

S7141-10

Photo IC for 50 Mbps optical link

Features

- DC to 50 Mbps data transmission
- Miniature size due to monolithic IC structure
- Inversion logic
- Digital output

Applications

- Data transmission in FA or OA applications subject to large amounts of electro magnetic noise
- High-speed, short distance data transmission
- Burst data transmission

Absolute maximum ratings (Ta=25 °C)

Parameter	Symbol	Value	Unit
Power supply	Vcc	-0.5 to +7	V
Output current	Ioh	10	mA
Power dissipation*1	P	250	mW
Operating temperature	Topr	-10 to +70	°C
Storage temperature	Tstg	-40 to +85	°C

*1: Power dissipation decreases at a rate of 1.75 mW/°C above Ta=25 °C

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)

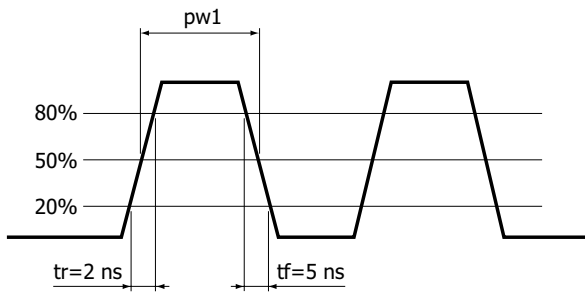
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Data rate	fD		DC		50	Mbps
Supply voltage	Vcc		4.75	-	5.25	V
Current consumption	Icc	Without light input	-	-	32	mA
Pulse width distortion	ΔT		-6	-	+6	ns
Minimum overload	Pimax	*2 *3	-5	-	-	dBm
Minimum receiver input power	Pimin	*2 *3	-	-	-17.5	dBm
Rise time	tr	*3	-	-	7	ns
Fall time	tf	*3	-	-	7	ns
Output voltage	Voh	Ioh=20 μA	2	-	-	V
	Vol	Iol=-0.6 mA*4	-	-	1	V

*2: Output from a 1 meter long plastic fiber (GH4001 made by Mitsubishi Rayon) set close to the molded lens.

*3: Evaluated based on the input/output waveforms shown below. Measured with a low-capacitance FET probe (3 pF or less).

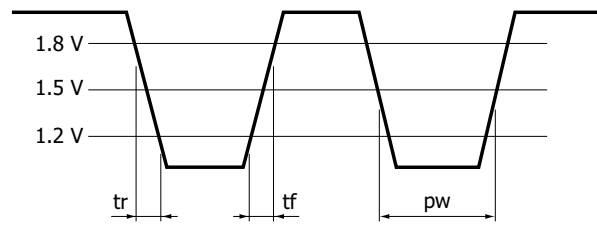
*4: Output is the "L" level (inversion logic) when light is input.

Input optical waveform definition



KPIC0022EA

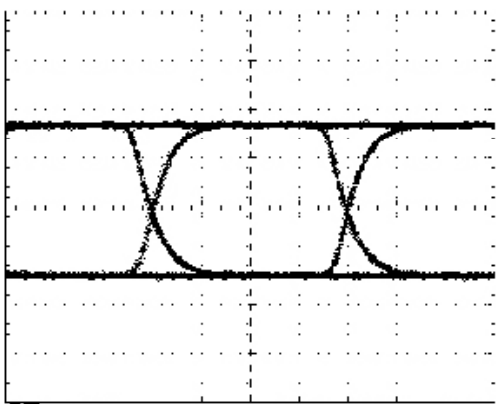
Output optical waveform definition



$$\Delta T = pw1 - pw$$

KPIC0023EB

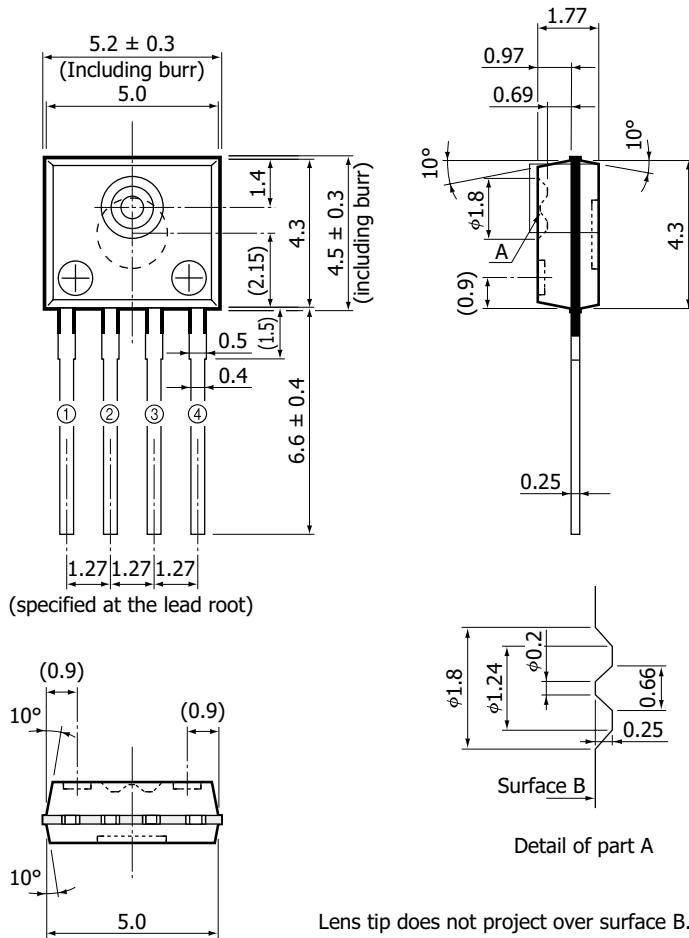
S7141-10 output waveform example
($T_a=25\text{ }^\circ\text{C}$, $P_i=-16\text{ dBm}$, $V_{cc}=5.0\text{ V}$)



5 ns/div.

KPIC0068EA

Dimensional outline (unit: mm)



- ① GND
- ② OUT
- ③ GND
- ④ Vcc

Lens tip does not project over surface B.

Tolerance unless otherwise noted: ±0.1, ±2°
 Shaded area indicates burr.
 Values in parentheses indicate reference value.

KPICA0043EF

Recommended soldering conditions

Parameter	Specification	Remarks
Solder temperature	230 °C max. (less than 5 s)	at least 1.5 mm away from lead roots

Note: When setting the soldering conditions, check for any problems by testing out the soldering methods in advance.

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 January 2023.

Product specifications are subject to change without prior notice due to improvements or other reasons. This document has been carefully prepared and the information contained is believed to be accurate. In rare cases, however, there may be inaccuracies such as text errors. Before using these products, always contact us for the delivery specification sheet to check the latest specifications.

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HAMAMATSU

www.hamamatsu.com

HAMAMATSU PHOTONICS K.K., Solid State Division

1126-1 Ichino-cho, Higashi-ku, Hamamatsu City, 435-8558 Japan, Telephone: (81)53-434-3311, Fax: (81)53-434-5184

U.S.A.: HAMAMATSU CORPORATION: 360 Foothill Road, Bridgewater, NJ 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218

Germany: HAMAMATSU PHOTONICS DEUTSCHLAND GMBH: Arzbergerstr. 10, 82211 Herrsching am Ammersee, Germany, Telephone: (49)8152-375-0, Fax: (49)8152-265-8 E-mail: info@hamamatsu.de

France: HAMAMATSU PHOTONICS FRANCE S.A.R.L.: 19 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 E-mail: infos@hamamatsu.fr

United Kingdom: HAMAMATSU PHOTONICS UK LIMITED: 2 Howard Court, 10 Tewin Road, Welwyn Garden City, Hertfordshire, AL7 1BW, UK, Telephone: (44)1707-294888, Fax: (44)1707-325777 E-mail: info@hamamatsu.co.uk

North Europe: HAMAMATSU PHOTONICS NORDEN AB: Torshamnsgatan 35, 16440 Kista, Sweden, Telephone: (46)8-509-031-00, Fax: (46)8-509-031-01 E-mail: info@hamamatsu.se

Italy: HAMAMATSU PHOTONICS ITALIA S.R.L.: Strada della Moia, 1 int. 6 20044 Arese (Milano), Italy, Telephone: (39)02-93 58 17 33, Fax: (39)02-93 58 17 41 E-mail: info@hamamatsu.it

China: HAMAMATSU PHOTONICS (CHINA) CO., LTD.: 1201, Tower B, Jianning Center, 27 Dongsanhuan Beilu, Chaoyang District, 100020 Beijing, P.R. China, Telephone: (86)10-6586-6006, Fax: (86)10-6586-2866 E-mail: hpc@hamamatsu.com.cn

Taiwan: HAMAMATSU PHOTONICS TAIWAN CO., LTD.: 8F-3, No.158, Section 2, Gongdao 5th Road, East District, Hsinchu, 300, Taiwan R.O.C. Telephone: (886)3-659-0080, Fax: (886)3-659-0081 E-mail: info@hamamatsu.com.tw