

LASERMETRICS® Division

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MODEL 5055EH SELF-CONTAINED Q-SWITCHING SYSTEM

Model 5055EH Integrated Q-switch/Driver Module combines a Pockels cell Q-switch (Model Q1059PSG is standard) with MOSFET switching circuits and miniature high voltage power supplies which require only +24 volts DC input. All circuits are packaged in an electrically shielded enclosure which attenuates EMI/RFI to minimize radiated and conducted switching noise. The 5055EH is intended for stand-alone operation with the company's Series 1059, 1145, and 3900 electro-optic Q-switches operating within the output pulse voltage range of 1 kV to 5 kV at repetition rates from single shot to 5 kHz. Output voltage is conveniently adjusted by a front panel mounted miniature potentiometer.

Trigger signals can be TTL level voltages. When a trigger signal is applied, a voltage pulse is applied to the Pockels cell thereby producing the desired rotation of the plane of polarization. This "ON" state is maintained for ≈ 2 μ seconds. During this time the Q-switched pulse is generated. The 5055EH permits operation at $\frac{1}{4}$ wave retardation for most lasers operating in the 1000 nm range with the advantage of having zero voltage applied to the Pockels cell between pulses or on standby.



LASERMETRICS® 5055EH provides a robust mechanical and stable optical design with fully enclosed high voltage circuits. The design has been proven and is in use in laser systems manufactured by leading laser companies worldwide.

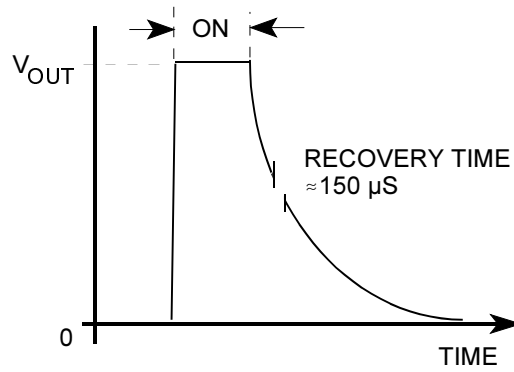
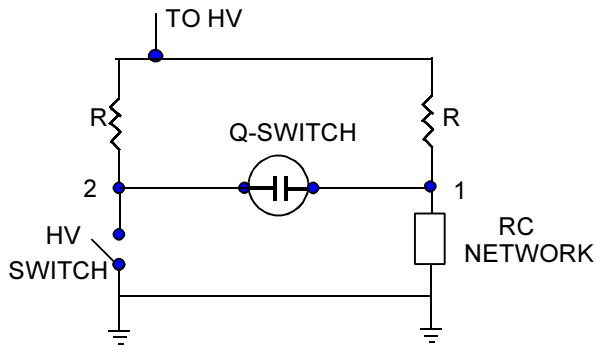
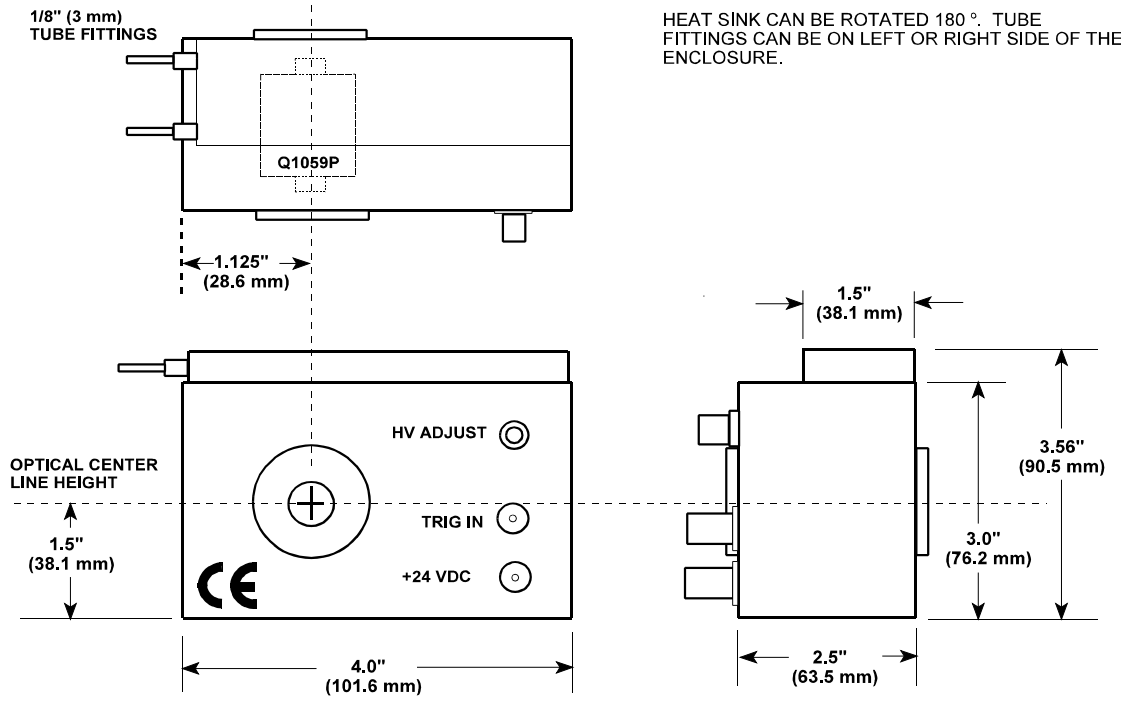
5055EH Nominal SPECIFICATIONS

Output Pulse Voltage Range	<1000 to 5000 volts
Output Rise Time	≈ 3 nanoseconds, typical
Output Pulse ON Time	2 μ seconds, typical
Jitter — Input to Output	<1 nanosecond
Propagation Delay — Input to Output	<50 nanoseconds
Repetition rate	Single Shot to 5 kHz*
Input Trigger	TTL levels, 5 volts max.
DC Power Input	+24 $\pm 5\%$ VDC, 20 watts
Connectors: DC Power:	BNC
Trigger Input:	BNC
Output, HV	MHV, Shielded Cable or Braid - Specify
Weight	≈ 1.2 kg (with water cooling module)

* For sustained operation at 5 kHz and >4.5 kV, water cooling is required. Flow rate of 0.5 L/minute at water temperature of 25 °C is recommended. At repetition rates below 1 kHz, water cooling is not required when adequate heat sinking of the module is available.

CONTINUED - OVER

MODEL 5055EH Q-SWITCHING MODULE, WATER COOLED



505EH equivalent circuit and output waveform for standard, balanced output configuration