



Applications

Currently Available

Hamamatsu S11519 Series



General ratings / absolute maximum ratings

Type no.	Window material*1	Package	Active area size*2 (mm)	Absolute maximum ratings	
				Operating temperature Topr (°C)	Storage temperature Tstg (°C)
S11519-10	K	TO-5	φ1.0	-20 to +85	-55 to +125
S11519-30	K	TO-8	φ3.0		

*1: K=borosilicate glass

*2: Area in which a typical gain can be obtained

Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Type no.	Spectral response range λ (nm)	Peak sensitivity wavelength*3 λp (nm)	Breakdown voltage VBR ID=100 μA		Temp. coefficient of VBR ID=100 μA (V/°C)	Dark current*3 ID		Terminal capacitance*3 Ct (pF)	Cut-off frequency*3 fc RL=50 Ω (MHz)	Excess noise figure*3 x λ=890 nm	Gain M λ=890 nm
			Typ. (V)	Max. (V)		Typ. (nA)	Max. (nA)				
S11519-10	600 to 1150	960	350	500	1.7	3	30	2.0	400	0.3	100
S11519-30						9	90	12.0	230		

*3: Values measured at a gain listed in the characteristics table

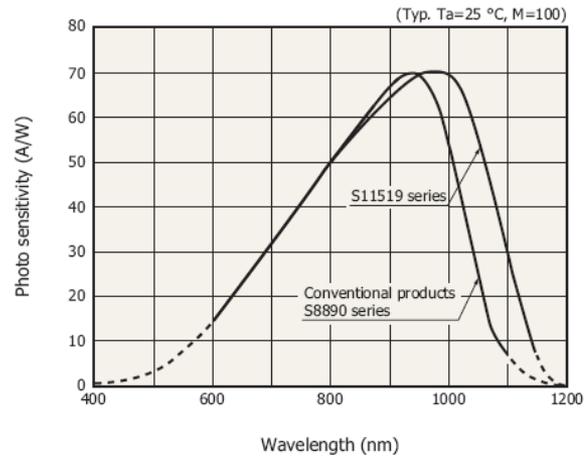
$$M^x = kM + (1-k)(2-M^{-1})$$



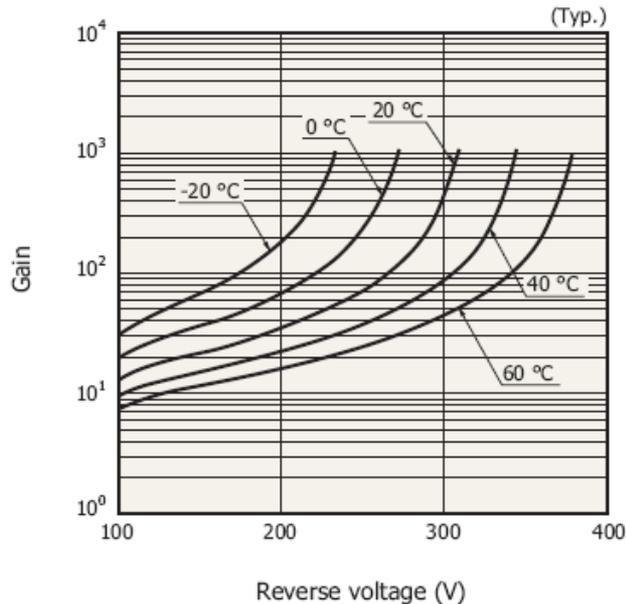
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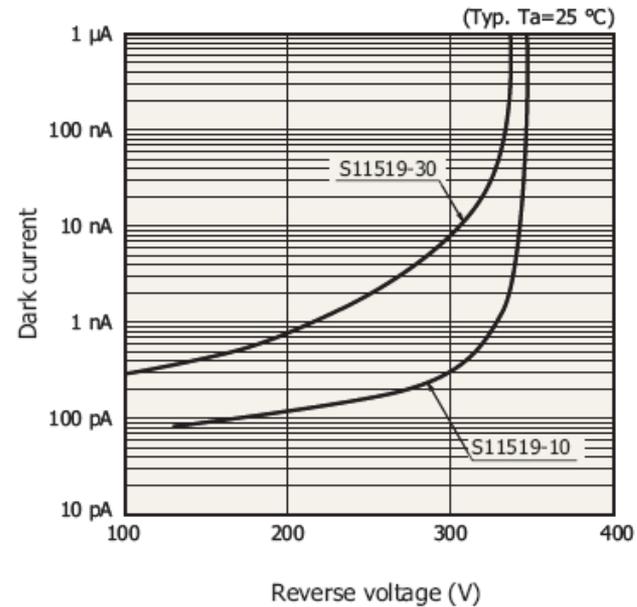
▣ Spectral response



▣ Gain vs. reverse voltage



▣ Dark current vs. reverse voltage



Name: _____

Date: _____

1. How might you use this APD? Judging by the ratings and characteristics listed, is this linear-mode or Geiger mode? Is it being used as a photon-counter or as an amplifier?
2. Based on the Electrical and Optical Characteristics table, what would the typical breakdown voltage be at 253 K? (note: breakdown voltage decreases with temperature)
3. What is the value of k for this device? (note, this company has used the M^x metric)

4. Suppose you biased your S11519-30 to 300 V and exposed it to a filtered signal of wavelength 1 μm . The device is operating at 25 degrees C. You measure a signal of 30 nA. What is the flux on the detector in photons/s?