



C9004-01

## 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 EOS pulse output
- Choice of gain (conversion impedance):  $1 \times 10^6$  or  $1 \times 10^7$  (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	+13	V
Photodiode array input current	Ipin max	$+125.5 \times 10^{-5}$	A
Supply current	Iin max	2	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 <sup>6</sup>	-	6.4 × 10 <sup>-6</sup>	-	A	
		Zt=1 × 10 <sup>7</sup>	-	6.4 × 10 <sup>-7</sup>	-	A	
Conversion impedance*2	Zt		-	1 × 10 <sup>6</sup>	-	V/A	
			-	1 × 10 <sup>7</sup>	-		
Output offset voltage	Vos	Zt=1 × 10 <sup>6</sup> (set up prior to shipping)	-	0.025	-	V	
		Zt=1 × 10 <sup>7</sup> *3	-	0.25	-	V	
Maximum output amplitude voltage	Vfs	Zt=1 × 10 <sup>6</sup> , RL=1 kΩ	+6.4	-	-	V	
		Zt=1 × 10 <sup>7</sup> , RL=1 kΩ	+6.4	-	-	V	
Output noise voltage	Vn	Zt=1 × 10 <sup>6</sup> (full bandwidth)	-	5	-	mVp-p	
		Zt=1 × 10 <sup>7</sup> (full bandwidth)	-	10	-	mVp-p	
Cutoff frequency	fc	Zt=1 × 10 <sup>6</sup> , RL=1 kΩ, -3 dB	Lower	-	DC	-	kHz
			Upper	-	62.4	-	
		Zt=1 × 10 <sup>7</sup> , 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	+11.5	+12	+12.5	V	
Current consumption	Is		-	200	250	mA	

\*2: Conversion impedance can be changed with the switch on the circuit board.

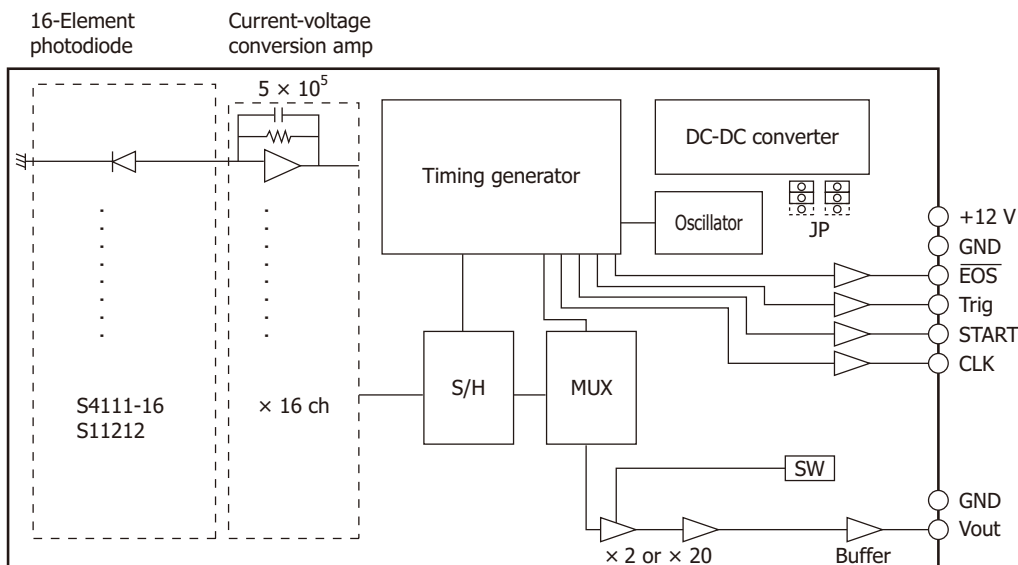
\*3: The variable resistor VR on the circuit board must be used for making offset adjustments.

\*4: Adjustable in 8 steps by using the BCD rotary switch on the circuit board

\*5: CLK, START, Trig and EOS pulse output format

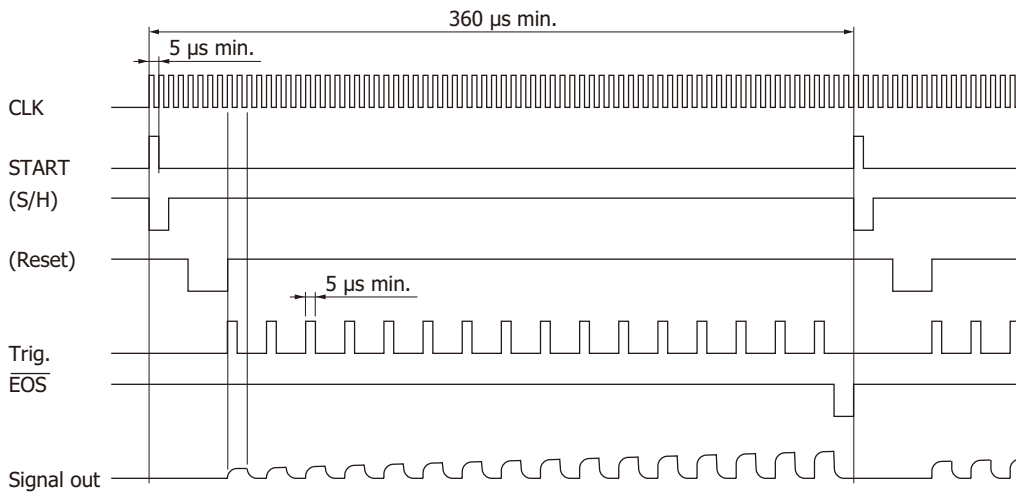
\*6: A power supply of approximately 12 V and 1.25 A is recommended. The electric current for operating this product varies depending on the use environment. Please check in advance.

**Block diagram**



KACCC0181EC

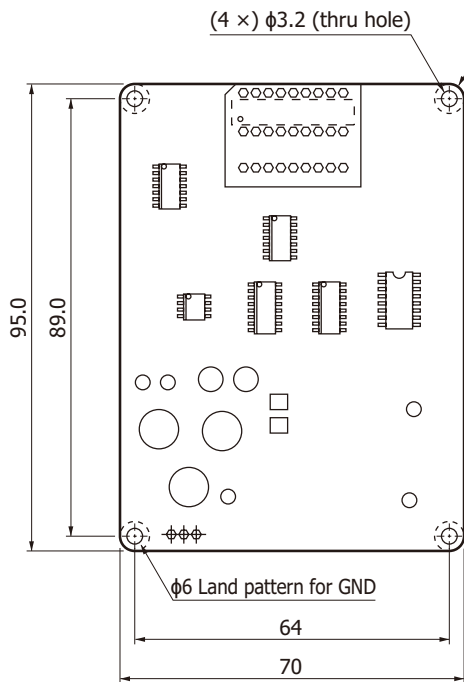
**Timing chart**



KACCC0182EA

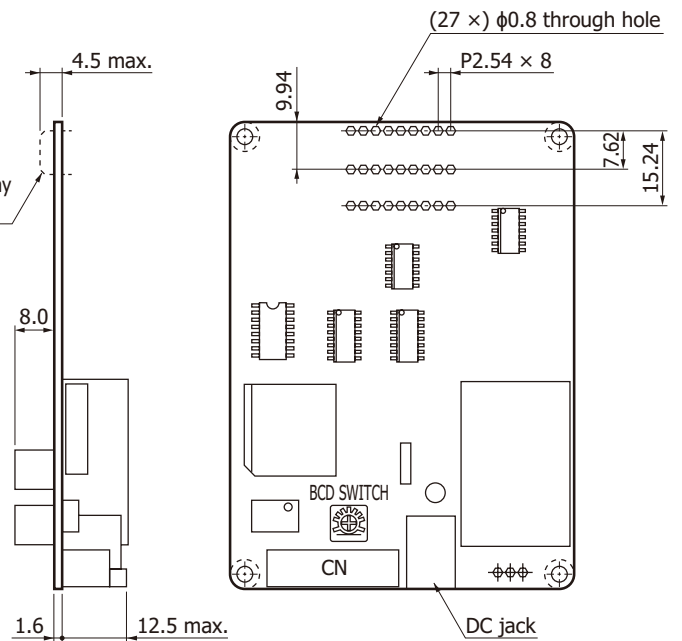
**Dimensional outline (unit: mm)**

Photodiode array mount side



Note: Photodiode array sold separately

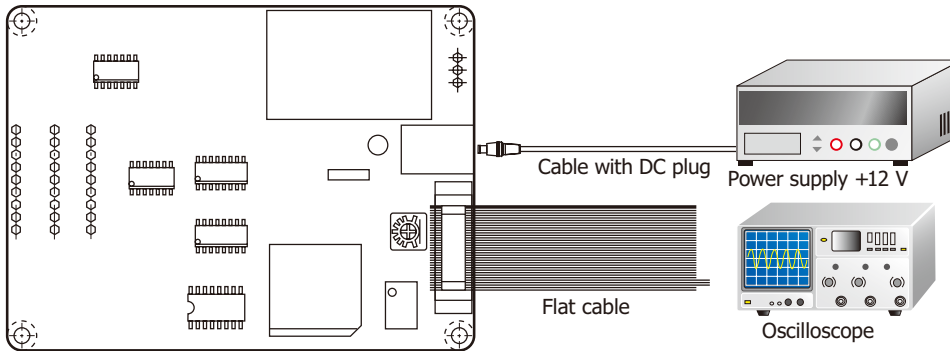
Back side



Tolerance unless otherwise noted: ±0.3

KACCA0489EA

### Connection example



KACCC1180EA

### Accessories

- Instruction manual
- Cable with DC plug
- Flat cable (200 mm) with I/O connector receptacle

### Related information

[www.hamamatsu.com/sp/ssd/doc\\_en.html](http://www.hamamatsu.com/sp/ssd/doc_en.html)

- Precautions
- Disclaimer

Information described in this material is current as of May 2024.

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