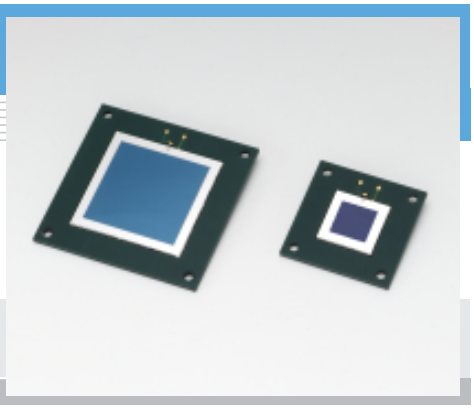
NEW

PHOTODIODE



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 ± 5 µm (S9723) and 10 ± 2.5 µm (S9724). Thickness uniformities of the active area are as good as 2.0 µm Typ. (S9723) and 1.0 µm Typ. (S9724). This ensures excellent sensitivity uniformity over the entire active area.

Features

- Large area
- Low dark current
- Thickness uniformity *1 : 2 µm (S9723)
  1 µm (S9724)
- Active area : 26 × 26 × 0.1 t mm (S9723)
  10 × 10 × 0.01 t 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		VR Max.	20	2	V
Current		-	2		mA
Operating temperature *3		Topr	0 to +60		°C
Storage temperature *3		Tstg	0 to +80		°C

*1: Variation in the detector thickness
*2: Reference value
*3: No condensation

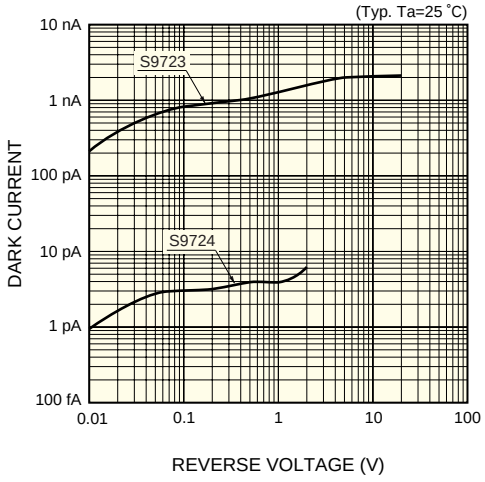
■ Electrical and optical characteristics (Typ. Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Condition	S9723			S9724			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Full depletion voltage	VD		-	5	10	-	0.5	1	V
Dark current	ID	VR=VD	-	2	50	-	0.01	0.1	nA
Rise time	tr	VR=VD, RL=50 Ω	-	80	-	-	100	-	ns
Terminal capacitance	Ct	VR=VD, f=1 MHz	-	0.75	-	-	1	-	nF

PRELIMINARY DATA
Sep. 2004

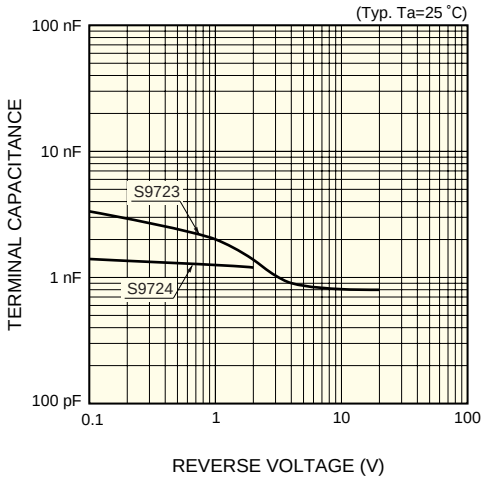
SOLID STATE DIVISION

■ Dark current vs. reverse voltage



KPINB0304EA

■ Terminal capacitance vs. reverse voltage



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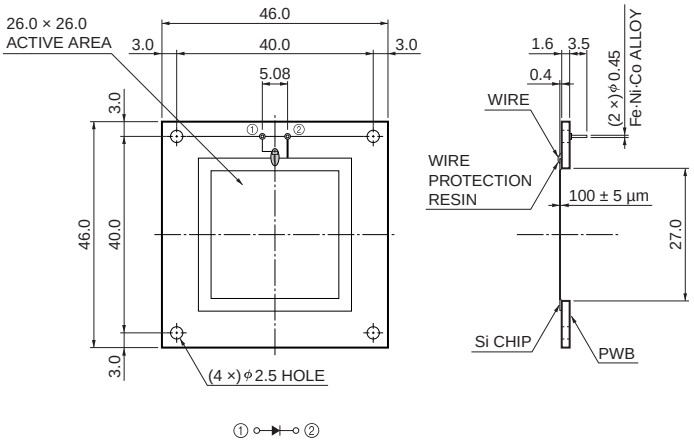
■ Dimensional outlines (unit: mm, tolerance unless otherwise noted: ±0.2)

S9723



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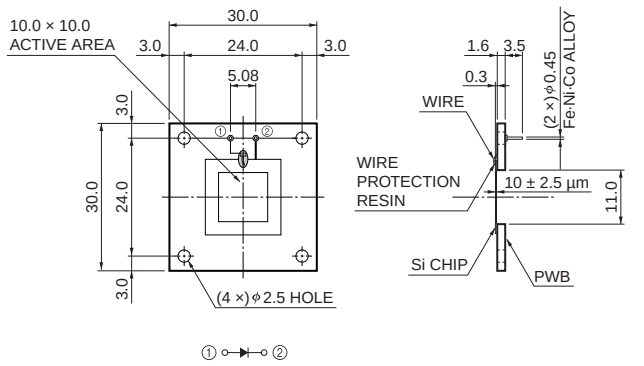
S9724



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