PVX-2110
200V 50A PULSE GENERATOR

- **0 to 200V Pulse Output**
- **10kW Peak Output Power**
- **<100ns Rise And Fall Times**
- **<200ns to 2ms Pulse Width**
- **0 to 50KHz Pulse Repetition Frequency**
- **Protected Against Arcs, Shorts And Load Transients**
- **Integral Voltage And Current Monitor Outputs**
- **Optimized To Drive Loads From 1Ω to 25Ω**

The PVX-2110 high power pulse generator (pulsed voltage source) is designed for pulsing low impedance loads (from 1Ω to 25Ω) at up to 200V and 50A, with pulse widths from 200ns to 2ms. The exceptional pulse fidelity of the PVX-2110 will optimize the performance of any system in which it is used.

The PVX-2110 can deliver up to 10kW of peak output power and 5kW of average output power, making it well suited for use in materials testing and processing, semiconductor testing and characterization, and other test and measurement and R&D applications.

The PVX-2110 requires a TTL gate signal and high voltage DC power supply inputs. The output pulse width and frequency are controlled by the gate signal. The pulse output voltage is controlled by the amplitude of the input DC power supply.

The PVX-2110 features front panel indicator LEDs to monitor the status of the pulse generator. Front panel voltage and current monitors provide a straightforward means to view the output voltage and current waveforms in real-time, eliminating the need for an external high voltage oscilloscope probe.

The output cable supplied with the unit is an innovative custom designed multi-coaxial cable with an impedance of 5Ω. The design of this cable maintains the fidelity of the output pulse without introducing pulse distortion or ringing, and provides a convenient means of connecting the pulse generator to the load.

The PVX-2110 has over-current detection and shut-down circuitry to protect the pulse generator from potential damage due to over-current conditions such as arcs and shorts in the load or interconnect cable. If an over-current condition is detected, the output pulse is truncated for 10 milliseconds. The pulse generator then automatically re-enables the output, and will continue pulsing, unless the over-current condition persists. It is also protected against operation at excessive pulse widths or frequencies.

The pulse generator is a direct-coupled, air-cooled solid-state design, offering fast pulse rise and fall times, low power dissipation, and virtually no over-shoot, under-shoot or ringing. All control and protection logic circuitry, support power, energy storage and output network are incorporated into the PVX-2110. It is connected directly to the load, and does not require series or shunt resistors, impedance-matching networks between the pulse generator and the load, or additional energy storage (capacitor banks). All of this is taken care of within the PVX-2110.

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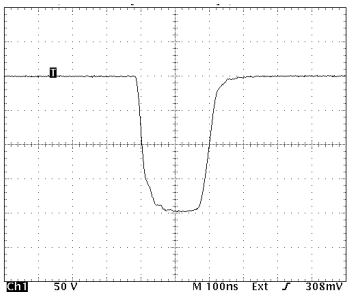
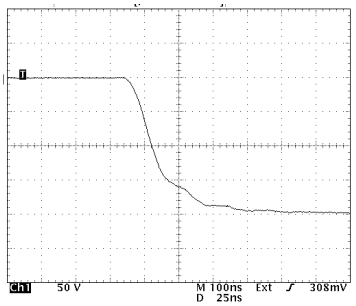
SPECIFICATIONS (All specifications measured into a 5Ω load connected with 4 feet (~1.2M) 5Ω cable provided with the PVX-2110)

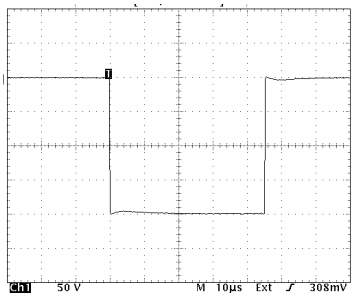
OUTPUT	
Output Voltage Polarity	Positive Or Negative, Factory Configured
Maximum Value	200 Volts
Minimum Value	0 Volts
Means Of Adjustment	Controlled By Power Supply Input Voltage
Maximum Output Current	50A Peak, 25A Average (1)
Pulse Rise And Fall Time	<100ns (10% to 90%)
Pulse Width	<200ns to 2ms, Controlled by Input Gate
Pulse Recurrence Frequency (PRF)	Single shot to 50KHz, Controlled by Input Gate
Max. Peak Output Power	10,000W (2)
Max. Average Output Power	5,000W (3)
Max. Duty Cycle	50%
Droop (At 50A Output Current)	<5% @ 1ms pulse width, <10% @ 2ms pulse width
Over/undershoot	<5%
Jitter	<10ns shot-to-shot
Output Connector & Cable	Type N, With 4 feet (~1.2M) 5Ω Coaxial Cable
INPUT DC VOLTAGE	
Input Voltage Polarity	Positive Or Negative (User-supplied) (4)
Maximum Value	200 Volts
Minimum Value	0 Volts
Maximum Input Power	5,000W
Input DC Connector	Type N, Rear Panel
GATE	
Gate Source	+5V ±1V into 50Ω
Input Gate Connector	BNC, Front Panel
VOLTAGE & CURRENT MONITORS	
Voltage Monitor	50:1 into 50Ω, accuracy typically within 3% of the actual output voltage
Voltage Monitor Connector	BNC, Front Panel
Current Monitor	10A/V into 50Ω, accuracy typically within 3% of the actual output current
Current Monitor Connector	BNC, Front Panel
GENERAL	
Support Power	90VAC to 240VAC, 50/60Hz
Dimensions (Excluding Connectors)	19" W x 5.2" H x 16" D (48.25cm W x 13.2cm H x 41cm D)
Weight (Approximate)	18 lbs. (8.2 Kilograms)
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE	



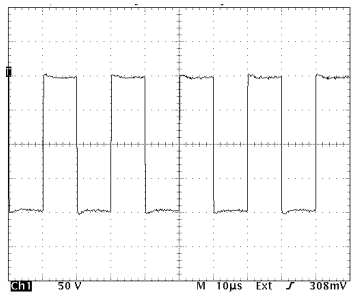
200ns Minimum Pulse Width, 200V Output
(100ns/Div horizontal scale, 50V/Div vertical scale)



<50ns Rise Time, 200V Output
(25ns/Div horizontal scale, 50V/Div vertical scale)



Typical Output Waveform, 200V
(10µs/Div horizontal scale, 50V/Div vertical scale)



50KHz, 50% Duty Cycle, 200V Output
(8Ω Load, 10µs/Div horizontal scale, 50V/Div vertical scale)

(1) When driving loads with impedances <5Ω, the output voltage must be limited to <200V, so that the peak output current (V/R) does not exceed 50A, and the maximum **average** current (defined as I x Duty Cycle) does not exceed 25A.
(2) Peak output power is defined as V x I during the output pulse.
(3) Average output power is defined as V x I x Duty Cycle.
(4) Input DC power supply must be the same polarity as the PVX-2110 (i.e. a positive output PVX-2110 requires a positive high voltage DC input).

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