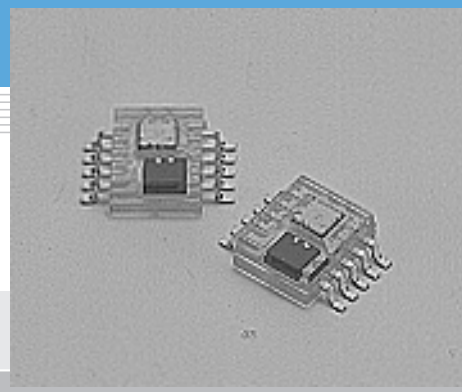


Photo IC for photometry

S6969

Built-in single-element photodiode and log amp



S6969 is designed for camera exposure meters. It consists of a single-element photodiode and an IC integrating a logarithmic amplifier circuit and a thermosensor.

Features

- Miniature clear plastic package (4.5 × 5.5 mm)
- Low noise
- Built-in thermosensor

Applications

- Camera auto exposure meter
- Various photometric applications

■ Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit	Note
Supply voltage	Vcc	-0.3 to +7	V	
Input voltage	-	Do not input voltage	-	Other terminals
Operating temperature	Topr	-20 to +60	°C	
Storage temperature	Tstg	-30 to +80	°C	
Soldering	-	230 °C, 3 s	-	

■ Recommended operating conditions

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	3.0 to 3.5	V
		4.5 to 5.5	
Operating temperature	Topr	-15 to +40	°C

■ Optical characteristics (Ta=25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Spectral response range	λ		-	320 to 1100	-	nm
		*	-	320 to 730	-	
Peak sensitivity wavelength	λ_p		-	960	-	nm
		*	-	560	-	
Short circuit current	Isc	100 lx, "A" light source	-	2.75	-	μ A
		100 lx, "A" light source *	-	240	-	nA

* When used with a standard visual compensation filter (0.5 mm thick)

■ Temperature characteristics (Ta= -15 to +40 °C, based on a value at 25 °C, Vcc=3.2 V, unless otherwise noted)

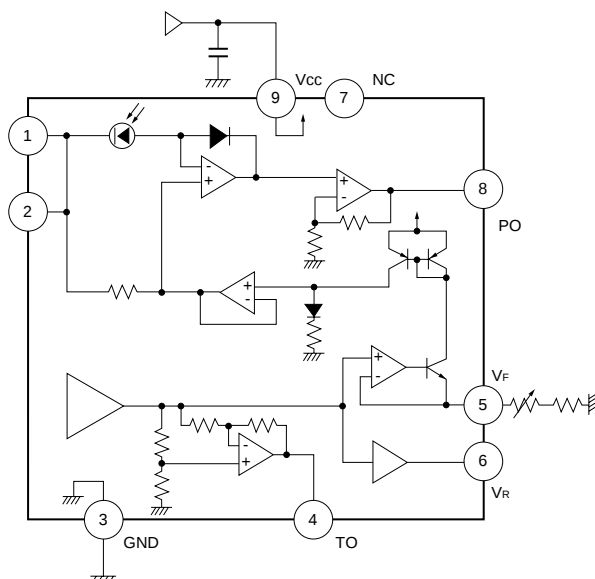
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Terminal
Terminal voltage change	ΔV_{rf4}		-30	-	30	mV	VR ^⑥
Output voltage temperature coefficient	α		-	17.8	-	mV/°C	TO ^④
Output voltage temperature coefficient	β	Output voltage: 500 mV	-	2500	-	ppm/°C	PO ^⑧
		Output voltage: 1000 mV	-	2900	-		
		Output voltage: 1500 mV	-	3000	-		
		Output voltage: 2000 mV	-	3100	-		

■ Electrical and optical characteristics (Ta=25 °C, Vcc=3.2 V, unless otherwise noted)

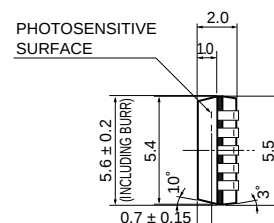
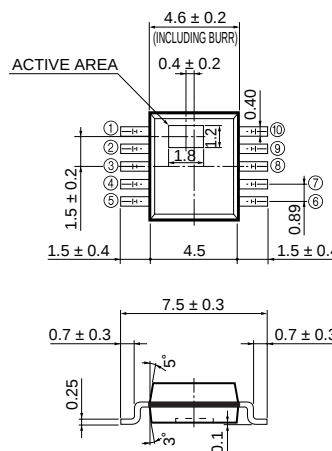
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit	Terminal
Current consumption	I _{cc}	100 lx, "A" light source, V _{cc} =6.5 V *	-	3.5	6.0	mA	-
Terminal voltage	V _r f		2.05	2.20	2.35	V	VR⑥
Load regulation	ΔV _r f	Load current 0 to 2 mA (with respect to 0.5 mA)	-12	-	12	mV	Reference voltage
Output voltage	V _{TO}		1.2	-	1.68	V	TO④
Load regulation	ΔV _{TO}	R _L =100 kΩ (with respect to no load)	-10	-	10	mV	Thermo- sensor
Output voltage 1	V _{POS}	100 lx, "A" light source VF terminal ⑤ resistance 47 kΩ *	952	1092	1232	mV	PO⑧ Photometric output
Output voltage 1 load regulation	ΔV _{PO1}	R _L =100 kΩ (with respect to no load)	-10	-	10	mV	
Output voltage 1 change	ΔV _{PO2}	VF terminal resistance 27 kΩ	140	170	270	mV	
	ΔV _{PO3}	VF terminal resistance 100 kΩ	-270	-170	-140		
Output change 1	ΔV _{PO4}	Difference between output voltage at 1 lx and output voltage 1 *	521	545	569	mV	
Output change 2	ΔV _{PO5}	Difference between output voltage at 0.1 lx and output voltage 1 *	793	817	841	mV	
Power supply response	t _p	Time required to reach within specified ΔV _{PO5} value after power is turned on	-	-	80	ms	

* When used with a standard visual compensation filter (0.5 mm thick)

■ Equivalent circuit



■ Dimensional outline (unit: mm)



- ① CATHODE
- ② CATHODE
- ③ GND
- ④ TO (THERMOSENSOR OUTPUT)
- ⑤ VF (PHOTOMETRIC OUTPUT ADJUSTMENT)
- ⑥ VR (REF VOLTAGE)
- ⑦ NC
- ⑧ PO (PHOTOMETRIC OUTPUT)
- ⑨ Vcc
- ⑩ NC

Tolerance unless otherwise noted: ±0.1, ±2°
Shaded area indicates burr.

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