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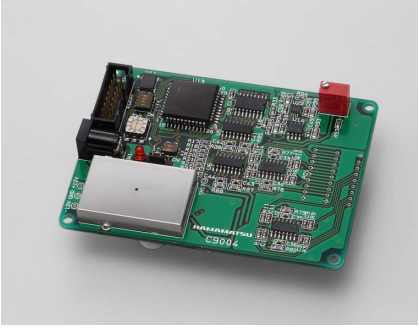
Driver circuit for Si photodiode array



C9004

Driver circuit for 16-element photodiode array

Features

- **High precision and high-speed measurement by simultaneous 16-channel readout**
- **Assembled with pulse generator (8-step adjustable oscillatory frequency)**
  CLK, START, A/D conversion Trig and $\overline{EOS}$ pulse output
- **Choice of gain (conversion impedance): 1×10^6 or 1×10^7 (V/A)**
- **Hamamatsu S4111-16 series, S11212 series photodiode arrays are directly mountable on board.**
- **Single power supply operation: +12 V**

Applications

- **Performance evaluation of Hamamatsu S4111-16 series, S11212 series photodiode arrays**
- **Position measurement**
- **Displacement measurement**

Absolute maximum ratings (Ta=25 °C unless otherwise noted)

Parameter	Symbol	Value	Unit
Supply voltage	Vs max	+18	V
Input current	Iin max	$+125.5 \times 10^{-5}$	A
Operating temperature*1	Topr	0 to +50	°C
Storage temperature*1	Tstg	-20 to +80	°C

*1: No dew condensation
When there is a temperature difference between a product and the surrounding area in high humidity environment, dew condensation may occur on the product surface. Dew condensation on the product may cause deterioration in characteristics and reliability.

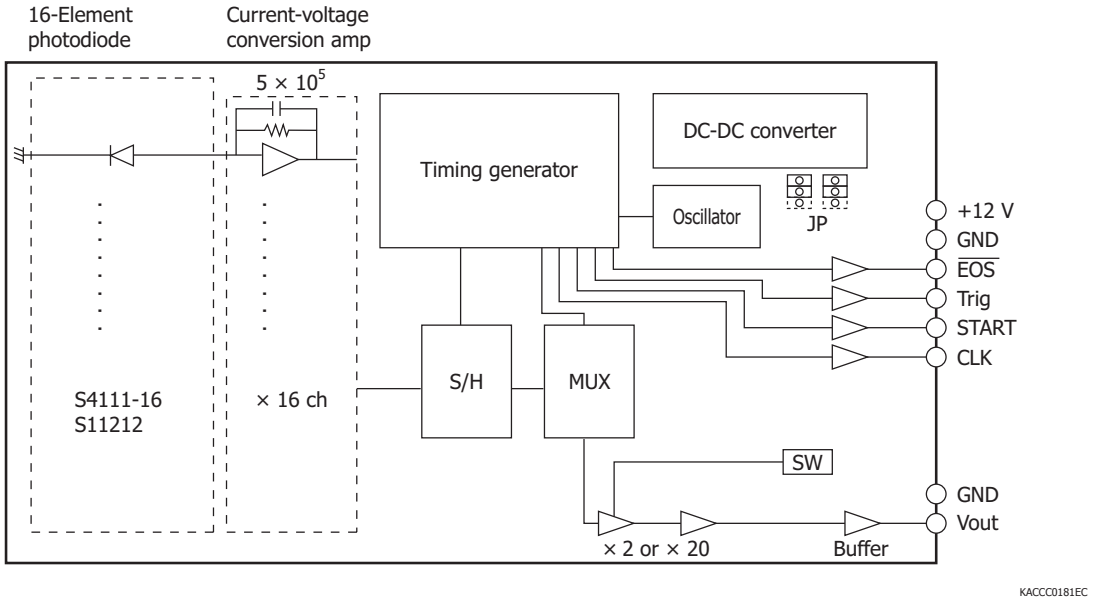
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C)

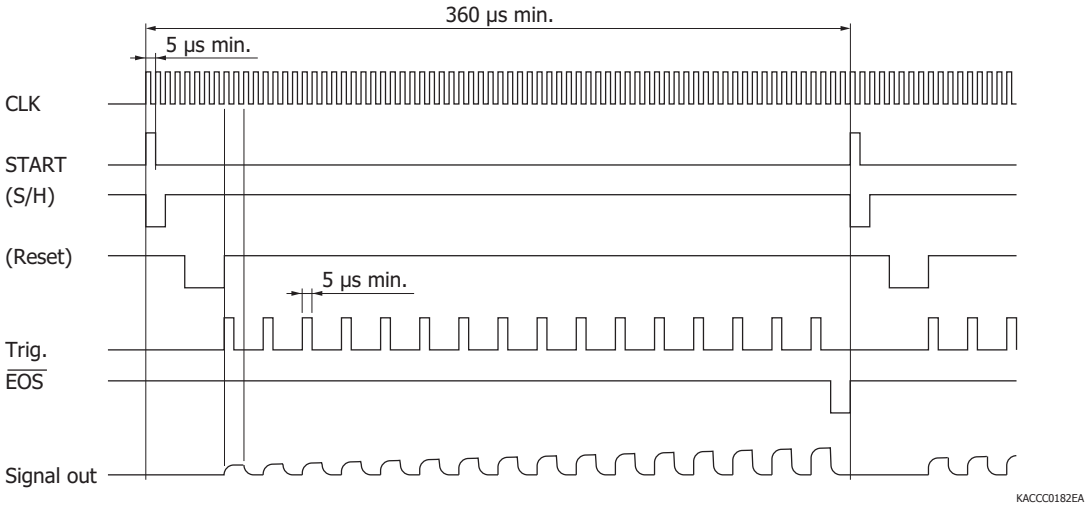
Parameter	Symbol	Condition		Min.	Typ.	Max.	Unit
Input photocurrent	Ip	Zt=1 × 10^6		-	6.4 × 10^{-6}	-	A
		Zt=1 × 10^7		-	6.4 × 10^{-7}	-	A
Conversion impedance*2	Zt			-	1 × 10^6	-	V/A
				-	1 × 10^7	-	
Output offset voltage	Vos	Zt=1 × 10^6 (set up prior to shipping)		-	0.025	-	V
		Zt=1 × 10^7 *3		-	0.25	-	V
Maximum output amplitude voltage	Vfs	Zt=1 × 10^6, RL=1 kΩ		+6.4	-	-	V
		Zt=1 × 10^7, RL=1 kΩ		+6.4	-	-	V
Output noise voltage	Vn	Zt=1 × 10^6 (full bandwidth)		-	5	-	mVp-p
		Zt=1 × 10^7 (full bandwidth)		-	10	-	mVp-p
Cutoff frequency	fc	Zt=1 × 10^6, RL=1 kΩ, -3 dB	Lower	-	DC	-	kHz
			Upper	-	62.4	-	
		Zt=1 × 10^7, RL=1 kΩ, -3 dB	Lower	-	DC	-	
			Upper	-	62.4	-	
Capacitive load	CL			-	-	100	pF
Oscillatory frequency (OUT)*4	CLK			1.5625	-	200	kHz
Start pulse width (OUT)*4	-			5	-	640	µs
Output format*5	-				TTL		-
Operating supply voltage	Vs	*6		+9	+12	+18	V
Current consumption	Is			-	200	250	mA

*2: Conversion impedance can be changed with the switch on the circuit board.
*3: The variable resistor VR on the circuit board must be used for making offset adjustments.
*4: Adjustable in 8 steps by using the BCD rotary switch on the circuit board
*5: CLK, START, Trig and EOS pulse output format
*6: Be sure to use the AC adapter supplied with the C9004.

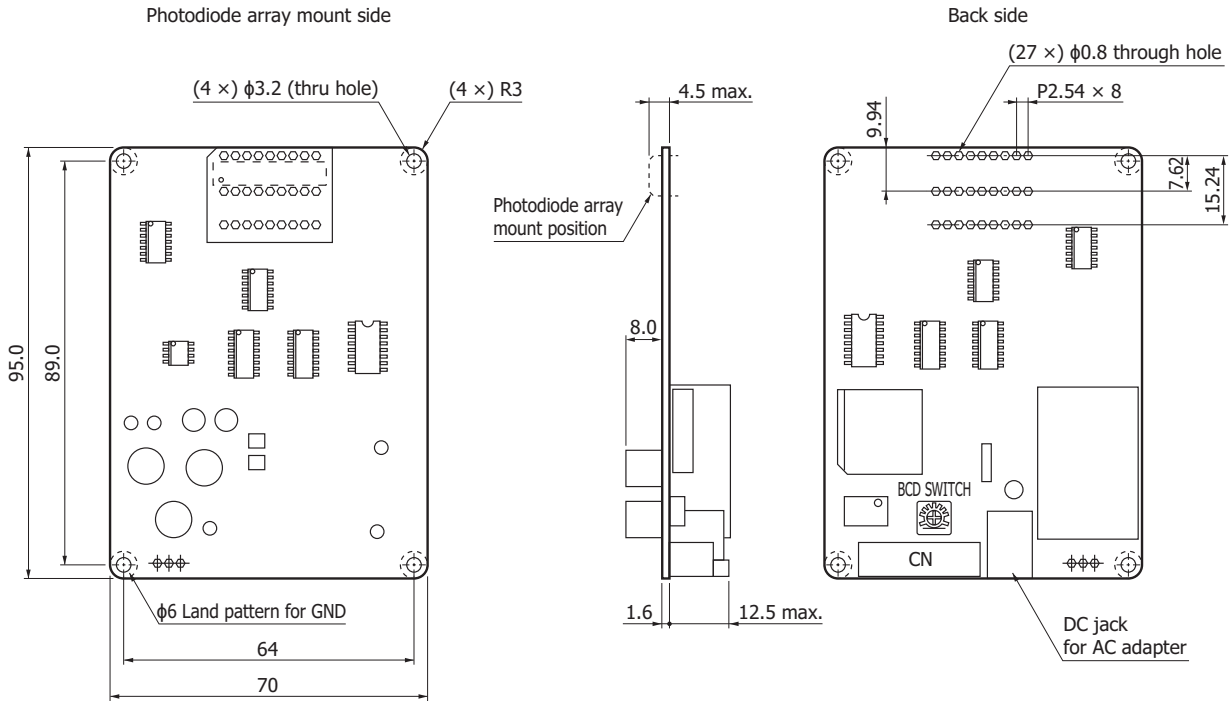
Block diagram



Timing chart



Dimensional outline (unit: mm)

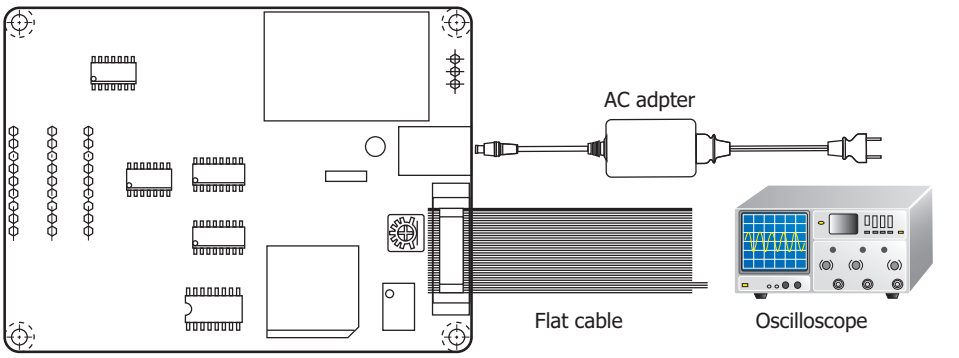


Note: Photodiode array sold separately

Tolerance unless otherwise noted
≤6 : ±0.1
6< ≤30: ±0.2
30< : ±0.3

KACCA0117EC

Connection example



Accessories

· Instruction manual
· AC adapter
· Flat cable (200 mm) with I/O connector receptacle

Related information

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

■ Precautions
· Disclaimer

Information described in this material is current as of August 2019.
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.
The product warranty is valid for one year after delivery and is limited to product repair or replacement for defects discovered and reported to us within that one year period. However, even if within the warranty period we accept absolutely no liability for any loss caused by natural disasters or improper product use.
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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, N.J. 08807, U.S.A., Telephone: (1)908-231-0960, Fax: (1)908-231-1218, E-mail: usa@hamamatsu.com
Germany: Hamamatsu Photonics Deutschland GmbH: Arzbergerstr. 10, D-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, United Kingdom, 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, 20020 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.: B1201, Jiaming Center, No.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, Section2, 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

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