

Si APD S12427-02

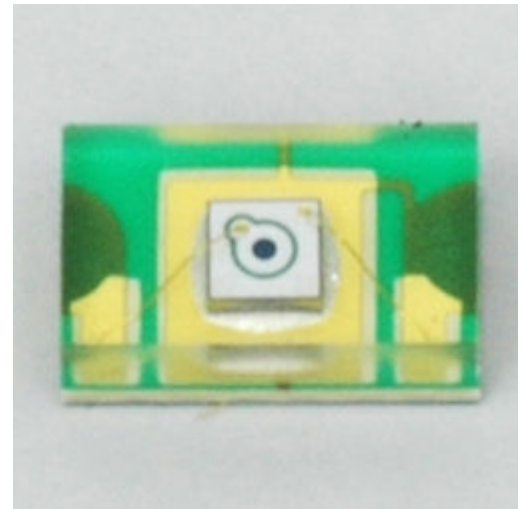
Low bias operation
For 760nm band
Small package

■ Features

- Miniature and thin package 1.8 x 3.1 x 1.0^t mm
- Stable operation at low bias
- High-speed response
- High sensitivity
- Low noise

■ Application

- Optical rangefinder
- Laser Rader
- FSO (free space optics)



■ General ratings

Parameter	Symbol	S12427-02	Unit
Active area size ^{*1}	A	φ0.2	mm
Effective active area	-	0.03	mm ²
Package	-	Plastic	-

*1:Active area in which a typical gain can be obtained

■ Absolute maximum ratings

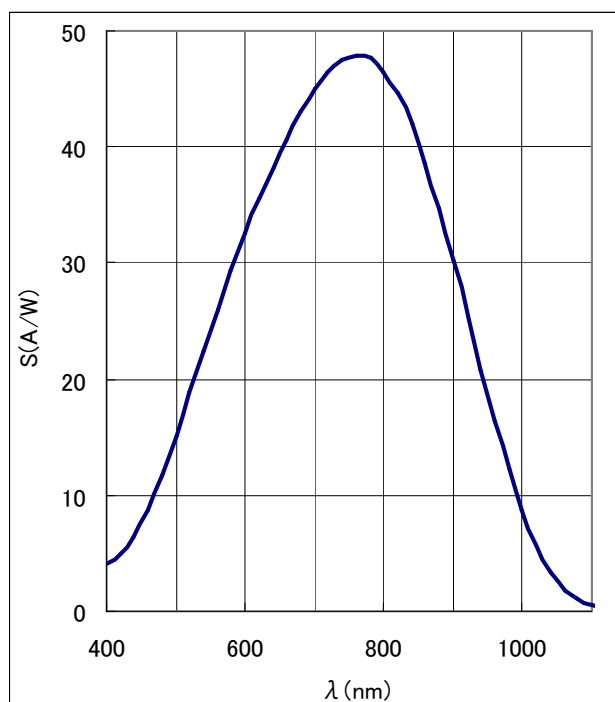
Parameter	Symbol	Value	Unit
Operating temperature	Topr	-20 to +60	°C
Storage temperature	Tstg	-40 to +80	°C
Reverse current	I _{rmax}	200	μA
Forward current	I _{fmax}	10	mA

■ **Electrical and optical characteristics (Ta=25 °C)**

Parameter	Symbol	Condition	S12427-02			Unit
			Min.	Typ.	Max.	
Spectral response range	λ	M=1	400 to 1000			nm
Peak sensitivity wavelength	λ_p	M=100	-	760	-	nm
Photo sensitivity	S	M=1, $\lambda=760\text{nm}$	-	0.48	-	A/W
Quantum efficiency	QE	M=1, $\lambda=760\text{nm}$	-	78	-	%
Breakdown voltage	VBR	$I_D=100\mu\text{A}$	80	100	120	V
Temperature coefficient of VBR	γ		-	0.42	-	V/°C
Dark current	I_D	M=100	-	0.05	0.5	nA
Cut-off frequency	f_c	M=1, $\lambda=760\text{nm}$ $R_L=50\Omega$, -3dB	-	1500	-	MHz
Terminal capacitance	C_t	M=100, $f=1\text{MHz}$	-	1.2	-	pF
Excess noise index	x	M=100, $\lambda=760\text{nm}$	-	0.3	-	
Gain	M	$\lambda=760\text{nm}$	-	100	-	

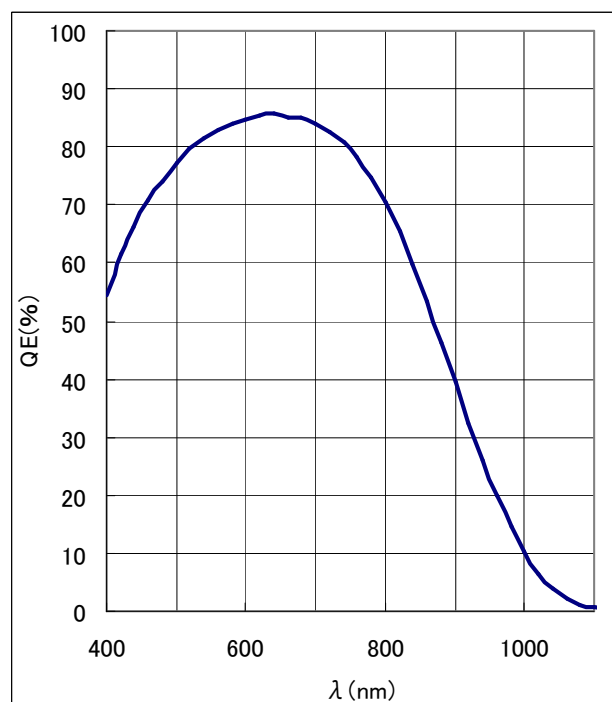
■ **Spectral response**

(Typ. Ta=25 °C , M=100)

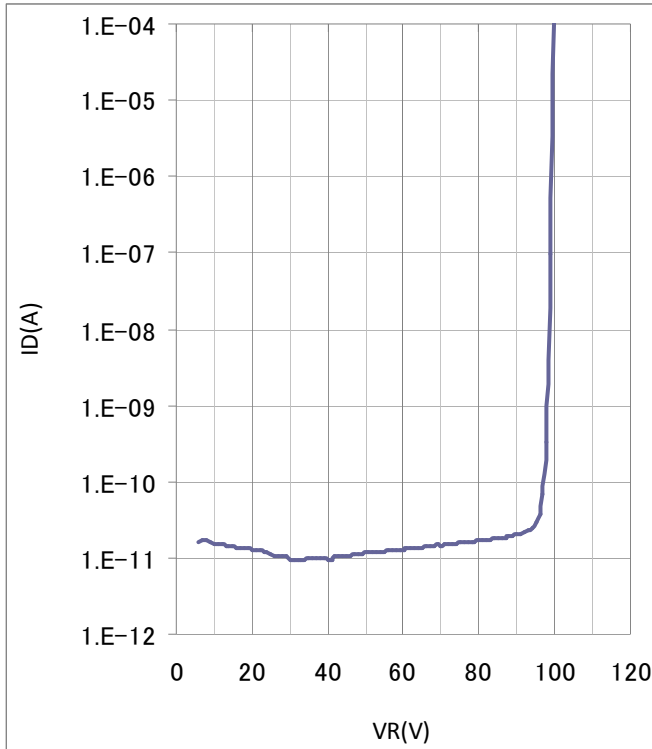


■ **Quantum efficiency vs. wavelength**

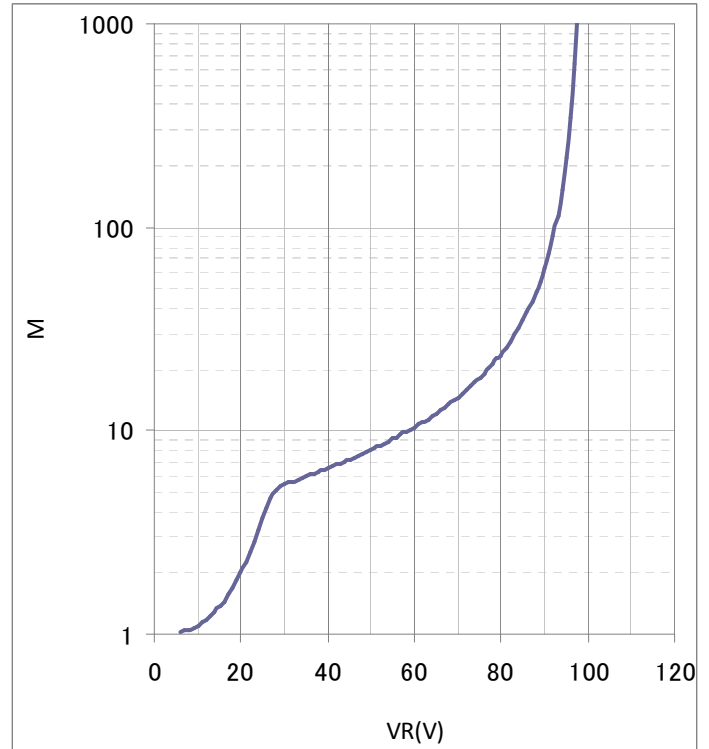
(Typ. Ta=25 °C)



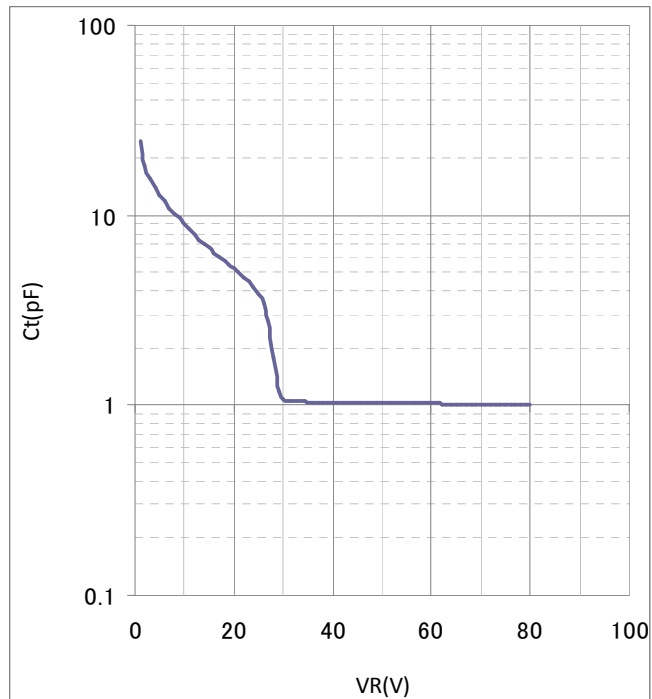
■ **Dark current vs. reverse voltage**
(Typ. Ta=25 °C)



■ **Gain vs. reverse voltage**
(Typ. Ta=25 °C)

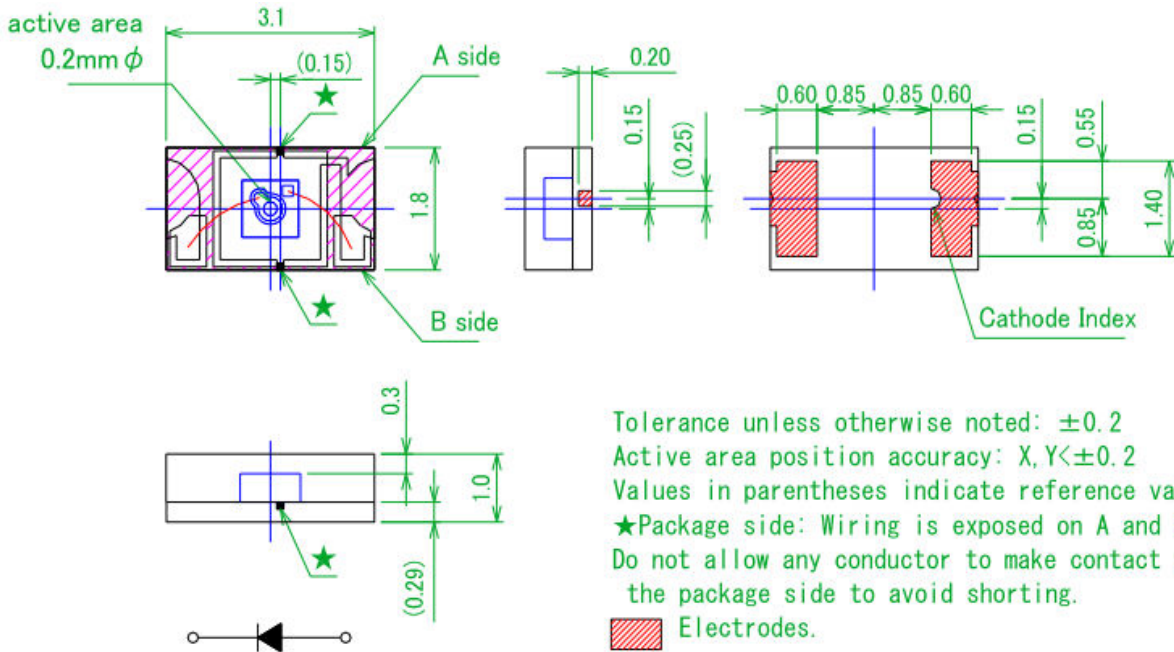


■ **Terminal capacitance vs. reverse voltage**
(Typ. Ta=25 °C, f=1MHz)

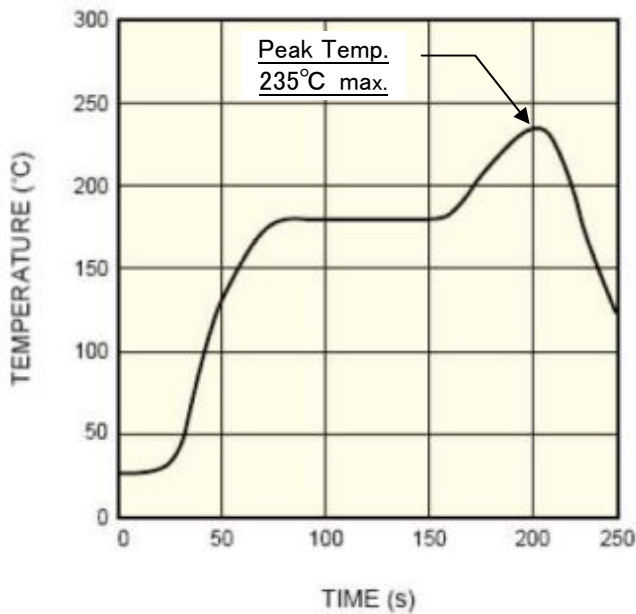


■ **Dimensional outline** (unit: mm, Tolerance: ± 0.2 mm unless otherwise noted)

S12427-02



■ **Recommended solder reflow condition**



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