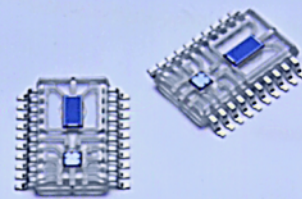


Photo IC for laser beam synchronous detection

S5049 series

Photo IC for start timing detection for precise printing



S5049 uses a dual-element PIN photodiode and compares the two photocurrent signals to maintain a highly stable output even when input laser power or ambient temperature fluctuates. Two types of sensors are available to meet different operating conditions.

Features

- Photo IC for precision printing
Stable output versus laser power or temperature variations
- S5049-02: For detection of high-speed, high power laser beams
- S5049-03: For detection of low power laser beams

Applications

- Print start timing detection for laser printers, digital copiers, fax machines, etc.

■ Absolute maximum ratings (Ta=25 °C, Vcc1=Vcc2=Vcc)

Parameter	Symbol	Value	Unit
Supply voltage	Vcc	-0.5 to +7	V
Power dissipation *1	P	150	mW
Output voltage	Vo	-0.5 to Vcc	V
Output current	Io	20	mA
Ro1, Ro2 terminal current	IRO	5	mA
Operating temperature	Topr	-25 to +80	°C
Storage temperature	Tstg	-40 to +85	°C
Soldering	-	230 °C, 5 s	-

*1: Derate power dissipation at a rate of 2 mW/°C above Ta=25 °C.

■ Electrical and optical characteristics (Ta=25 °C, λ=780 nm, Vcc1=Vcc2=Vcc=5 V, Ro1=Ro2=5.1 kΩ, unless otherwise noted)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	Vcc		4.5	5.0	5.5	V
High level output voltage	VOH	Pin=0	4.9	-	-	V
Low level output voltage	VOL	Pin=200 μW, IoL=10 mA	-	0.4	0.6	V
Current consumption	ICC	Pin=0, at high level output	-	4.0	6.0	mA
		Pin=200 μW, at low level output	-	6.0	9.0	mA
Threshold input power	PTH	S5049-02	40	55	70	μW
		S5049-03	25	35	45	μW
H→L propagation delay time variation	ΔtPHL	Pin=200 μW at center ΔPin=±10 % *2 RL=510 Ω, CL=15 pF	-	-	±10	ns
L→H propagation delay time variation	ΔtPLH		-	±50	-	ns
Rise time	tr		-	60	180	ns
Fall time	tf		-	20	100	ns

*2: Beam diameter φ (1/e²)=100 μm, scan speed=0.5 mm/μs
Not including jitter caused by polygon mirror non-uniformity, etc.

HAMAMATSU PHOTONICS K.K., Solid State Division

U.S.A.: Hamamatsu Corporation: 360 Foothill Road, P.O.Box 6910, Bridgewater, N.J. 08807-0910, U.S.A., Telephone: (1) 908-231-0960, Fax: (1) 908-231-1218

Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-82211 Herrsching am Ammersee, Germany, Telephone: (49) 08152-3750, Fax: (49) 08152-2658

France: Hamamatsu Photonics France S.A.R.L.: 8, Rue du Saule Trapu, Parc du Moulin de Massy, 91882 Massy Cedex, France, Telephone: 33-(1) 69 53 71 00, Fax: 33-(1) 69 53 71 10

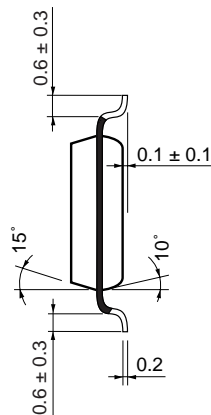
United Kingdom: Hamamatsu Photonics UK Limited: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire AL7 1BW, United Kingdom, Telephone: (44) 1707-294888, Fax: (44) 1707-325777

North Europe: Hamamatsu Photonics Norden AB: Smidesvägen 12, SE-171 41 Solna, Sweden, Telephone: (46) 8-509-031-00, Fax: (46) 8-509-031-01

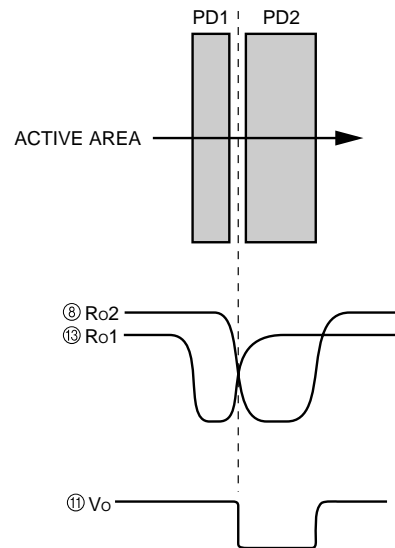
Italy: Hamamatsu Photonics Italia S.R.L.: Strada della Moia, 1/E, 20020 Arese, (Milano), Italy, Telephone: (39) 02-935-81-733, Fax: (39) 02-935-81-741

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■ Dimensional outline (unit: mm)



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