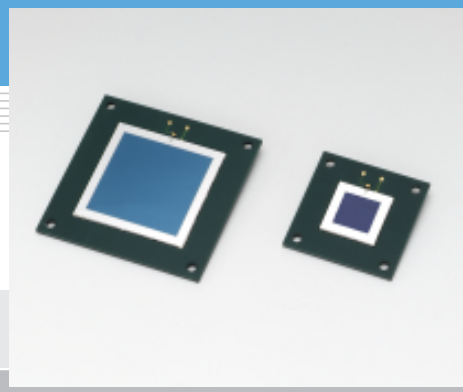


Si PIN photodiode S9723, S9724

Large area Si PIN photodiode for direct detection



S9723 and S9724 are large-area Si detectors specifically designed for the direct detection of high-energy charged particles and X-rays. These Si detectors are mounted on PC boards with holes for the purpose of ΔE -E detection of charged particles. These detector's thicknesses are $100 \pm 5 \mu\text{m}$ (S9723) and $10 \pm 2.5 \mu\text{m}$ (S9724). Thickness uniformities of the active area are as good as $2.0 \mu\text{m}$ Typ. (S9723) and $1.0 \mu\text{m}$ Typ. (S9724). This ensures excellent sensitivity uniformity over the entire active area.

Features

- Large area
- Low dark current
- Thickness uniformity *1 : $2 \mu\text{m}$ (S9723)
 $1 \mu\text{m}$ (S9724)
- Active area : $26 \times 26 \times 0.1 \text{ }^{\text{t}}\text{mm}$ (S9723)
 $10 \times 10 \times 0.01 \text{ }^{\text{t}}\text{mm}$ (S9724)

Applications

- Heavy ions energy detection
- X-ray detection
- ΔE -E detection

■ Specifications/Absolute maximum ratings

Parameter	Symbol	S9723	S9724	Unit
Active area	-	26×26	10×10	mm
Detector thickness	-	100 ± 5	10 ± 2.5	μm
Thickness uniformity *1	-	2.0	1.0	μm
Surface orientation	-	(111)		-
Dead layer thickness *2	Front side	-	1	μm
	Rear side	-	1	
Reverse voltage	V_R Max.	20	2	V
Current	-	2		mA
Operating temperature *3	T_{opr}	0 to +60		$^{\circ}\text{C}$
Storage temperature *3	T_{stg}	0 to +80		$^{\circ}\text{C}$

*1: Variation in the detector thickness

*2: Reference value

*3: No condensation

■ Electrical and optical characteristics (Typ. $T_a=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Condition	S9723			S9724			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Full depletion voltage	V_D		-	5	10	-	0.5	1	V
Dark current	I_D	$V_R=V_D$	-	2	50	-	0.01	0.1	nA
Rise time	t_r	$V_R=V_D$, $R_L=50 \Omega$	-	80	-	-	100	-	ns
Terminal capacitance	C_t	$V_R=V_D$, $f=1 \text{ MHz}$	-	0.75	-	-	1	-	nF

