

S4810, S6289

Operation at low voltage from 2.2 V

The S4810 and S6289 are digital output photo ICs 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
- S4810: "H" level output at light input
S6289: "L" 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 surface	-

Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

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

Parameter	Symbol	Condition	S4810			S6289			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Supply voltage	Vcc		2.2	-	7.0	2.2	-	7.0	V
Low level output voltage	VOL	IoL=4 mA*1	-	-	0.4	-	-	0.4	V
High level output current	IOH	Vo=5 V*2	-	-	10	-	-	10	μA
Current consumption	Icc		-	1.3	3	-	1.3	3	mA
L→H Threshold illuminance	ELH	RL=1.2 kΩ	-	-	1.5	-	-	-	μW/mm ²
H→L Threshold illuminance	EHL	RL=1.2 kΩ	-	-	-	-	-	1.5	μW/mm ²
Hysteresis	-	*3	-	0.9	-	-	0.85	-	-
L→H Propagation delay time	tPLH	2 μW/mm ² RL=1.2 kΩ	-	-	10	-	-	15	μs
H→L Propagation delay time	tPHL		-	-	15	-	-	10	μs
Rise time	tr		-	0.07	-	-	0.07	-	μs
Fall time	tf		-	0.03	-	-	0.03	-	μs
Peak sensitivity wavelength	λp		-	850	-	-	850	-	nm

*1: S4810: E (illuminance) =0 μW/mm², S6289: E=2 μW/mm²

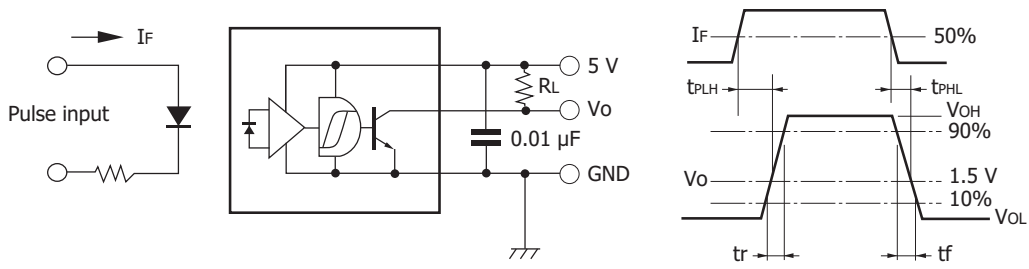
*2: S4810: E=2 μW/mm², S6289: E=0 μW/mm²

*3: S4810: EHL/ELH, S6289: ELH/EHL

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

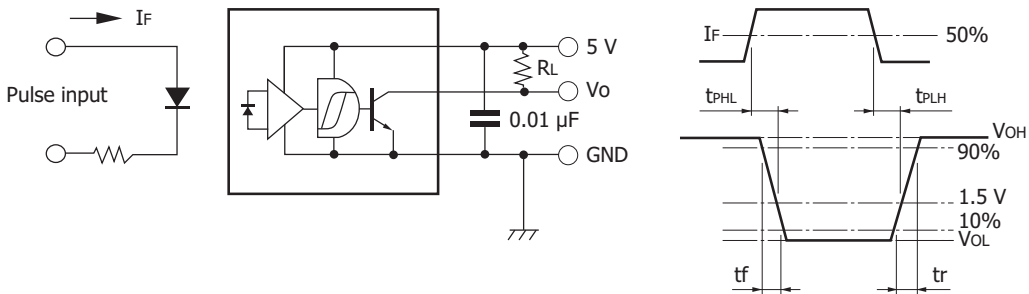
Response time measurement circuit

S4810



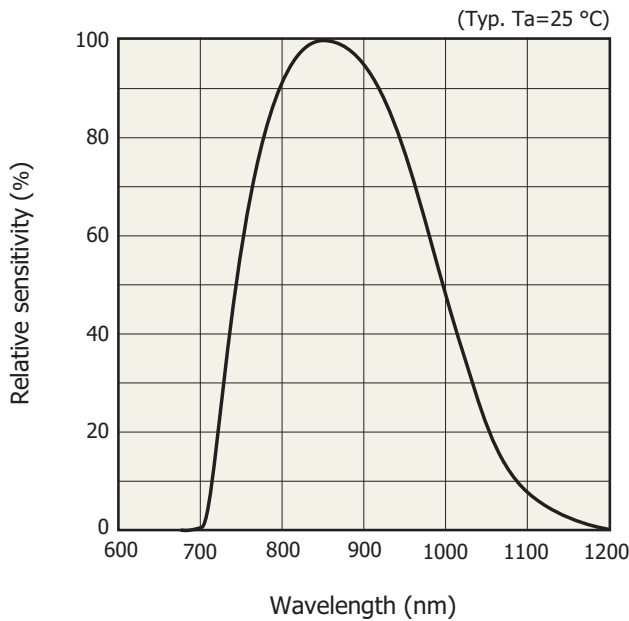
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S6289



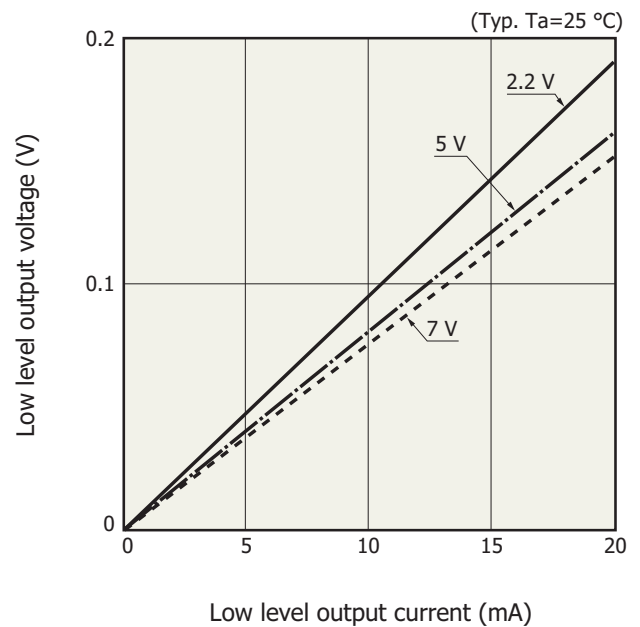
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Spectral response



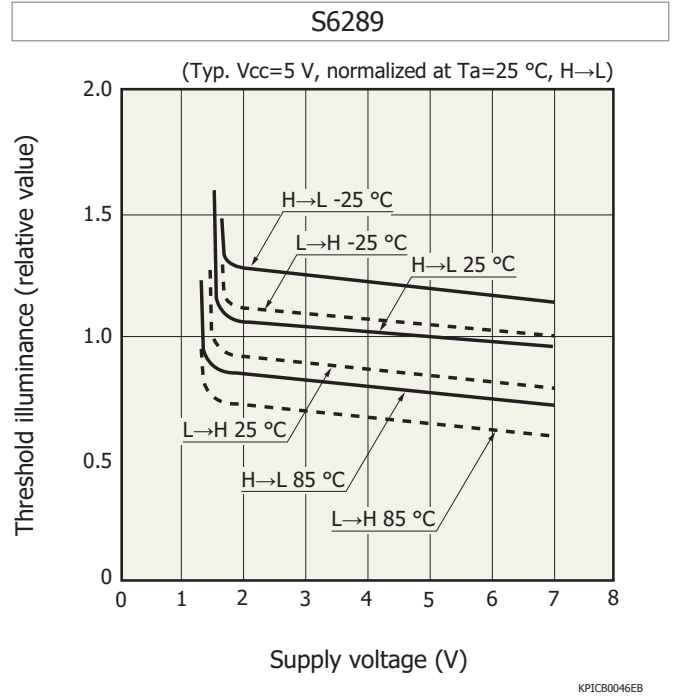
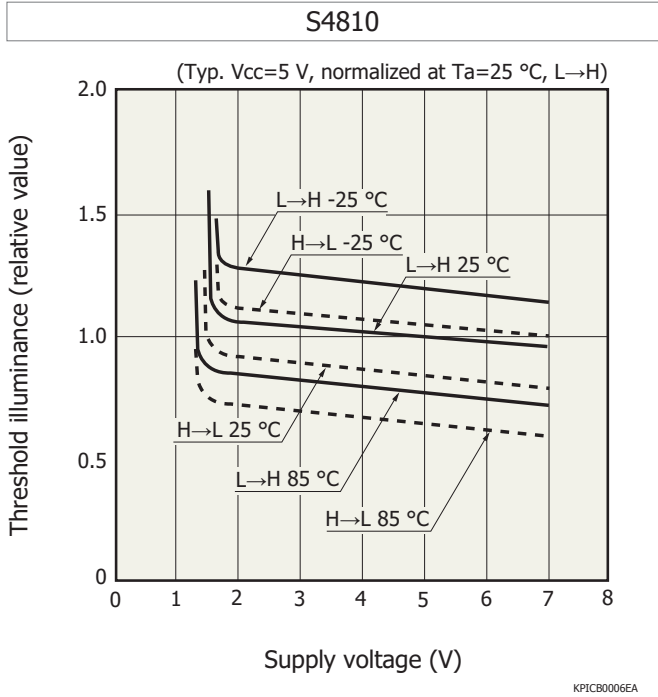
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Low level output voltage vs. low level output current

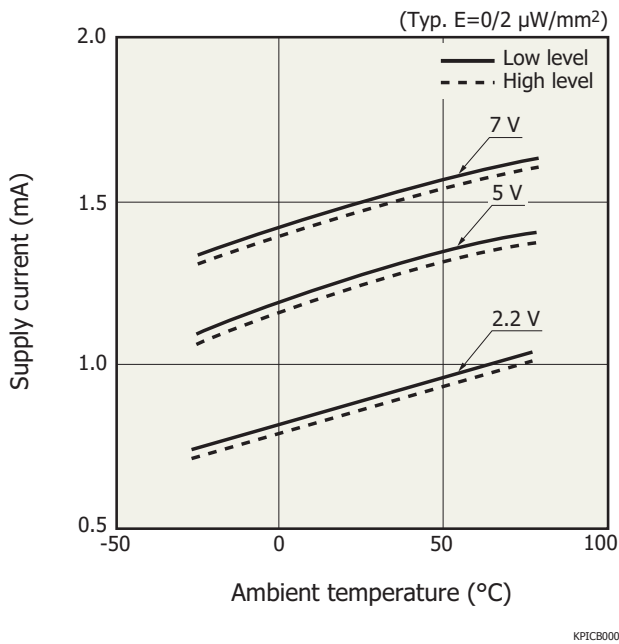


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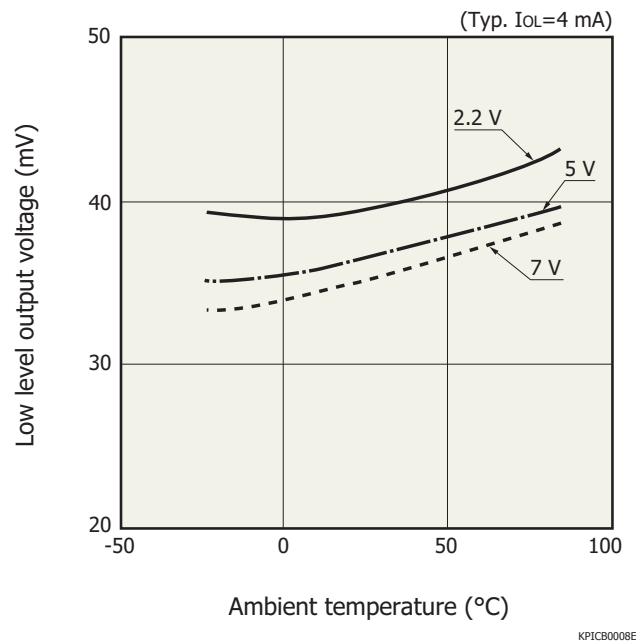
Threshold illuminance vs. supply voltage



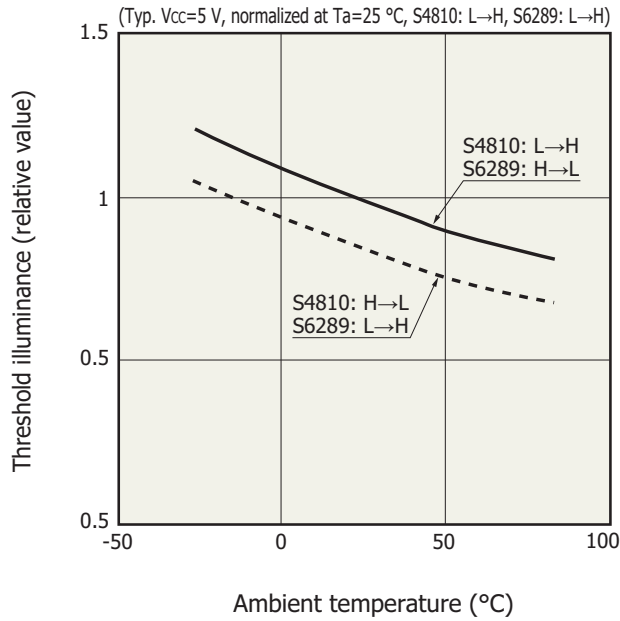
Supply current vs. ambient temperature



Low level output voltage vs. ambient temperature

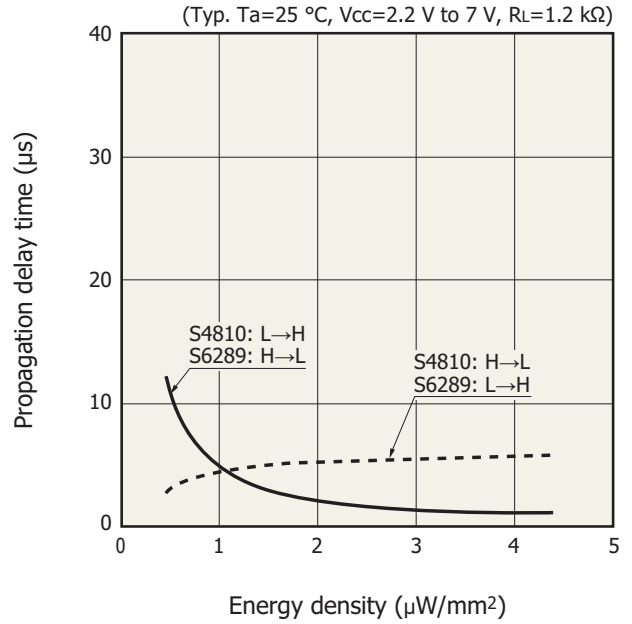


Threshold illuminance vs. ambient temperature



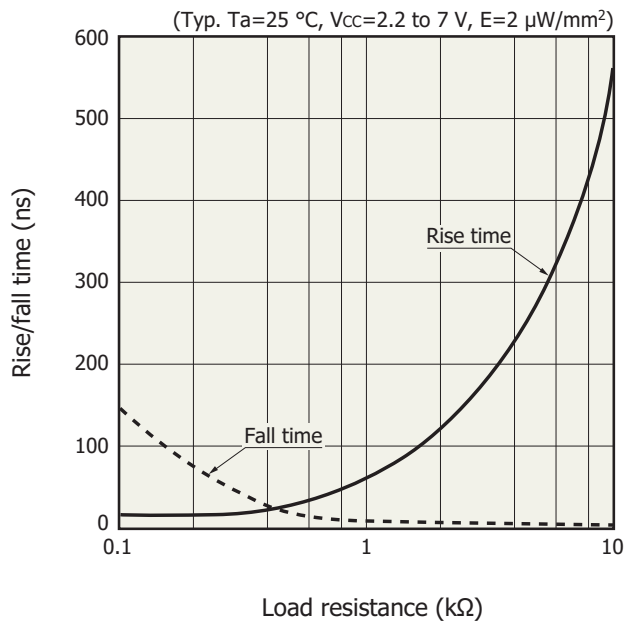
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Propagation delay time vs. input light strength



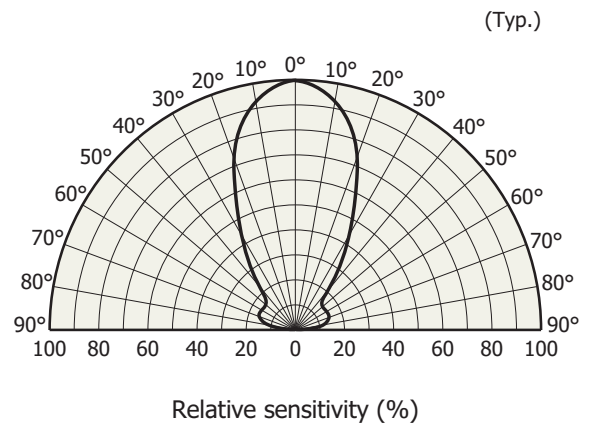
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Rise/fall time vs. load resistance



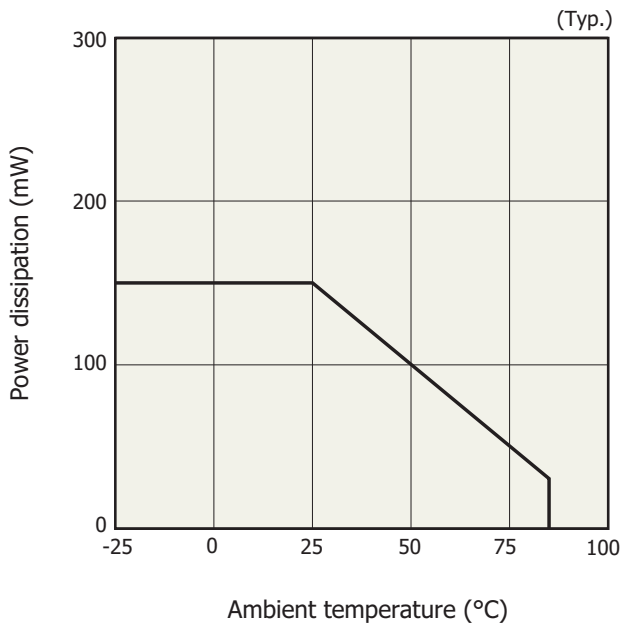
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Directivity

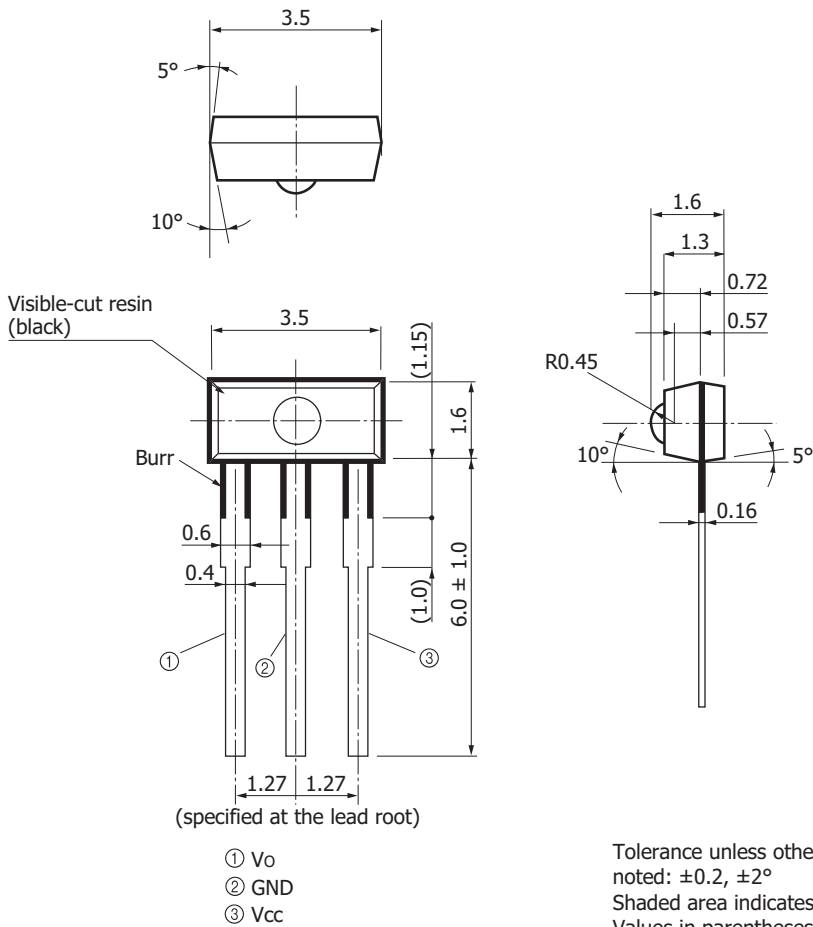


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Power dissipation vs. ambient temperature



Dimensional outline (unit: mm)



Related information

www.hamamatsu.com/sp/ssd/doc_en.html

■ Precautions

- Disclaimer
- Metal, ceramic, plastic products

Information described in this material is current as of October 2017.

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