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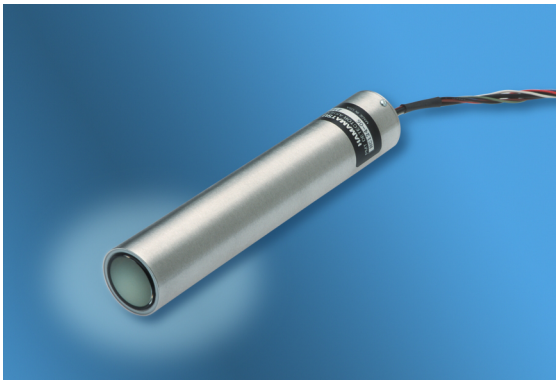
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Find the *Hamamatsu HC125-10* at our website: ***Click HERE***

HC124/HC125 Series

Module for 1 1/8” & 1” Head-On Photomultiplier Tubes



FEATURES:

- COMPACT SIZE
- LOW POWER CONSUMPTION FOR BATTERY OPERATION
- NO EXPOSURE TO HIGH VOLTAGE WIRING
- SUPPLY ONLY LOW VOLTAGE
- RUGGED, POTTED HOUSING

HC124-01 **Includes 1 1/8” multi-alkali PMT with 8 MHz amplifier**
HC124-02 **Includes 1 1/8” bialkali PMT with 8 MHz amplifier**
HC124-03 **Includes 1 1/8” bialkali PMT with photon counting circuit**

HC125-01 **Includes 1” multi-alkali PMT with 8 MHz amplifier**
HC125-02 **Includes 1” bialkali PMT with 8 MHz amplifier**

The HC124 and HC125 Series of integrated detector assemblies combines either a 1” (HC125 Series) or a1 1/8” (HC124 Series) head-on photomultiplier tube with a high voltage power supply, divider and signal processing circuitry for the measurement of weak light signals. The user needs only to supply low voltage to operate the assembly. Two types are available as standard:

HIGH SPEED PULSE: An 8 mHz current to voltage, transimpedance amplifier is used to change the weak current output of the PMT to a voltage of low output impedance. This signal processing if for high speed light pulses or scanning applications.

PHOTON COUNTING: Current pulses from individual photons are amplified sufficiently to be discriminated against noise by a high speed comparator. This is the most sensitive light measurement technique.

The voltage needed to power the photomultiplier tube is based upon the Cockroft-Walton voltage multiplier with one stage per dynode. The voltage multiplier also performs the voltage division normally accomplished with a resistive divider, significantly reducing power consumption and offering higher signal output current with improved linearity.

The photomultiplier tube and circuitry are potted within a stainless steel housing to guard against moisture and contamination as well as to protect the PMT from shock and vibration. The housing is 7 ½ inch long for the HC124 Series and 4 7/8” long for the HC125 Series. These assemblies can be made with a wide variety of 1” or 1 1/8” head-on PMT’s as well as different amplifier gain and bandwidth specifications. Please consult the factory on the availability of these special assemblies.

MAXIMUM RATINGS[1]

PARAMETER	HC124	HC125	UNITS
HV output voltage	-1250		volts
Supply voltage	+/- 18		volts
Operating temperature	+5 to +50		^{o} C
Storage temperature	-20 to +50		^{o} C
Wavelength range	185 to 850	300-850	nm
HV output voltage range[2]	-350 to –1200		volts
Supply voltage range	±11.5 to ±15.5		volts
HV output/input ratio	1000 to 1		volts/volt
Voltage divider ratio	2:1:1:1:1:1:1:1:1:1:1	3:1:1:1:1:1:1:1:1:1	volts/volt
Warm-up time	10		minutes
Output voltage decay time constant[3]	20		seconds
Active area	25 dia.	21 dia.	mm, min.
Overall dimensions (less projections)	1.375 dia. x 7.562	1.375 dia. x 4.752	inch
Weight	350	300	grams, typ.

NOTES

1. Stresses above the Maximum Ratings may cause permanent damage to the device. Exposure to maximum conditions for extended periods may reduce device reliability.
2. Measurement of the high voltage (at the photocathode) is achieved by measuring the voltage at the monitor input and multiplying by 1000 for an accuracy of within 1% at the photocathode.
3. The gain of the PMT decays ten times faster than the output voltage.

PHOTOMULTIPLIER SPECIFICATIONS[1]

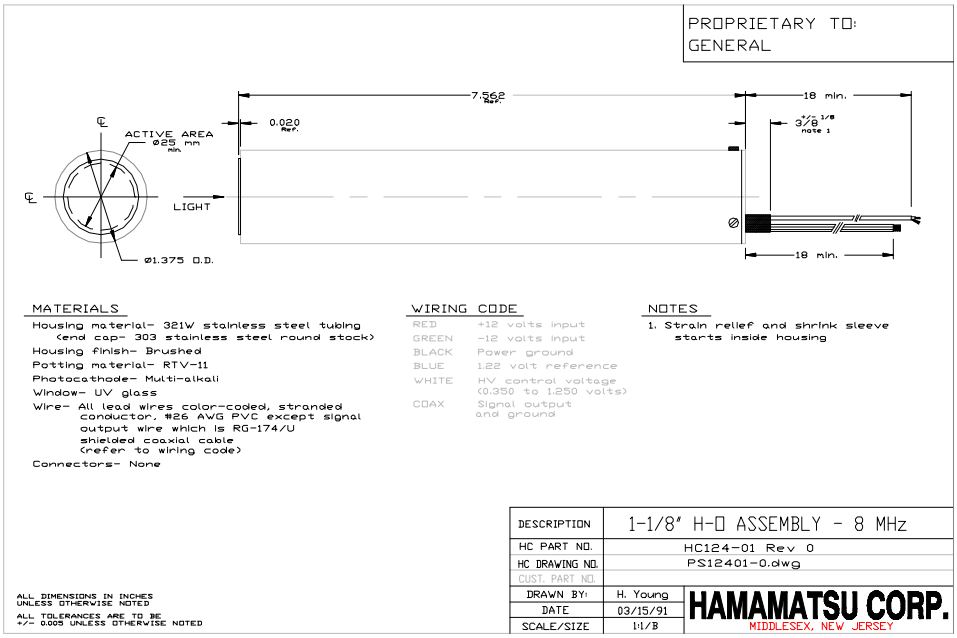
PARAMETER	HC124	HC125	UNITS
Cathode luminous sensitivity, S_k	80 150	80 120	ìA/lm, min. ìA/lm, typ.
Anode luminous sensitivity, S_p	80	30	A/lm, typ

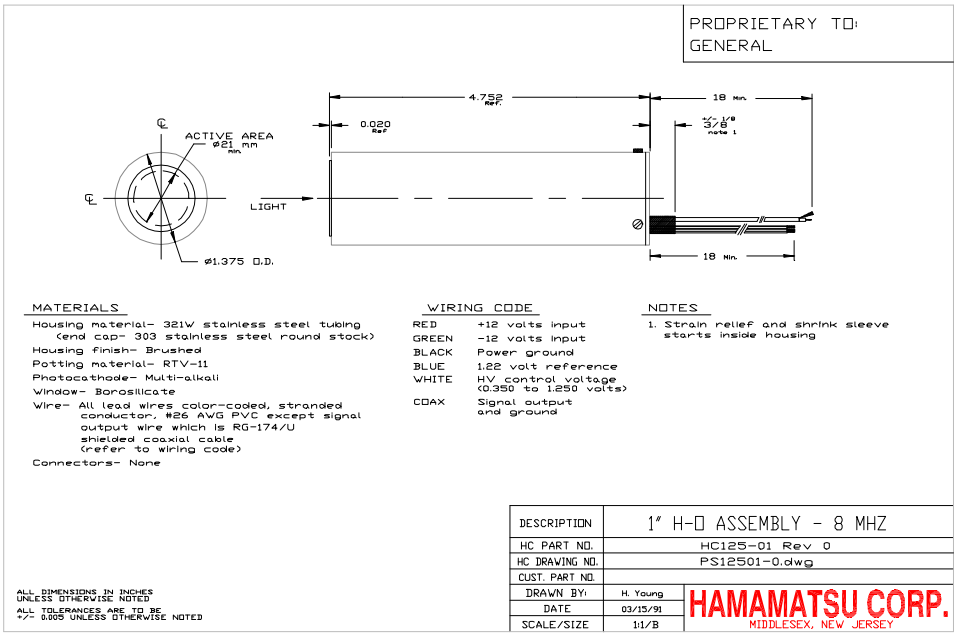
PERFORMANCE SPECIFICATIONS (25°C, -1000 volts, R_L=500Ù)

PARAMETER	HC124	HC125	UNITS
Supply current[2] @ +12 volts input @ -12 volts input	 18.0 13.0		 mA, typ. mA, typ.
Temperature coefficient of high voltage[3]	100		ppm / ^{o}C, typ.
Linearity of anode signal current @ 20 ìA[4]	1		%, typ.
Amplifier transimpedance	100,000		ohms
Amplifier bandwidth @ -3 dB	8.0		MHz, min.
Amplifier noise	20		mV p-p, typ.
Peak output signal[5] @ R_L = 500 ohm @ R_L = 50 ohm	 8 2		 volts, max. volts, max.
Rise time	30		ns, typ.
Fall time	50		ns, typ.
Current limit (HV supply circuit)	20		mA., typ.
Responsivity @ 420 nm	3	1.1	volts/nW, typ.

NOTES

1. The photomultiplier tube used in this assembly meets all specifications and should be used with the limitations listed in the Hamamatsu Photonics, Japan general data sheet.
2. Current consumption increases if high light levels are applied to the photomultiplier tube.
3. This is an average measurement. The maximum voltage is subtracted from the minimum voltage over the specified temperature range and divided by the temperature difference.
4. This measurement is for DC light input. Tube characteristics such as gain drop or hystersis may cause additional inaccuracies when measuring high light levels at high signal current levels.
5. This applies for pulse applications where the duty factor is less than 0.25. The average output voltage should be limited to 2 volts @ R_L = 500 ohm and 1 volt @ R_L = 50 ohm, respectively.





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