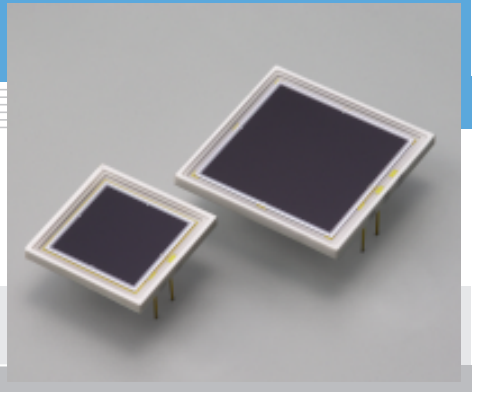


Si PIN photodiode S3204/S3584 series

Large area sensors for scintillation detection



S3204/S3584 series are large area Si PIN photodiodes having an epoxy resin window. These photodiodes are also available without window.

Features

- Higher sensitivity and low dark current than conventional type
- Sensitivity matching with BGO and CsI (TI) scintillators
- High quantum efficiency QE=85 % ($\lambda=540$ nm)
- Low capacitance
- High-speed response
- High stability
- Good energy resolution

Applications

- Scintillation detectors
- Calorimeters
- Hodoscopes
- TOF counters
- Air shower counters
- Particle detectors, etc.

■ General ratings / Absolute maximum ratings

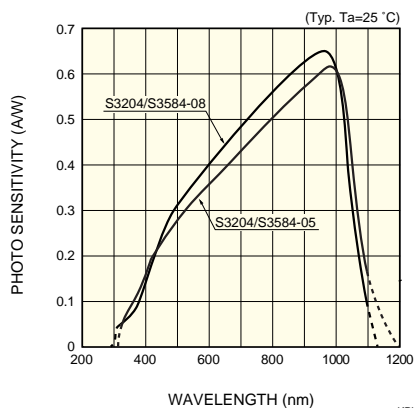
Type No.	Dimensional outline	Window material	Active area (mm)	Depletion layer thickness (mm)	Absolute maximum ratings			
					Reverse voltage V_R Max.	Power dissipation P (mW)	Operating temperature T_{opr} (°C)	Storage temperature T_{stg} (°C)
S3204-05	①	Epoxy resin	18 × 18	0.5	150	100	-20 to +60	-20 to +80
S3204-06		Window-less						
S3204-08		Epoxy resin		0.3	100			
S3204-09		Window-less						
S3584-05	②	Epoxy resin	28 × 28	0.5	150	100	-20 to +60	-20 to +80
S3584-06		Window-less						
S3584-08		Epoxy resin		0.3	100			
S3584-09		Window-less						

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

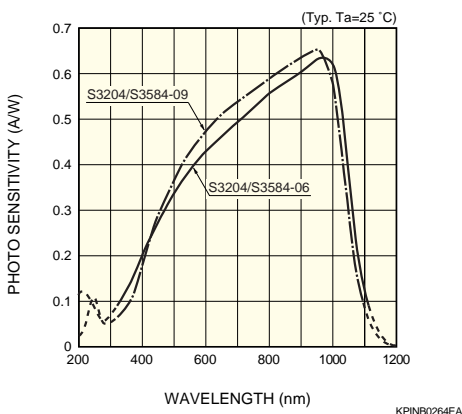
Type No.	Spectral response range λ (nm)	Peak sensitivity wavelength λ_p (nm)	Photo sensitivity S				Short circuit current I_{sc} 100 lx (μ A)	Dark current I_D $V_R=100$ V		Temp. coefficient of I_D T_{CID} (times/°C)	Cut-off frequency f_c $V_R=100$ V -3 dB (MHz)	Terminal capacitance C_t $f=1$ MHz $V_R=100$ V (pF)	NEP $V_R=100$ V ($W/Hz^{1/2}$)
			$\lambda=\lambda_p$ (A/W)	LSO 420 nm (A/W)	BGO 480 nm (A/W)	CsI(Tl) 540 nm (A/W)		Typ.	Max.				
S3204-05	320 to 1120	980	0.62	0.19	0.25	0.3	310	15	50	1.12	20	80	1.2×10^{-13}
S3204-06			0.64	0.23	0.32	0.39							
S3204-08	320 to 1100	960	0.66	0.20	0.3	0.36	340	6 *	20 *		20 *	130 *	6.6×10^{-14} *
S3204-09			0.66	0.22	0.33	0.41							
S3584-05	320 to 1120	980	0.62	0.19	0.25	0.3	740	20	100	1.12	10	200	1.3×10^{-13}
S3584-06			0.64	0.23	0.32	0.39							
S3584-08	320 to 1100	960	0.66	0.20	0.3	0.36	780	10 *	30 *		10 *	300 *	8.6×10^{-14} *
S3584-09			0.66	0.22	0.33	0.41							

*1: $V_R=70$ V

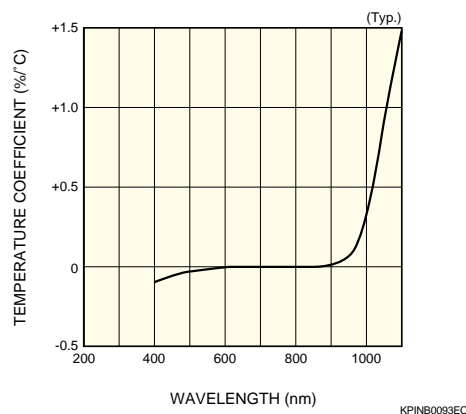
■ Spectral response



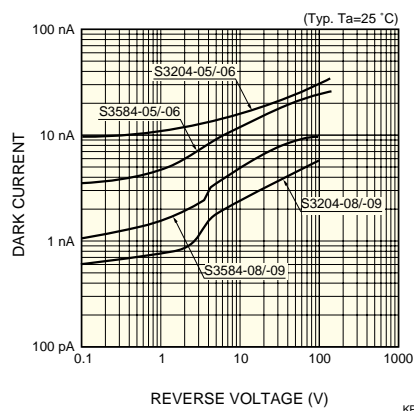
■ Spectral response (without window)



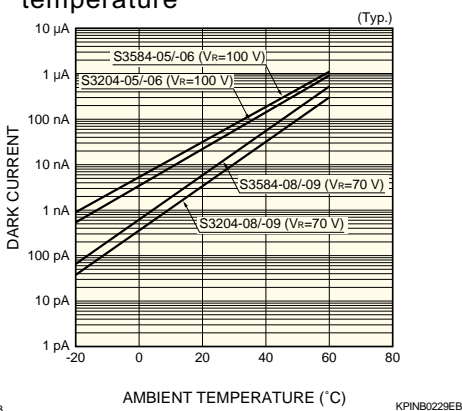
■ Photosensitivity temperature characteristic



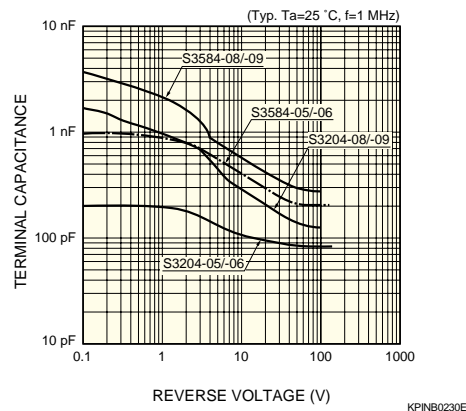
■ Dark current vs. reverse voltage



■ Dark current vs. ambient temperature

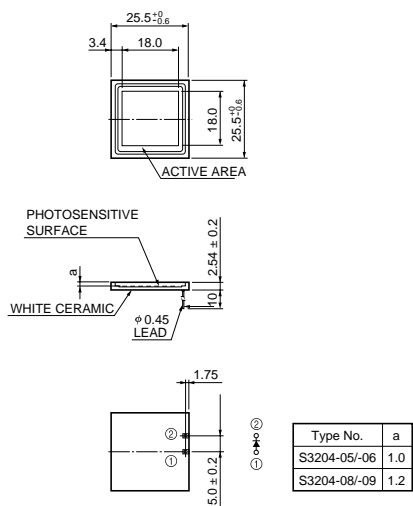


■ Terminal capacitance vs. reverse voltage

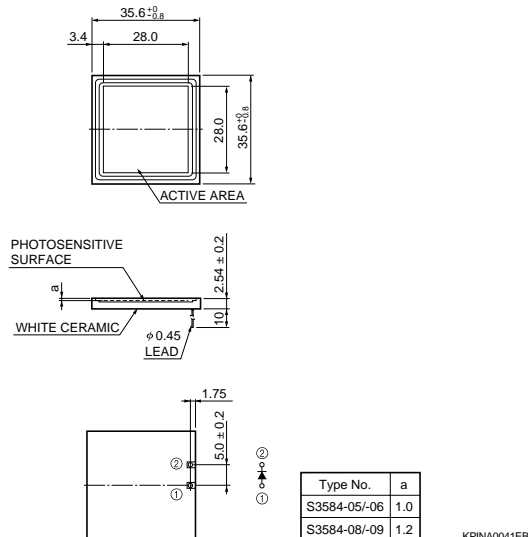


■ Dimensional outlines (unit: mm)

① S3204 series



② S3584 series



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