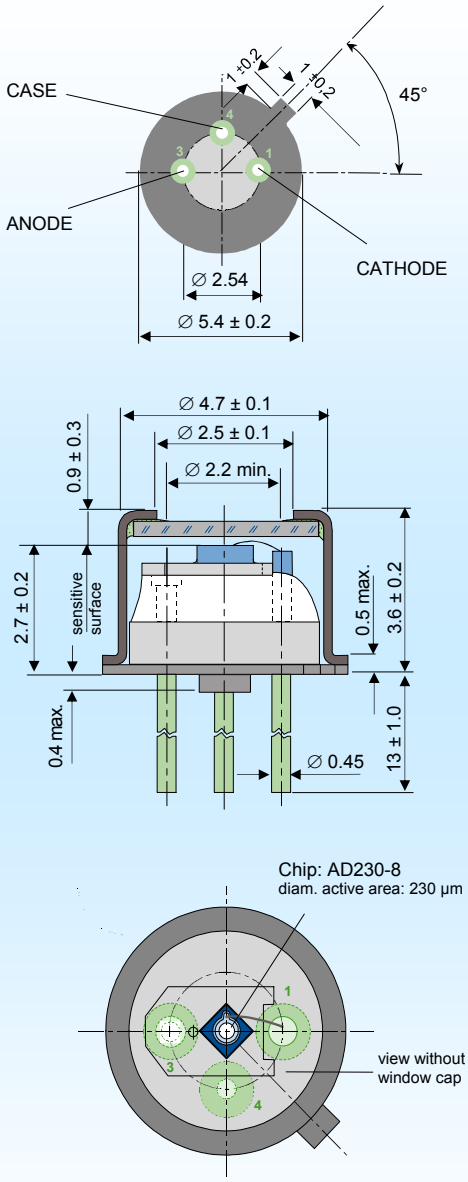
high gain at low bias voltage
fast rise time
230 µm diameter active area
low capacitance

Parameters:	
Active Area	0.042 mm^2 ∅ 230 µm
Dark Current [1)] (M = 100)	max. 1.5 nA typ. 0.6 nA
Total Capacitance [1)] (M = 100)	typ. 1.2 pF
Breakdown Voltage U_{BR} (at I_D = 2µA)	90 … 240 V typ. 120 … 190 V
Temperature Coefficient of U_{BR}	typ. 0.45 V/K
Spectral Responsivity (at 800 nm, M = 100)	min. 45 A/W typ. 50 A/W
Cut-off Frequency (-3dB)	typ. 2.0 GHz
Rise Time	typ. 180 ps
Optimum Gain	50 - 60
Max. Gain	> 200
"Excess Noise" factor (M=100)	typ. 2.2
"Excess Noise" index (M = 100)	typ. 0.2
Noise Current (M = 100)	typ. 0.5 pA/Hz^{½}
N.E.P. (M = 100, 800 nm)	typ. 1* 10^{-14} W/Hz^{½}
Operating Temperature Storage Temperature	-20 ... +70 °C -60 ... +100 °C

1) measurement conditions:
Setup of photo current 1.0 nA at M = 1 and irradiation by a LED (680 nm, 60 nm bandwith).

Increase the photo current up to 1 µA, (M = 100) by internal multiplication due to an increasing bias voltage.

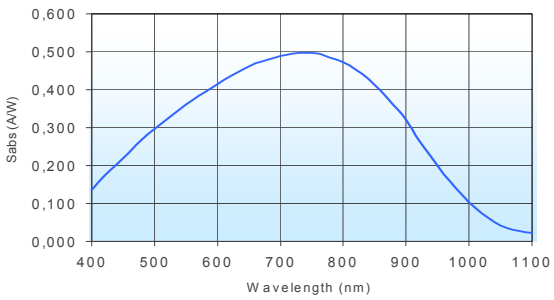
Package (TO52 S1):



Version: 03-05-06
Specification before: SSO-AD-230-8-TO52-S1

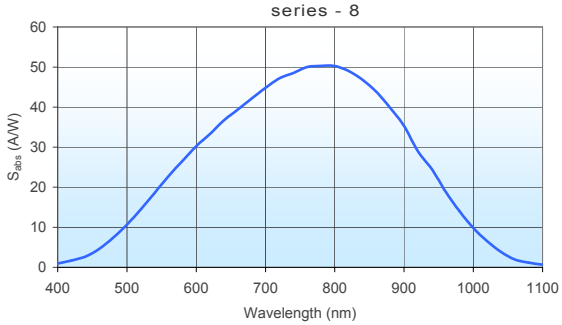
Spectral Responsivity at M=1

series - 8



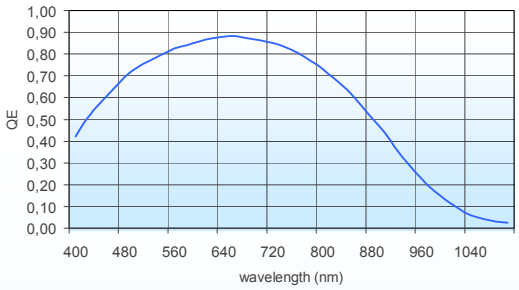
Spectral Responsivity at M=100

series - 8



quantum efficiency for M=1

series - 8



$C_{tot}=f(U_R)$

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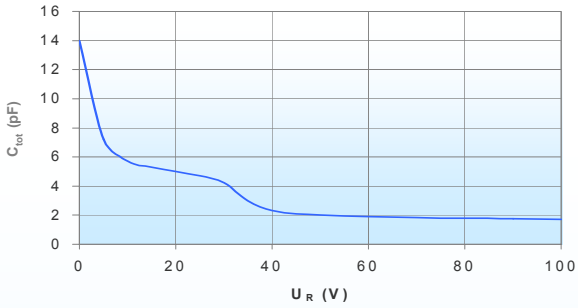

$I_D = f(U_R)$

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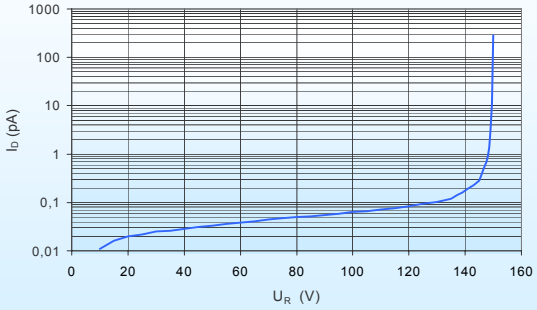

gain = $f(U_R/U_{BR})$

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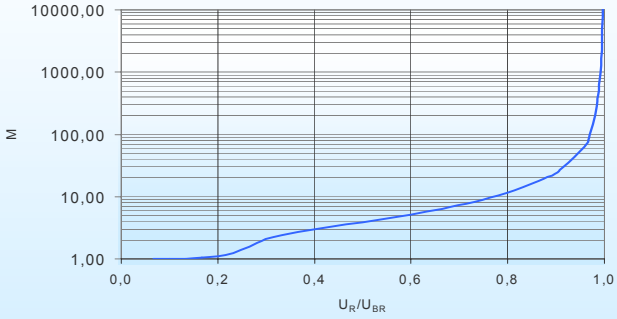
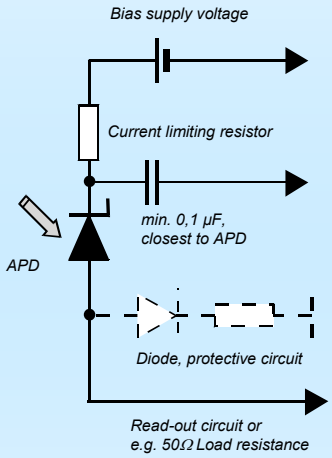


Maximum Ratings:

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

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.
- For high gain applications bias voltage should be temperature compensated.
- For low light level applications, blocking of ambient light should be used.



Handling Precautions:

- Soldering temperature — 260 °C for max. 10 s. The device must be protected against solder flux vapour!
- min. Pin - length — 2 mm
- ESD - protection — Standard precautionary measures are sufficient.
- Storage — Store devices in conductive foam.
- Avoid skin contact with window!
- Clean window with Ethyl alcohol if necessary.
- Do not scratch or abrade window.

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