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Find the *Hamamatsu HC123-01* at our website: ***Click HERE***

HC123-01

HV Power Supply & Divider Assembly for 1 1/8” Side-On PMT’s



FEATURES:

- **COMPACT SIZE**
- **LOW COST**
- **NO EXPOSURE TO HIGH VOLTAGE WIRING**
- **LOW POWER CONSUMPTION FOR BATTERY OPERATION**

The HC123-01 is compact, high voltage power module that includes the necessary voltage divider and mating socket for all standard 1 1/8th inch side window photomultiplier tubes. The Cockcroft-Walton voltage multiplier is used to generate the high voltage as well as to perform the voltage division normally accomplished with a resistive divider. The design is implemented with surface mount components and is potted to guard against moisture and contamination. Several performance advantages are obtained: lower operating current, improved linearity at higher output signal levels, and smaller size.

The high voltage is regulated and can be controlled by either resistance or voltage programming. A self-oscillating circuit is used to convert DC power to a 185 kHz sine wave of 100 volts peak-to-peak, and the HC123-01 provides a feedback regulating circuit to better control the output voltage.

MAXIMUM RATINGS[1]

PARAMETER	SPECIFICATION	UNITS
HV output voltage	-1100	volts
Supply voltage	+18	volts
Operating temperature	+5 to +50	^{o} C
Storage temperature	-20 to +70	^{o} C

GENERAL SPECIFICATIONS

HV output voltage range[2]	-300 to -1100	volts
Supply voltage range	+11.5 to +15.5	volts
HV output/input ratio	1000 to 1	volts/volt
Voltage divider ratio	1/10 of high voltage per stage	volts/volt
Warm-up time	10	minutes
Output voltage decay time constant[3]	10	seconds
Weight	65	grams, typ.

NOTES

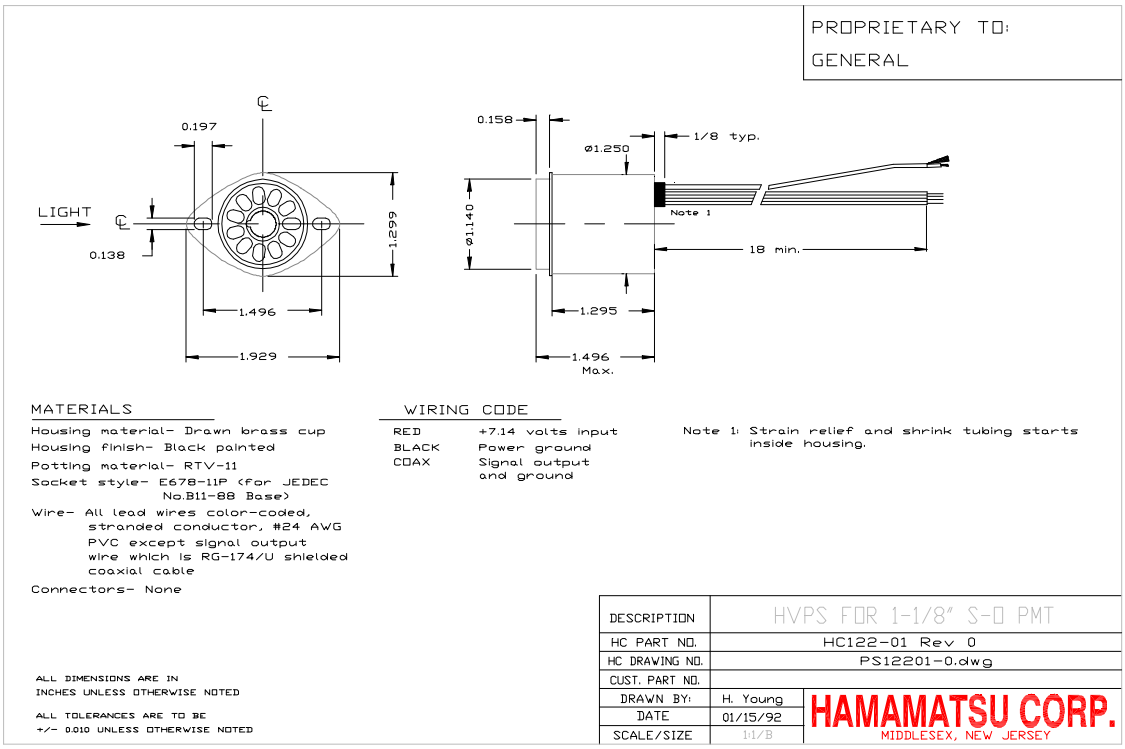
1. Stresses above the Maximum Ratings may cause permanent damage to the device. Exposure to maximum conditions for extended periods may reduce device reliability.
2. Measurement of the high voltage (at the photocathode) using ordinary test meters is not recommended since too much loading of the power supply occurs. Depending upon the required accuracy, use one of the following techniques: A) Measure the voltage at the programming input and multiply by 140 for an accuracy of 25 volts typical at the photocathode. B) For measurement accuracy within a few volts, measure D9 voltage and multiply by 10. Inter-stage voltages can be checked by testing D9 minus D8, D8 minus D7, etc. C) Use a high voltage probe having an input resistance of at least 1000 megohms.
3. The gain of the PMT decays ten times faster than the output voltage

PERFORMANCE SPECIFICATIONS (25°C, -1000 volts)

PARAMETER	SPECIFICATION	UNITS
Supply current[1]	7.0 @ +15 v input	mA., max.
Temperature coefficient of high voltage[2]	50 100	ppm / ° C, typ. ppm / ° C, max.
Anode ripple interference[3]	1	mV. max.
Linearity of anode output signal current[4]	0.5 @ 100ìA	% typ.
Input regulation (per volt change of input)	0.005	% max
Current limit (HV supply circuit)	20	mA, typ

NOTES

1. Current consumption increases if high light levels are applied to the photomultiplier tube.
2. 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.
3. Measured with the 18 inch coax signal lead connected to an unterminated scope input having 20 pF capacitance and 1 megohm resistance. For lower load resistance and/or more capacitance (that is, lower gain and/or bandwidth), the ripple becomes proportionally less.
4. This measurement is for DC light input. Short pulses (50 usec or less) will show good linearity to milliamp current levels. Tube characteristics such as gain drop or hystersis may cause additional inaccuracies when measuring high light levels at high signal current levels.



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