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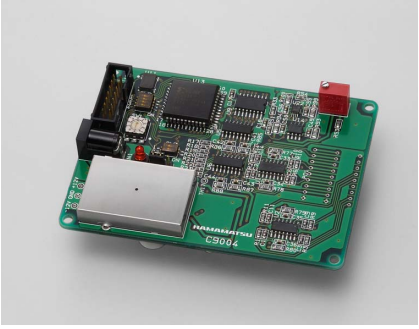
Driver circuit for Si photodiode array



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	Vcc max.	+18	V
Input current	Iin max.	$+6.7 \times 10^{-5}$	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.

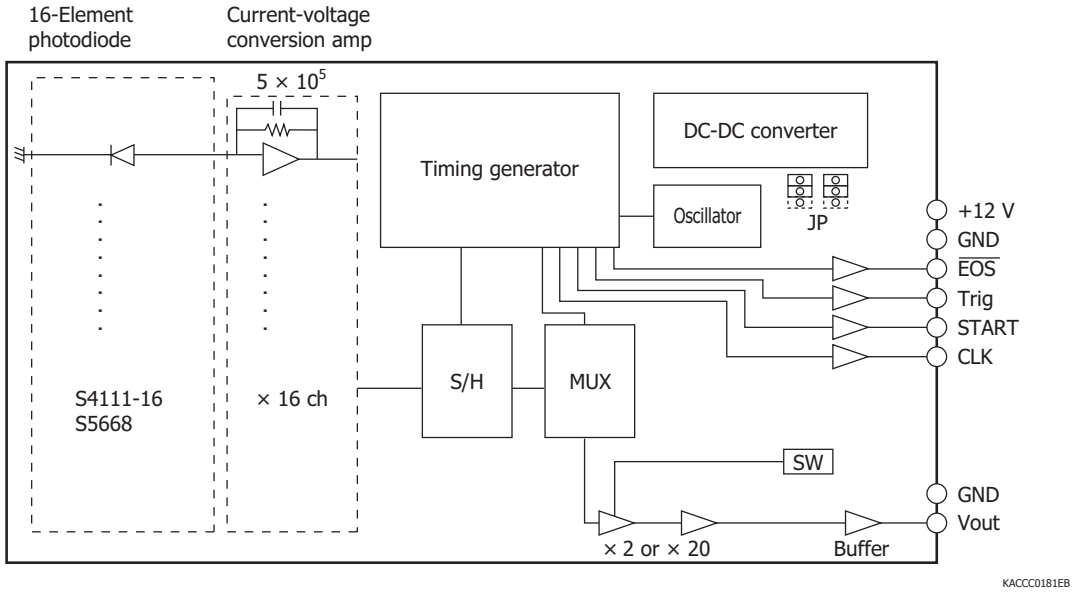
Note: Exceeding the absolute maximum ratings even momentarily may cause a drop in product quality. Always be sure to use the product within the absolute maximum ratings.

Electrical and optical characteristics (Ta=25 °C)

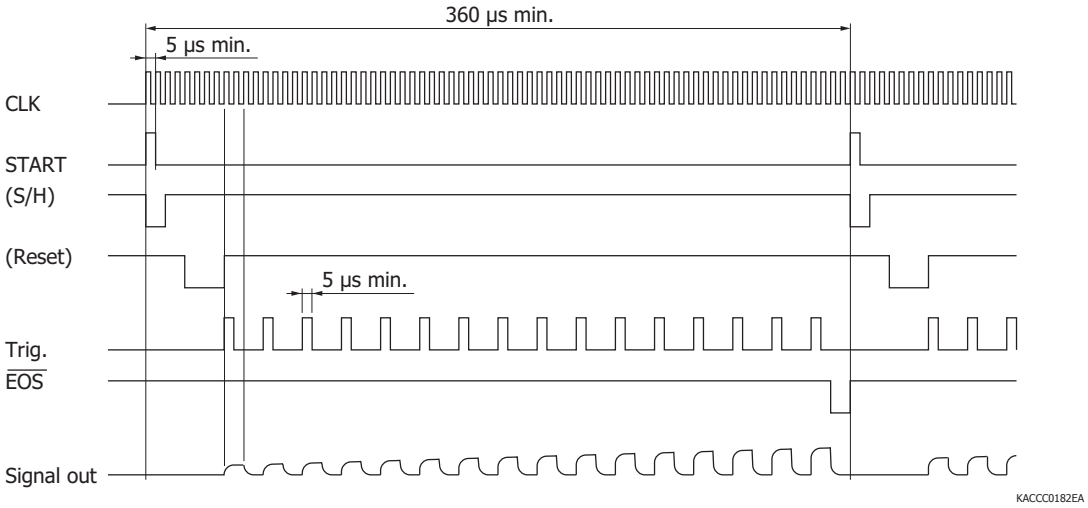
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input current range	Iin	Tz=1 × 10^6	-	-	1 × 10^{-5}	A
		Tz=1 × 10^7	-	-	1 × 10^{-6}	A
Conversion impedance*2	Tz		1 × 10^6	-	1 × 10^7	V/A
Output offset voltage	Vos	Tz=1 × 10^6 (set up prior to shipping)	-	0.025	-	V
		Tz=1 × 10^7 *3	-	0.25	-	V
Output amplitude voltage	Vo	Tz=1 × 10^6, RL=1 kΩ	0	-	+10	V
		Tz=1 × 10^7, RL=1 kΩ	0	-	+10	V
Output noise voltage	enp-p	Tz=1 × 10^6 (full bandwidth)	-	5	-	mVp-p
		Tz=1 × 10^7 (full bandwidth)	-	10	-	mVp-p
Rise time	tr	Tz=1 × 10^6, RL=1 kΩ	-	5.6	-	µs
		Tz=1 × 10^7, RL=1 kΩ	-	5.6	-	µs
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		-
Current consumption	Icc		-	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

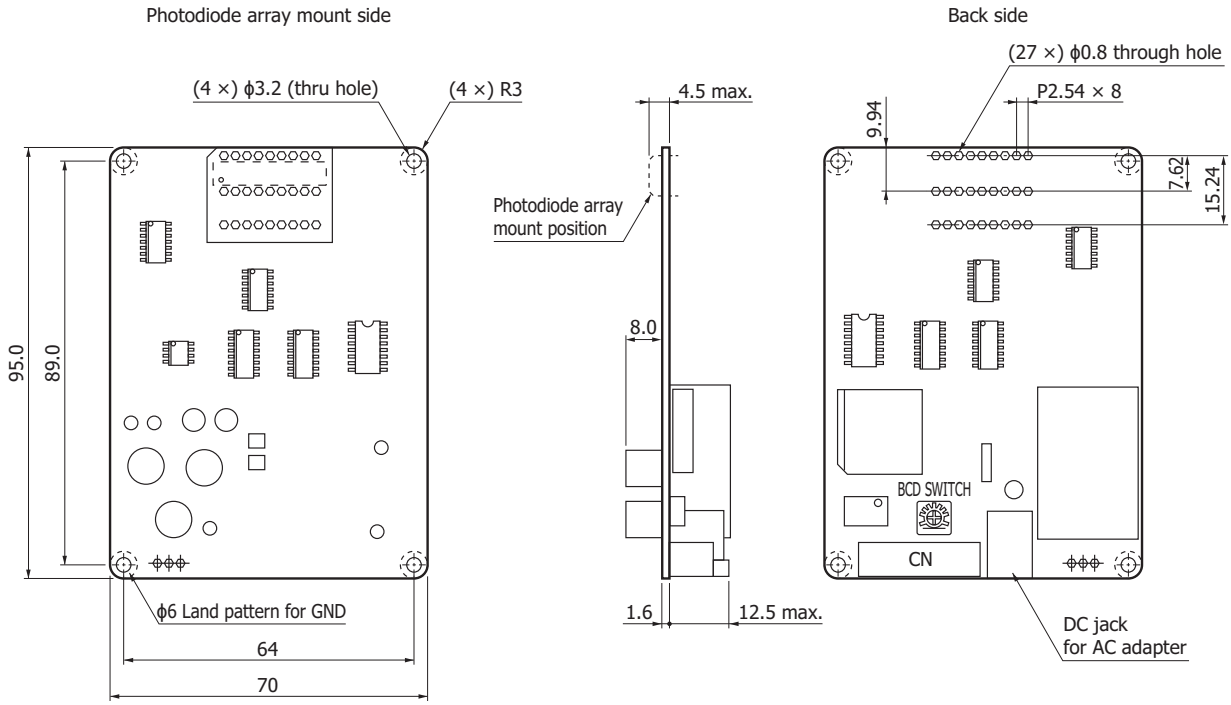
Block diagram



Timing chart



Dimensional outline (unit: mm)

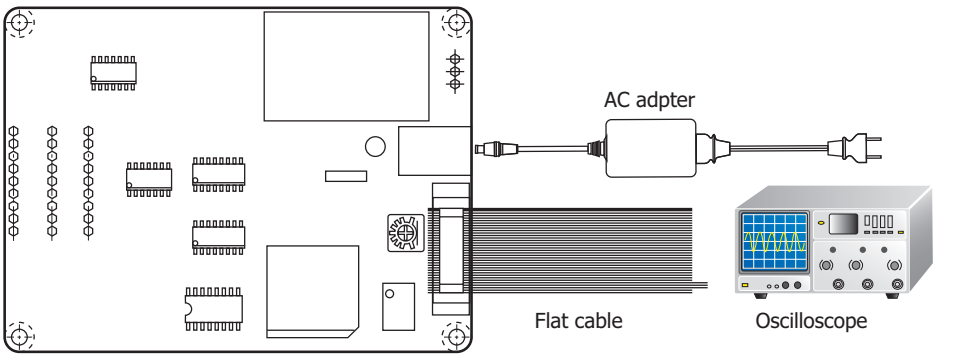


Note: Photodiode array sold separately

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

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