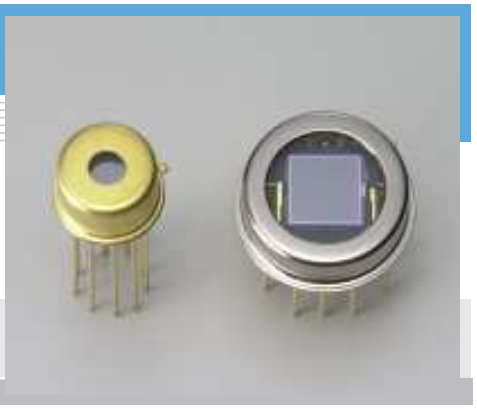
Si photodiode with preamp
S8745-01, S8746-01



Photodiode and preamp integrated with feedback resistance and capacitance

S8745-01, S8746-01 are low-noise sensors consisting of Si photodiode, op amp, and feedback resistance and capacitance, all integrated into a small package. By simply connecting to a power supply, S8745-01 and S8746-01 can be used in low-light-level measurement such as analytical equipment and measurement equipment. The active area of the photodiode is internally connected to the GND terminal making it highly resistant to EMC noise.

Features

- Si photodiode for UV to near IR precision photometry
- Small metal package with quartz window
  S8745-01: TO-5
  S8746-01: TO-8
- Active area
  S8745-01: 2.4 × 2.4 mm
  S8746-01: 5.8 × 5.8 mm
- FET input operational amplifier with low power dissipation
- Built-in Rf=1 GΩ and Cf=5 pF
- Variable gain with an externally connected resistor
- Low noise and NEP
- Package with shielding effect
- Resistant to EMC noise

Applications

- Spectrophotometry
- General-purpose optical measurement

S8745-01, S8746-01 may be damaged by Electro Static Discharge, etc. Please see Precautions for use in the last page.

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Supply voltage (op amp)	Vcc	±20	V
Power dissipation	P	500	mW
Operating temperature	Topr	-20 to +60	°C
Storage temperature	Tstg	-30 to +80	°C

■ Electrical and optical characteristics (Typ. Ta=25 °C, Vcc=±15 V, RL=1 MΩ, unless otherwise noted)

Parameter	Symbol	Condition	S8745-01	S8746-01	Unit
Spectral response range	λ		190 to 1100		nm
Peak sensitivity wavelength	λp		960		nm
Feedback resistance (built-in)	Rf		1		GΩ
Feedback capacitance (built-in)	Cf		5		pF
Photo sensitivity	S	λ=200 nm	0.12		V/nW
		λ=λp	0.52		
Output noise voltage	Vn	Dark state f=10 Hz	6	7	μVrms/Hz$^{1/2}$
		Dark state, f=20 Hz	5	6	
Noise equivalent power	NEP	λ=λp, f=10 Hz	11	15	fW/Hz$^{1/2}$
		λ=λp, f=20 Hz	11	15	
Output offset voltage	Vos	Dark state	±4		mV
Cut-off frequency	fc	-3 dB	32		Hz
Output voltage swing	Vo		13		V
Supply current	Icc	Dark state	0.3		mA

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