

## OVERVIEW

The H14447 is a photomultiplier tube module containing a high-speed response 28 mm diameter head-on photomultiplier tube and a high-voltage power supply circuit.

## FEATURES

- High speed response: Up to 1.0 GHz
- Large effective area:  $\phi 25$  mm
- Current output



## SPECIFICATIONS

(at +25 °C)

Parameter		Description / Value	Unit
Spectral response		300 to 650	nm
Photocathode		Bialkali	—
Window material		Borosilicate glass	—
Input voltage		+4.8 to +5.5	V
Max. input voltage		+6.0	V
Max. input current *1		6	mA
Max. average output signal current *2		100	$\mu$ A
Max. control voltage		+2.1 (Input impedance 1 M $\Omega$ )	V
Recommended control voltage adjustment range		+1.6 to +2.0 (Input impedance 1 M $\Omega$ )	V
Effective area		$\phi 25$	mm
Peak sensitivity wavelength		420	nm
Cathode	Luminous sensitivity	Min. 70 Typ. 95	$\mu$ A/lm
	Blue sensitivity index (Blue filter)	Typ. 10	—
	Radiant sensitivity *3	Typ. 80	mA/W
Anode	Luminous sensitivity *2	Min. 0.1 Typ. 0.8	A/lm
	Radiant sensitivity *2 *3	Typ. 670	A/W
	Dark current *2 *4	Typ. 0.1	nA
		Max. 1	
Rise time *2		Typ. 350	ps
Ripple noise *2 *5 (peak to peak)		Max. 0.1	mV
Settling time *6		Max. 10	s
Operating ambient temperature *7		+5 to +50	$^{\circ}$ C
Storage temperature *7		-20 to +50	$^{\circ}$ C
Weight		105	g

\*1: At +5 V input voltage, +2.0 V control voltage, and output current equal to dark current.

\*2: Control voltage = +2.0 V

\*3: Measured at the peak sensitivity wavelength

\*4: After 30 minutes storage in darkness

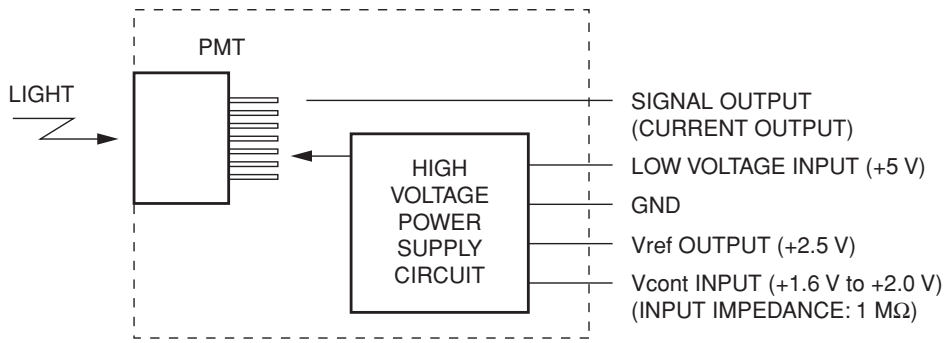
\*5: Cable RG-174/U, Cable length 450 mm, Load resistance = 50  $\Omega$ , Load capacitance = 14 pF

\*6: The time required for the output to reach a stable level following a change in the control voltage from +2.0 V to +1.6 V

\*7: No condensation

# PHOTOMULTIPLIER TUBE MODULE H14447

Figure 1: Schematic diagram



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Figure 2: Time response (Typ.)

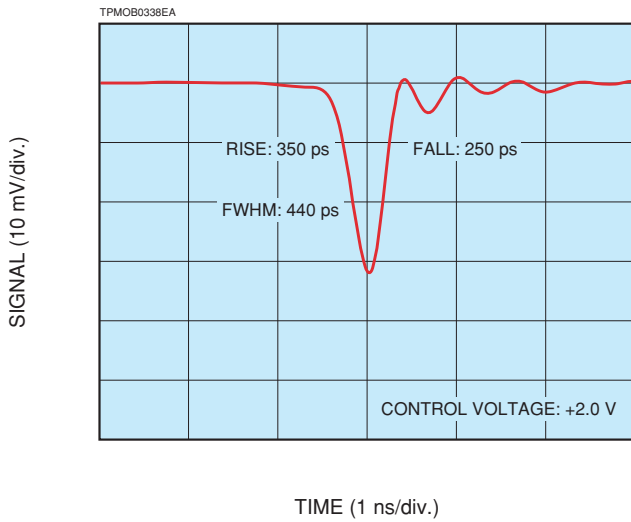


Figure 3: Eye pattern

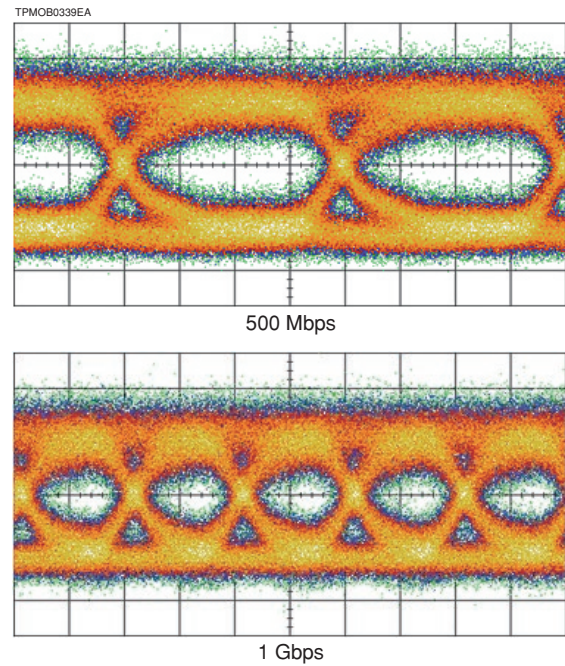
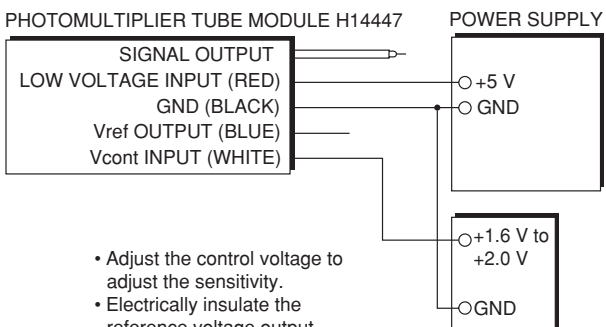


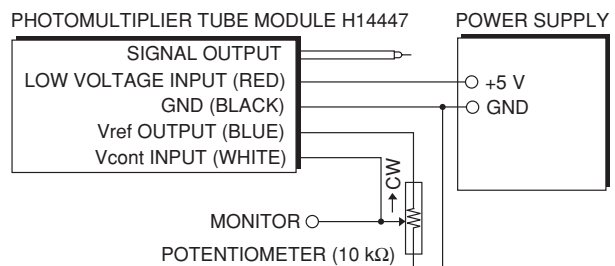
Figure 4: Sensitivity adjustment method

## VOLTAGE PROGRAMMING



- Adjust the control voltage to adjust the sensitivity.
- Electrically insulate the reference voltage output.

## RESISTANCE PROGRAMMING



\* When using a potentiometer, adjust sensitivity while monitoring the control voltage so it does not exceed +2.1 V.

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Figure 5: Spectral response

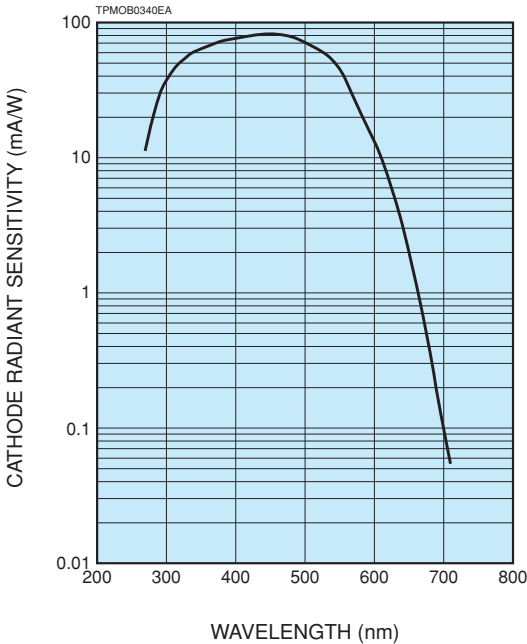


Figure 6: Gain (Typ.)

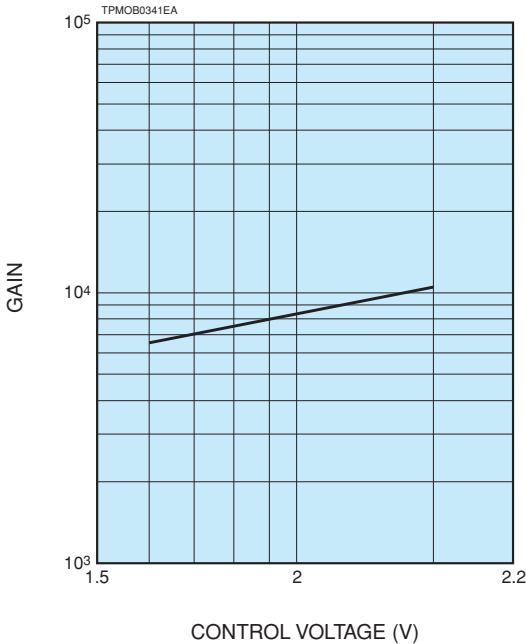
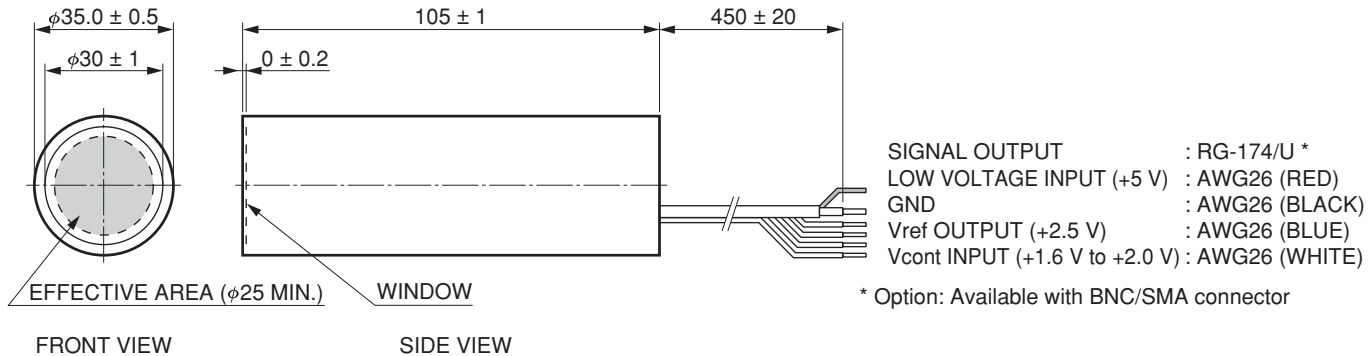


Figure 7: Dimensional outlines (Unit: mm)



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