### HAMAMATSU

# UV TRON® DRIVING CIRCUIT C10423

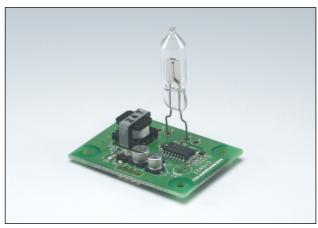
## Compact, Lightweight, Low Current Consumption Operates as High-sensitivity UV Sensor Just by Connecting to a UV TRON R9454 Ideal for Fire and Arson Surveillance

#### **FEATURES**

The C10423 is a compact power supply and signal processing circuit developed to drive the high-sensitivity UV sensor "UV TRON R9454". By using a double-sided printed circuit board we cut the area size to half that of conventional drive circuits (C3704 series).

Since the high-voltage supply and signal processor are mounted on the same circuit board, the C10423 can operate as a high-sensitivity UV sensor just by connecting a UV TRON and supplying a low DC voltage. The signal processing circuit cancels out background discharges which may occur in the UV TRON due to natural excitation light (cosmic rays, solar UV rays, etc.). This minimizes erroneous detection so the C10423 output signal can be used without additional filtering.

Combining the C10423 with a high-sensitivity "UV TRON R9454" (sold separately) for use as a flame detector yields sensitivity capable of detecting the flame from a cigarette lighter (flame length 25 mm) even at distances up to 5 meters away.



\* UV TRON is sold separately

#### **APPLICATIONS**

- •Flame detectors for gas and oil lighters
- ●Fire alarms
- Arson watch monitor
- Combustion monitors for burners
- •Electric spark detector

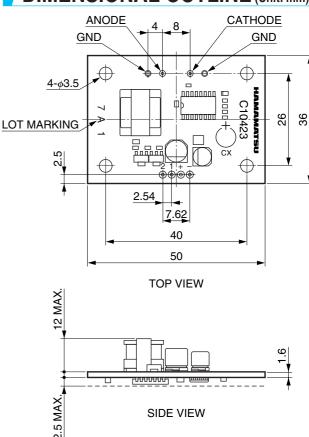
### **SPECIFICATIONS**

Parameter		Description / Value	Unit
Output Signal		Open Collector Output	
		(High Impedance,	
		Low Impedance)	_
		(50 V, 100 mA Max.)	
		10 ms with pulse output <sup>①</sup>	
UV TRON Supply Voltage		400 <sup>②</sup>	V
Quenting Time		Approx. 25	ms
Suitable UV TRON		R9454 (sold separately)	_
Operating Ambient Temperature <sup>3</sup>		-10 to +50	°C
Input Voltage (DC)		12 to 24	V
Current Consumption M	lax.	4	mA
Weight		Approx. 12	g

**NOTE:** ①The output pulse width can be extended up to about 10 s by adding a capacitor to the circuit board.

- ②Since the output impedance of this power supply is extremely high, an ordinary voltmeter cannot be used. Use a voltmeter that has an input impedance of more than 10  $G\Omega$ .
- 3No condensation

#### DIMENSIONAL OUTLINE (Unit: mm)



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### **UV TRON® DRIVING CIRCUIT C10423**

Figure 1: Schematic Diagram

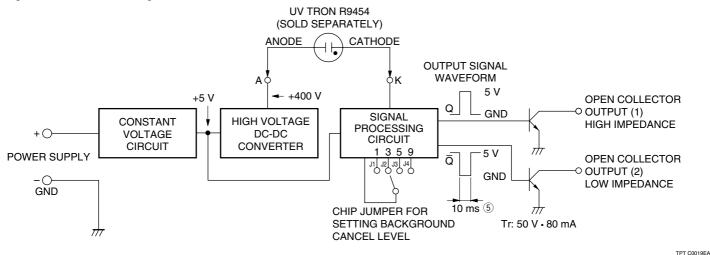


Figure 2: Method of Connection

CONNECTING POINT OF UV TRON A: Connecting Anode of UV TRON K: Connecting Cathode of UV TRON <u></u> 0 0 CHIP JUMPERS FOR SETTING 0 BACKGROUND CANCEL LEVEL HAMAMATSU מממממממ The background cancel circuit of the C10423 is de-Q signed to output a signal only when 1 to 9 or more sig-10423 <del>'חחחחחחח</del>ו nal pulses from the UV TRON are detected consecu- $\triangleright$ POWER SUPPLY INPUT tively within 2 seconds. The background cancel level AND SIGNAL OUTPUT POINT is set to chip jumper position 3(J2) before shipment. -: GND If the C10423 is used in locations where a high +: POWER SUPPLY (DC) 12 V to 24 V amount of natural excitation (background) light is 1: OPEN COLLECTOR OUTPUT (4) present, then change the cancel level by reconnect-HIGH IMPEDANCE 0000 ing the jumper position to 5(J3) and 9(J4). 2: OPEN COLLECTOR OUTPUT LOW IMPEDANCE CX: POINT FOR ADDING A CAPACITOR TO **EXTEND OUTPUT PULSE WIDTH**  ⑤

NOTE: (4) The maximum rating of the open-collector transistor is 50 V / 100 mA. When connecting a relay or buzzer, use caution not to exceed this rating.

⑤The C10423 output pulse width is set to 10 ms before shipment. To expand the pulse width, connect a capacitor to this terminal. (Make sure the polarity is correct when using an electrolytic capacitor.) Example:  $CX = 1 \mu F$ , Pulse width = approx. 1 s

 $CX = 10 \mu F$ , Pulse width = approx. 10 s

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#### PRECAUTIONS FOR USE

- Since the operation impedance is extremely high, the UV TRON should be connected as close as possible to the circuit board within 5 cm.
- Take care to avoid external noise since a C-MOS IC is used in the circuit. It is recommended that the whole PC board be put in the shield box when it is used.
- ●The DC-DC converter type high-voltage supply for this unit has a very high impedance. If the ambient humidity is high, then electrical leakage on the printed circuit board surface might lead to a drop in the supply voltage to the UV TRON. This voltage drop might cause lower sensitivity or malfunctions. If using the unit in a high humid environment apply a siliconbased moisture-proof coating to the UV TRON connection terminals.

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