

S4810-100

Operation at low voltage from 2.2 V

The S4810-100 is a digital output photo IC consisting of a photodiode, schmitt trigger circuit and output transistor, all integrated on a single chip and molded into a visible-cut, subminiature plastic package.

Features

- Low-voltage operation: 2.2 to 7 V
- Subminiature plastic package with lens
- Low current consumption
- Open collector output
- "H" level output at light input

Applications

- Cameras
- Tape start/end mark sensor for VTRs, cassette tape recorders, etc.
- Optical switches
- Encoders

Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5 to +7	V
Output voltage	Vo	-0.5 to +7	V
Output current	Io	8	mA
Power dissipation	P	150	mW
Operating temperature	Topr	-25 to +85	°C
Storage temperature	Tstg	-40 to +100	°C
Soldering	-	260 °C, 3 s, at least 2.5 mm away from package bottom surface	

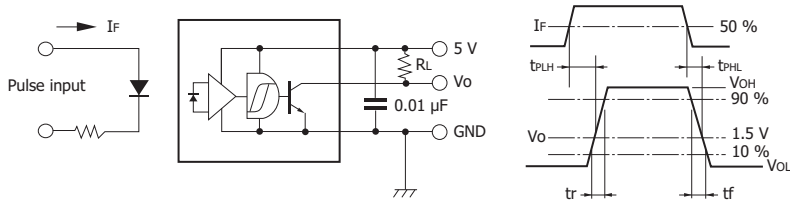
Electrical and optical characteristics (Ta=25 °C, Vcc=5 V, light source: λp=890 nm LED, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	Vcc		2.2	-	7.0	V
Low level output voltage	VoL	IoL=4 mA E *=0 μW/mm ²	-	-	0.4	V
High level output current	IoH	Vo=5 V E=2 μW/mm ²	-	-	10	μA
Current consumption	Icc		-	1.3	3	mA
L→H threshold illuminance	ELH	RL=1.2 kΩ	-	-	1.5	μW/mm ²
Hysteresis	-	EHL/ELH	-	0.85	-	-
L→H propagation delay time	tPLH	2 μW/mm ² RL=1.2 kΩ	-	-	10	μs
H→L propagation delay time	tPHL		-	-	15	μs
Rise time	tr		-	0.07	-	μs
Fall time	tf		-	0.03	-	μs
Peak sensitivity wavelength	λp		-	850	-	nm

* E: illuminance

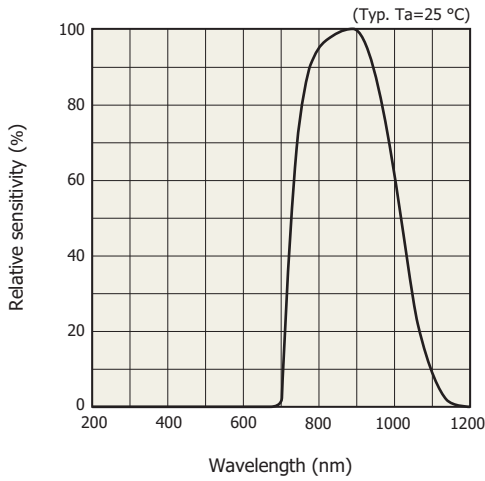
Note: Connect a 0.01 μF capacitor or larger between Vcc and GND.

Response time measurement circuit



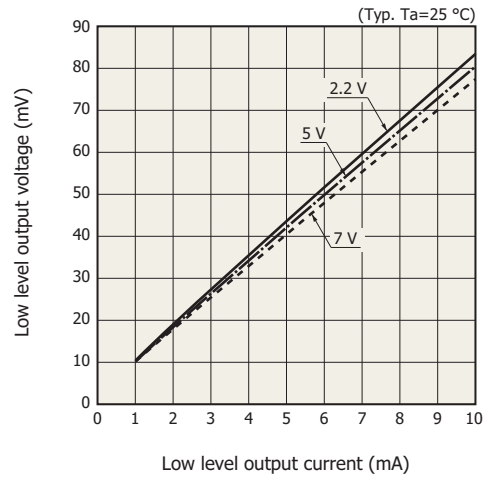
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Spectral response



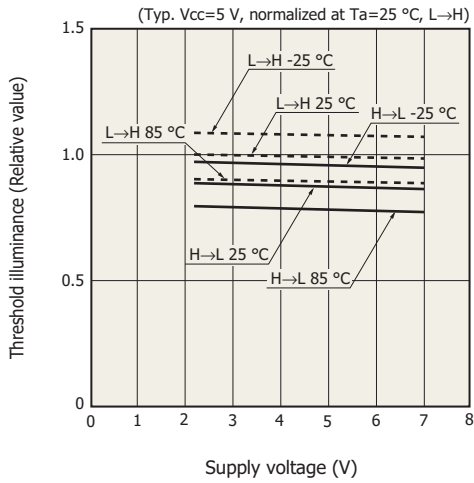
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Low level output voltage vs. low level output current



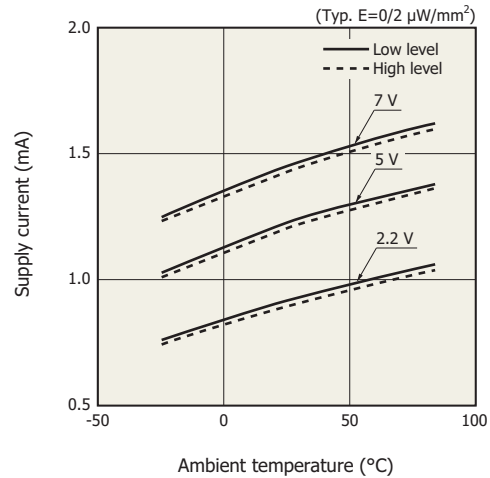
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Threshold illuminance vs. supply voltage



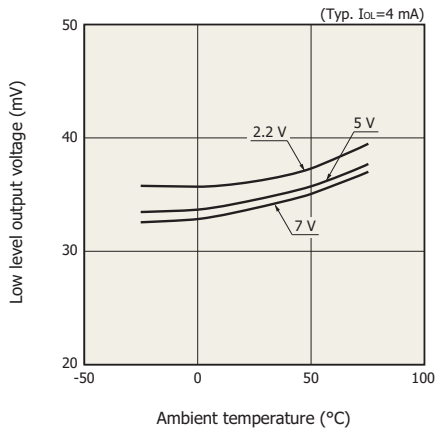
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Supply current vs. ambient temperature



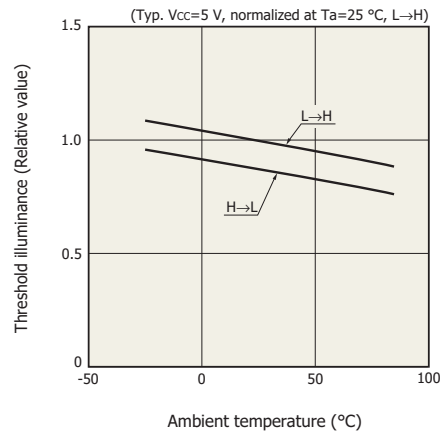
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Low level output voltage vs. ambient temperature



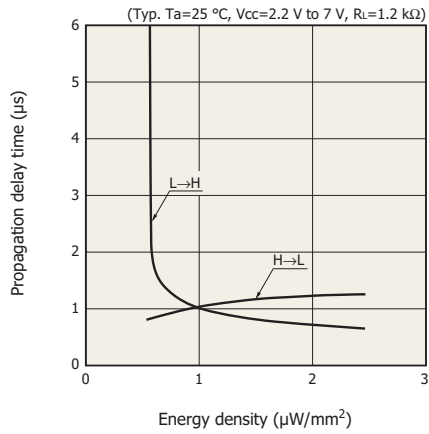
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Threshold illuminance vs. ambient temperature



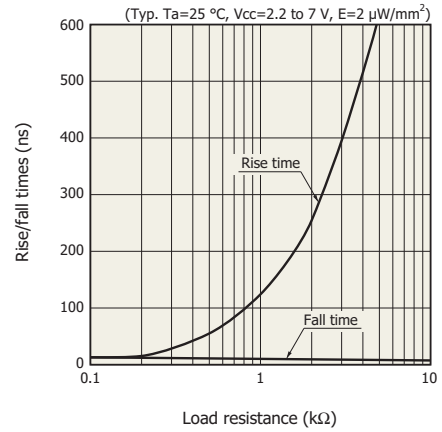
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Propagation delay time vs. input light intensity



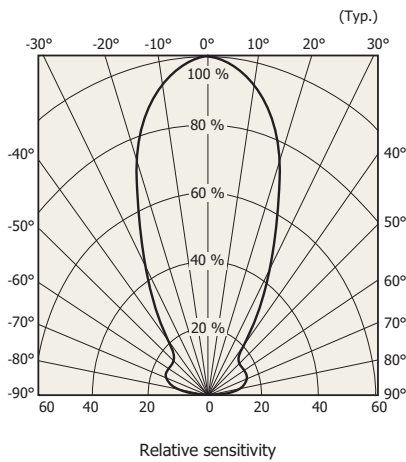
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Rise/fall times vs. load resistance



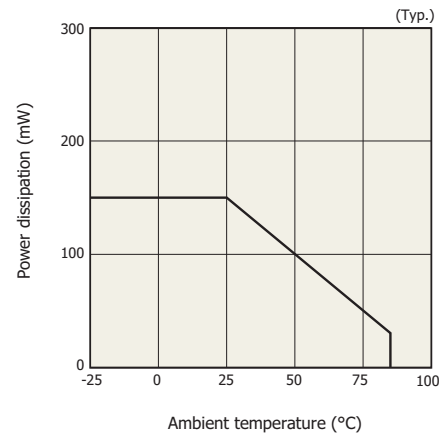
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Directivity



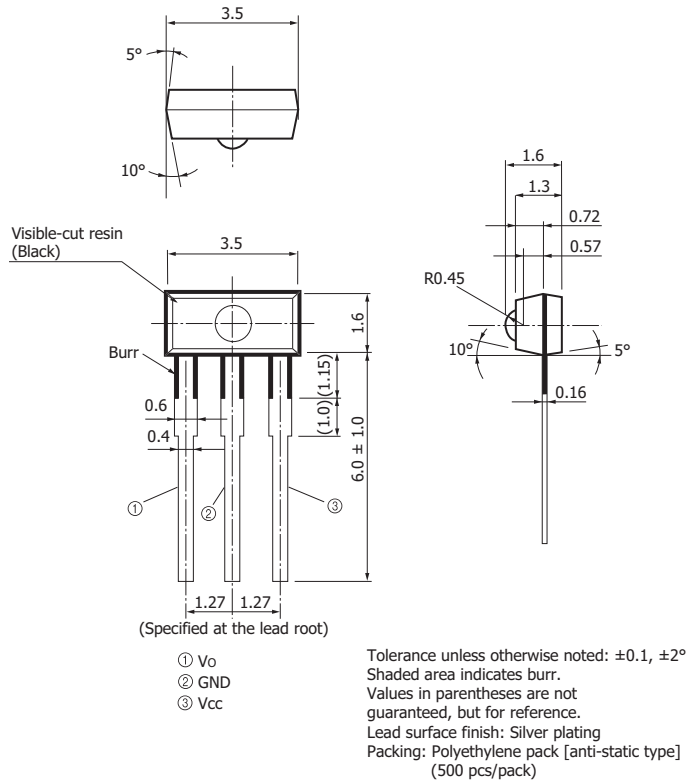
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Power dissipation vs. ambient temperature



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Dimensional outline (unit: mm)



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