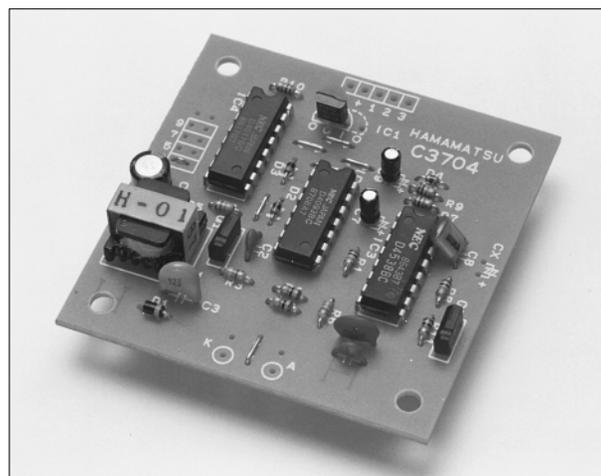


## Compact, Lightweight, Low Current Consumption, Low Cost Operates as High Sensitivity UV Sensor with UV TRON Suitable for Flame Detectors and Fire Alarms

Hamamatsu C3704 series UV TRON driving circuits are low current consuming, signal processing circuits for the UV TRON, well known as a high sensitivity ultraviolet detecting tube. The C3704 series can be operated as a UV sensor by connecting the UV TRON and applying DC low voltage, as they have both a high-voltage power supply and a signal processing circuit on the same printed circuit board.

Since background discharges of the UV TRON caused by natural excitation lights (such as a cosmic ray, scattered sunlight, etc.) can be cancelled in the signal processing circuit, the output signals from the C3704 series can be used without errors.

When the high sensitivity sensor "UV TRON R2868" (sold separately) is used, the flame from a cigarette lighter (flame length: 25mm) can be detected even from a distance of more than 5m.



### APPLICATIONS

- Flame detectors for gas and oil lighters
- Fire alarms
- Arson watch monitor
- Combustion monitors for burners
- Electric spark detector
- UV photoelectric counter

### SPECIFICATIONS

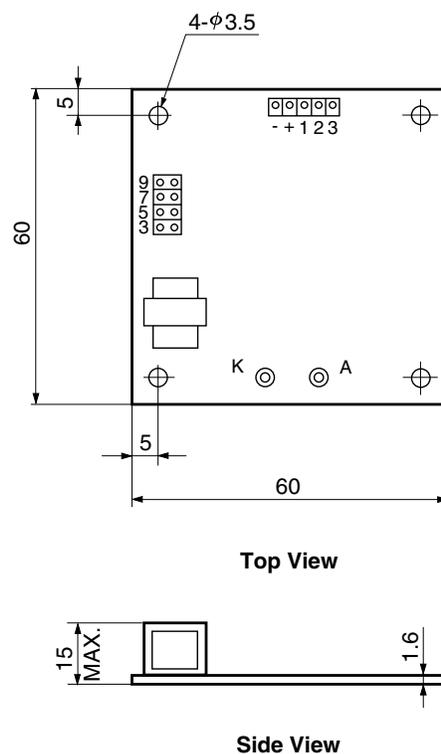
Parameter	Description / Value	Unit
Output Signal	Open Collector Output (50 V, 100 mA Max.) 10 ms with pulse output ①	—
UV TRON Supply Voltage	350 ②	V
Quenching Time	Approx. 50	ms
Suitable UV TRON	Low Voltage Operation UV TRON (such as R2868)	—
Operating Ambient Temperature	-10 to +50 ③	°C
Input Voltage	C3704	10 to 30 V
	C3704-02	5 ± 0.25 V
	C3704-03	6 to 9 V
Current Consumption	C3704	3 mA MAX.
	C3704-02	300 μA MAX.
	C3704-03	300 μA MAX.
Weight	Approx. 20	g

**NOTE:** ① The output pulse width can be extended up to about 100s by adding a capacitor to the circuit board.

② Since 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 GΩ.

③ No condensation

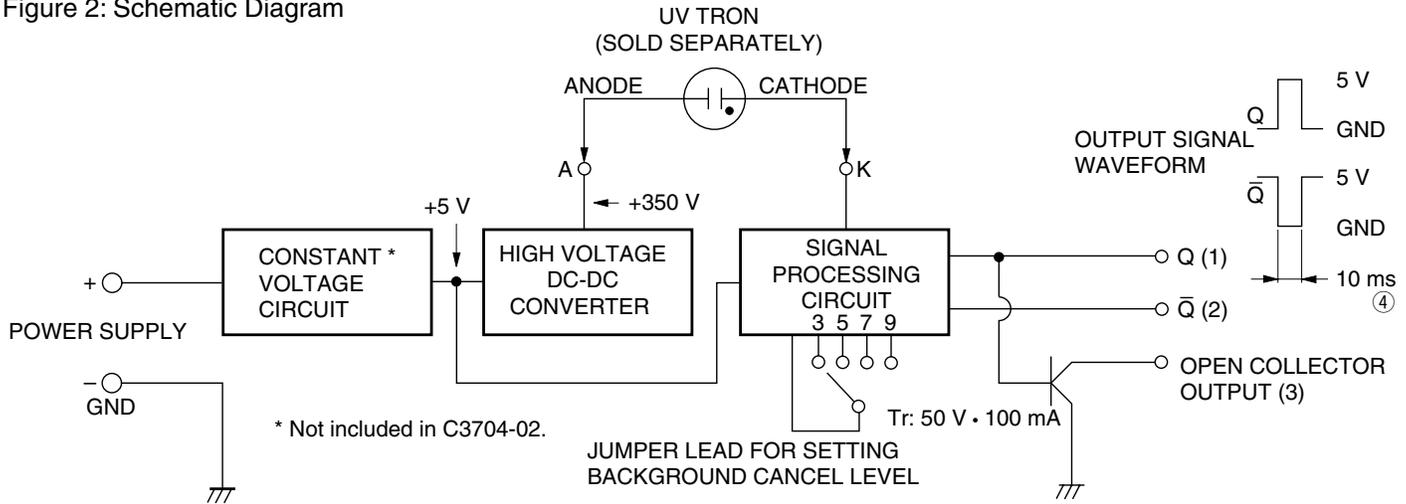
Figure 1: Dimensional Outline (Unit : mm)



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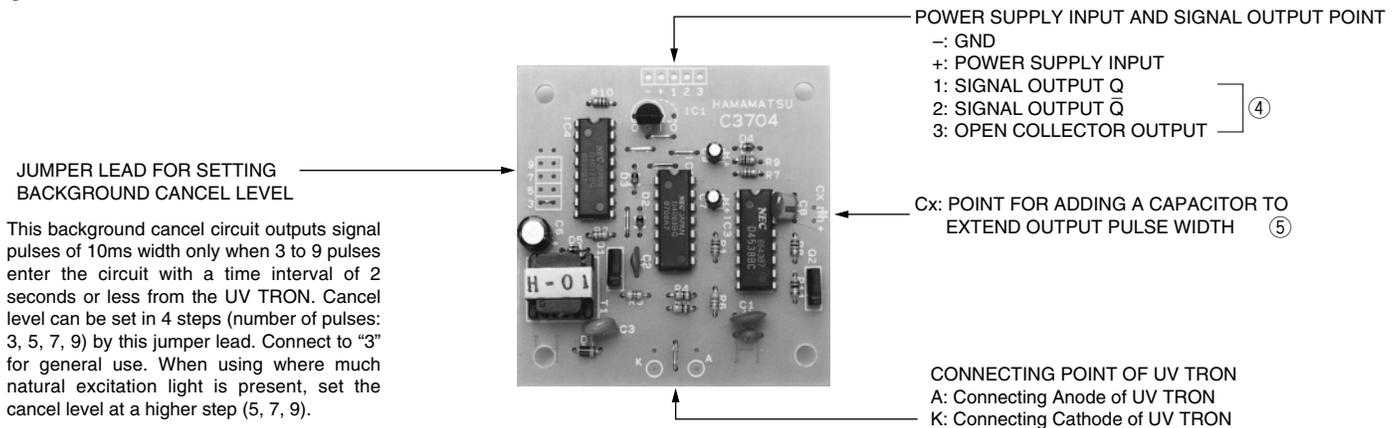
# UV TRON<sup>®</sup> DRIVING CIRCUIT C3704 SERIES

Figure 2: Schematic Diagram



TPT C0004EA

Figure 3: Method of Connection



JUMPER LEAD FOR SETTING BACKGROUND CANCEL LEVEL

This background cancel circuit outputs signal pulses of 10ms width only when 3 to 9 pulses enter the circuit with a time interval of 2 seconds or less from the UV TRON. Cancel level can be set in 4 steps (number of pulses: 3, 5, 7, 9) by this jumper lead. Connect to "3" for general use. When using where much natural excitation light is present, set the cancel level at a higher step (5, 7, 9).

- NOTE:** ④ No load can be driven by an output from points "1" and "2" because these signals are output from the only C-MOS IC directly. When a load such as a buzzer and a relay is connected to this circuit, it should be connected to the point open collector output. The transistor ratings of the open collector is 50 V, 100 mA. Be careful not to exceed the ratings.
- ⑤ The output pulse width is set to 10 ms at shipping. If the pulse width needs to be extended, add a capacitor to this point. (When using an electrolytic condenser, make sure the polarity is correct.)  
e.g. CX: 1  $\mu$ F Pulse Width: Approx. 1 s, CX: 10  $\mu$ F Pulse Width: Approx. 10 s

## 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.
- To reduce current consumption, oscillating frequency is very low (approx. 20 Hz) in this DC-DC converter. Thus, the output impedance of the high voltage power supply is extremely high. If the surrounding humidity is high, electrical leakage on the PC board surface may lead to a drop in the supply voltage to the UV TRON. This voltage drop may result in lowered detection performance, so a moistureproof material (silicone compound, etc.) should be applied at the connecting point of the UV TRON, etc., if using the unit in a humid environment.

# HAMAMATSU

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