Tektronix®

Programmable Pulse Generator

PSPL10300B Datasheet

The PSPL10300B Pulse Generator provides high amplitude positive or negative pulses with convenient front panel or computer control. It has an adjustable baseline to provide up to ±5 V DC offset, or allows for external control of the baseline up to ±50 V. The output has fast edge rates, smooth transitions and minimal overshoot & ringing. Adjustable output levels are obtained using internal step attenuators, ensuring consistent signal shape at all settings. The outputs are designed for a 50 Ω impedance, but can safely drive any load from a short circuit to an open.

Notice to EU customers

This product is not updated to comply with the RoHS 2 Directive 2011/65/EU and will not be shipped to the EU. Customers may be able to purchase products from inventory that were placed on the EU market prior to July 22, 2017 until supplies are depleted. Tektronix is committed to helping you with your solution needs. Please contact your local sales representative for further assistance or to determine if alternative product(s) are available. Tektronix will continue service to the end of worldwide support life.

Key performance specifications

- Positive or negative polarity pulses
- Adjustable positive pulse amplitude from < 5 mV to 50 V
- Rise time 300 ps
- Adjustable duration from < 1 ns to 100 ns
- Single shot, or 1 Hz to 100 kHz repetition rate

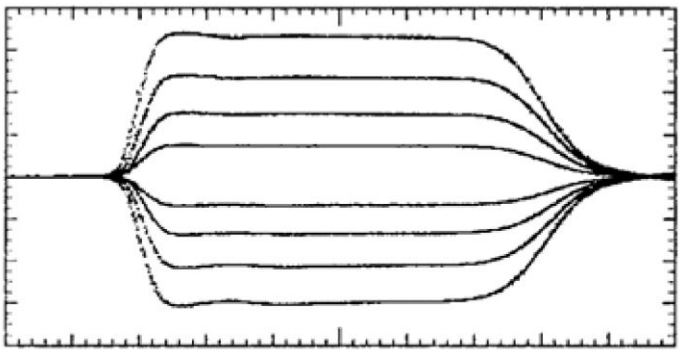
Key features

- Keypad interface
- Programmable IEEE-488
- Internal, external, manual or GPIB trigger modes
- Gated output
- Port for external baseline offset up to ±50 V

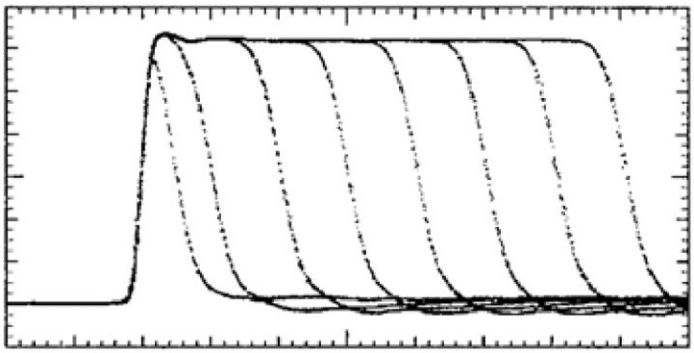
Applications

- University education and research
- UWB signal source
- Semiconductor characterization
- Laser driver

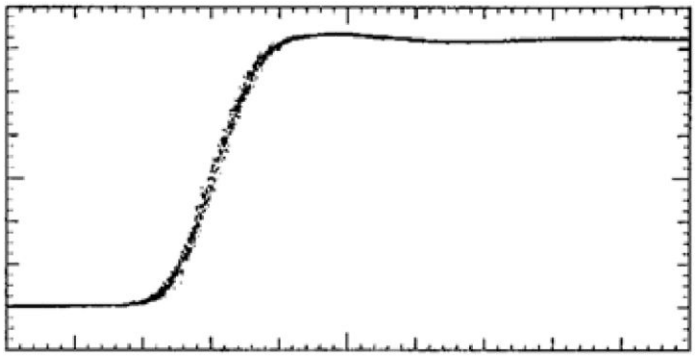
Typical performance



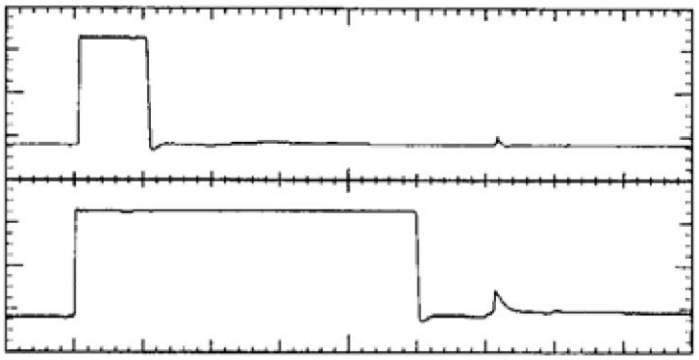
15 V/div and 500 ps/div. Adjustable amplitude from -45 V to +50 V in 1 dB steps. Also adjustable baseline offset from -5 V to +5 V.



8 V/div and 1 ns/div. Adjustable duration from < 1 ns to 100 ns in 25 ps steps.



8 V/div and 200 ps/div. Leading edge 250 ps rise time.



20 V/div and 20 ns/div. 20 ns and 100 ns pulses.

Specifications

Model overview

The performance parameters listed here are typical values, parameters are guaranteed only when maximum and/or minimum limits are given.

Parameter	Value
Polarity	Positive or negative
Amplitude into 50 Ω (See Notes)	4.5 mV to 50 V positive, -4 mV to -45 V negative, adjustable in 1 dB steps
Amplitude accuracy, into 50 Ω (full output amplitude)	±2 V positive, ±3 V negative
Baseline	Adjustable from -5 V to +5 V in 1.25 mV steps, external input provided for user-supplied offset of ±50 V
Transition time, leading edge (10 – 90%)	300 ps, 325 ps max.
Transition time, trailing edge (10 – 90%)	750 ps, 1 ns max.
Reflection coefficient	30% during pulse, +50% after pulse, improves with increasing attenuation
Source impedance (nominal)	50 Ω
Duration (FWHM) (See Notes)	< 1 ns to 100 ns, adjustable in 25 ps steps
Baseline precursor	< ±1%
Topline overshoot	2%
Topline perturbations	±1% for t < 3 ns (±2% for negative pulse)
Topline flatness	±0.5% for t > 3 ns (±2% for negative pulse)
Spurious pulse at 120 ns	+6% with pulse duration ≤ 20 ns, +30% for pulse duration = 100 ns

Notes:

The duration and delay values displayed on the front panel LCD and programmed over GPIB are only to be considered “nominal” values and not absolute values. The duration and delay parameters exhibit some thermal drift, rep rate dependency and interaction. There will be some loss in amplitude at minimum pulse durations. The amplitude tolerance of ±2 V holds only for > 10 ns durations. The amplitude has a minor rep rate dependency. Always use an oscilloscope as an independent check of these pulse parameters. The instrument is adjusted and calibrated at the factory in an ambient temperature of 23 °C (±3 °C) at a rep. rate of 100 kHz. The instrument will operate over a temperature range of 0 to 50 °C but will not meet all specifications over this range.

Trigger and timing

The performance parameters listed in this table are typical values; parameters are guaranteed only when maximum and/or minimum limits are given.

Parameter	Value
Trigger in/out delay	185 ns
Repetition rate	1 Hz to 100 kHz
Period	10 µs to 1 s, 0.1 µs steps
Trigger mode	Internal, external, manual, or GPIB
External trigger input level	-2 to +2 V, 1 mV steps, positive or negative slope
Maximum external trigger input	±5 V
External trigger impedance	50 Ω
Trigger output into 50 Ω	1 V, 1 µs
Delay (See Notes above)	0 to 100 ns, 25 ps steps
Delay jitter, RMS	< 10 ps
External gate input	TTL, > 2 V on, < 0.5 V off
External gate impedance	50 Ω

General specifications

Parameter	Description
Accessories included	Power cord, BNC cable, rack mount kit, instruction manual
Front panel controls	Power, menu, data entry, disable/enable, local, and manual trigger
Power supply (mains)	100, 115, or 230 VAC, ±10% switch selectable, 50 or 60 Hz
Power consumption	48 VA (60 Hz), 65 VA (50 Hz)
Operating environment (See Notes above)	
Temperature	40 °C (104 °F); low limit of 0 °C (32 °F)
Humidity	80% for temperatures up to 31 °C (88 °F), decreasing linearly to 50% at 40 °C (104 °F)
Elevation	2000 m (6562 ft.)
Dimensions	19.0 x 15.2 x 5.5 in. (48.3 x 38.6 x 14.0 cm)
Weight	21 lbs (9.5 kg)
Connectors	SMA output, BNC trig in, gate in, trig out, BNC on rear panel for baseline offset d/a output and bias tee input, GPIB on rear panel
GPIB standard	IEEE-488.1-1987
GPIB interface functions	SH1, AH1, T6, L4, SR1, RL1, PPO, DC1, DT1, CO and E2
Set up	Save/recall in 10 memories with battery backup
Warranty	One year

Ordering information

Models

PSPL10300B	300 ps PULSE GENERATOR, GPIB

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22 Mar 2017 1PW-30925-2

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