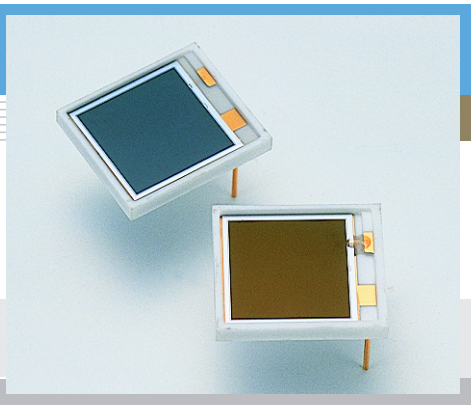
Si PIN photodiode
S3590-18/-19

Large area Si PIN photodiode for scintillation counting



Features

- Suitable for coupling with blue scintillator (LSO, GSO, etc.)
- Internal quantum efficiency: 100 % (λ=420 nm)
- S3590-19: bare chip type (without window)

Applications

- Radiation detection (PET, etc.)
- X-ray detection

■ Absolute maximum ratings

Parameter	Symbol	Value	Unit
Reverse voltage	V_R	100	V
Power dissipation	P	100	mW
Operating temperature	Topr	-20 to +60	°C
Storage temperature	Tstg	-20 to +80	°C

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

Parameter	Symbol	Condition	S3590-18			S3590-19			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Spectral response range	λ		-	320 to 1100	-	-	320 to 1100	-	nm
Peak sensitivity wavelength	λp		-	960	-	-	960	-	nm
Photo sensitivity	S	λ=λp	-	0.65	-	-	0.58	-	A/W
		λ=420 nm (LSO)	-	0.28	-	-	0.33	-	A/W
		λ=480 nm (BGO)	-	0.34	-	-	0.37	-	A/W
		λ=540 nm (CsI)	-	0.38	-	-	0.4	-	A/W
Short circuit current	Isc	100 *lx*	-	100	-	-	86	-	μA
Dark current	I_D	V_R=70 V	-	4	10	-	4	10	nA
Temperature coefficient of I_D	T_{CID}		-	1.12	-	-	1.12	-	times/°C
Cut-off frequency	fc	V_R=70 V, -3 dB R_L=50 Ω	-	40	-	-	40	-	MHz
Terminal capacitance	Ct	V_R=70 V, f=1 MHz	-	40	-	-	40	-	pF
Noise equivalent power	NEP		-	7.6×10^{-14}	-	-	7.6×10^{-14}	-	$W/Hz^{1/2}$

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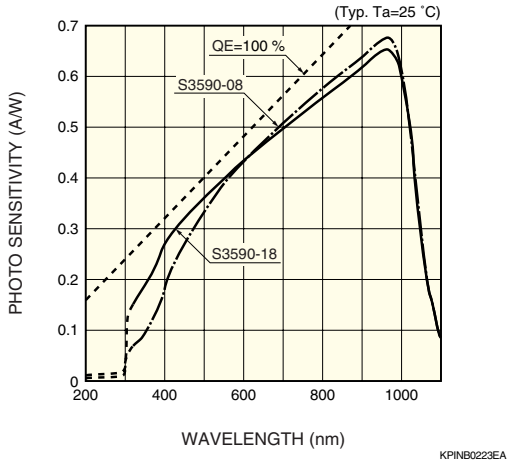
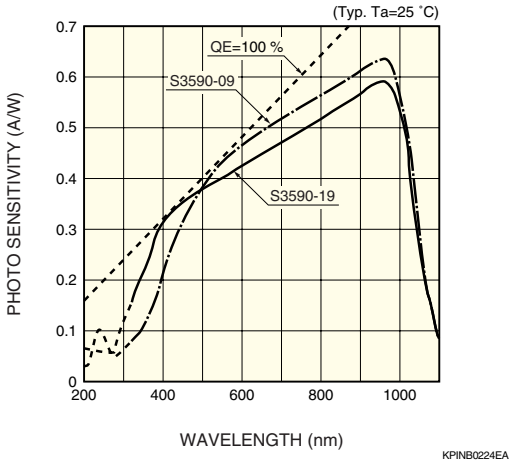
■ Spectral response

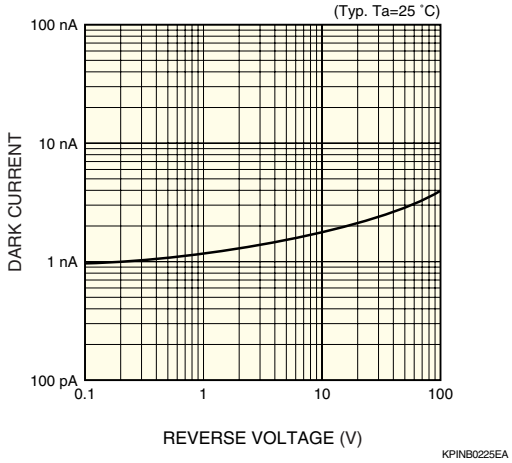
S3590-18



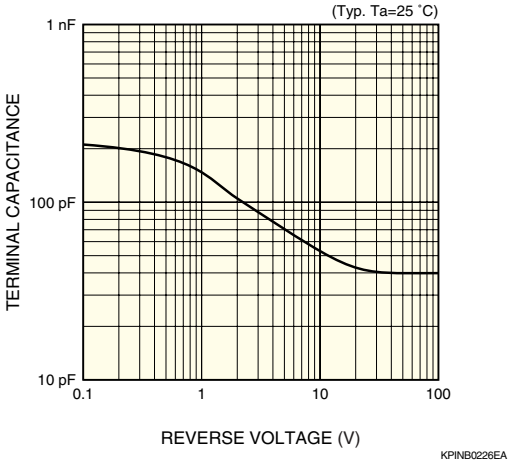
S3590-19 (Bare chip type)



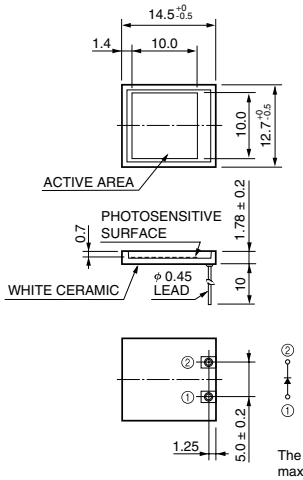
■ Dark current vs. reverse voltage



■ Terminal capacitance vs. reverse voltage



■ Dimensional outline (unit: mm)



The coating resin may extend a maximum of 0.1 mm beyond the upper surface of the package.

KPINA0098EA

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