

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 $\overline{\text{EOS}}$ pulse output
- Choice of gain (conversion impedance): 1×10^6 or 1×10^7 (V/A)
- Hamamatsu S4111-16 series, S5668 series and S8592 photodiode arrays are directly mountable on board.
- Single power supply operation: +12 V

Applications

- Performance evaluation of Hamamatsu S4111-16 series, S5668 series and S8592 photodiode arrays
- Position measurement
- Displacement measurement

Absolute maximum ratings

Parameter	Symbol	Value	Unit
Supply voltage	Vcc Max.	+18	V
Input current	Iin Max.	$+6.7 \times 10^{-5}$	A
Operating temperature	Topr	0 to +50	°C
Storage temperature	Tstg	-20 to +80	°C

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 *1	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 *2	-	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) *3	CLK		1.5625	-	200	kHz
Start pulse width (OUT) *3	-		5	-	640	μs
Output format *4	-		TTL			-
Current consumption	Icc		-	200	250	mA

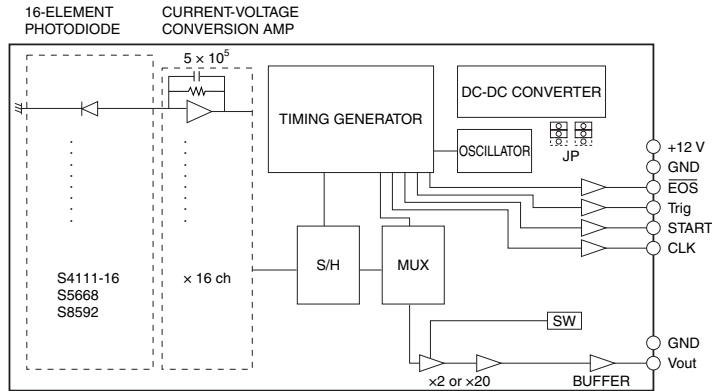
*1: Conversion impedance can be changed with the switch on the circuit board.

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

*3: Adjustable in 8 steps by using the BCD rotary switch on the circuit board.

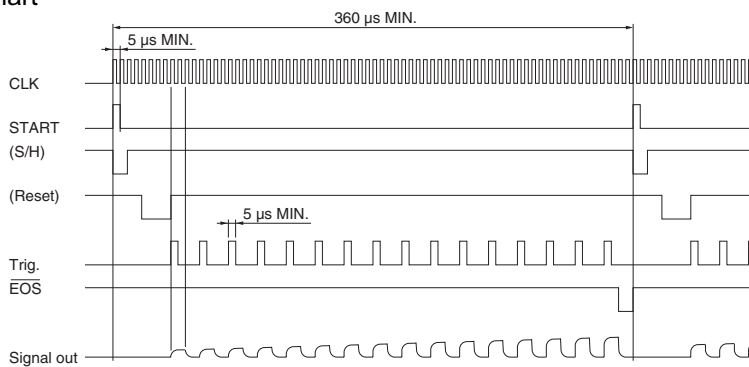
*4: CLK, START, Trig and $\overline{\text{EOS}}$ pulse output format.

■ Block diagram



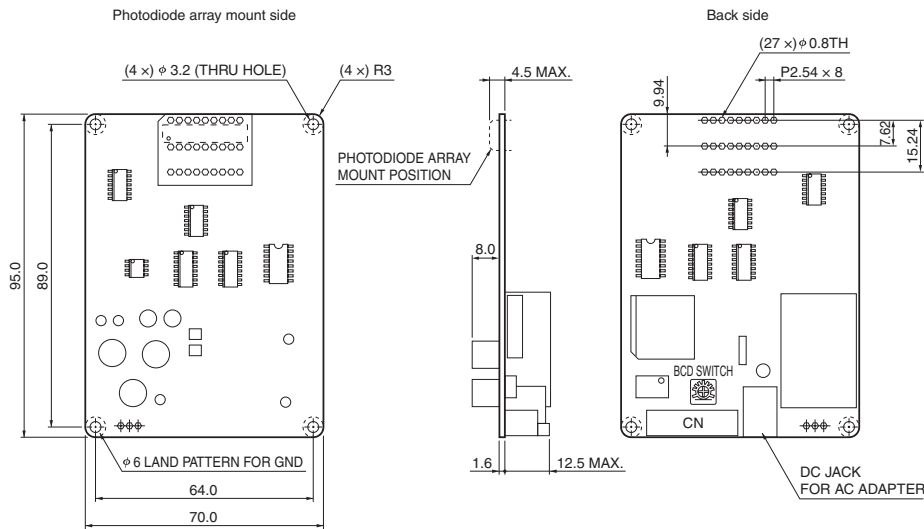
KACCC0181EA

■ Timing chart



KACCC0182EA

■ Dimensional outline (unit: mm)



NOTE) Photodiode array sold separately

KACCA0117EB

■ Accessories

- Dedicated AC adapter
- Flat cable (20 cm) with I/O connector receptacle

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