

Programmable Pulse Generators

PSPL10050A, PSPL10060A, PSPL10070A Datasheet



The PSPL10000 Series Pulse Generators offer premium signal integrity with convenient front panel or computer control. The high voltage outputs have 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

- Pulse amplitudes from 7.5 to 10 V
 - 10 V fixed amplitude, PSPL10050A
 - 900 μV to 10 V, PSPL10060A
 - 700 μV to 7.5 V, PSPL10070A
- Rise times from 65 ps down to 45 ps
- Adjustable duration from 100 ps to 10 ns
- Single shot, or 1 Hz to 100 kHz repetition rate

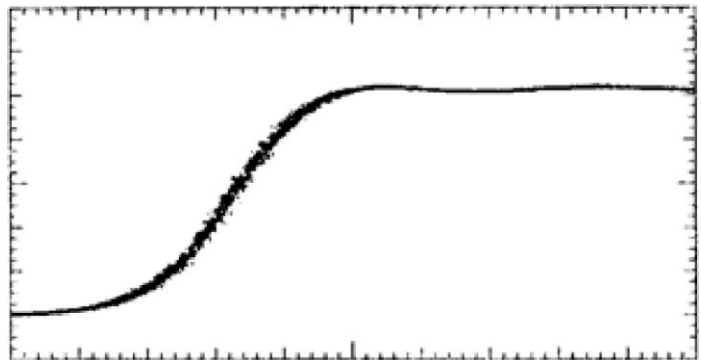
Key features

- Keypad interface
- Programmable IEEE-488
- Internal, external, manual, or GPIB trigger modes
- Gated output

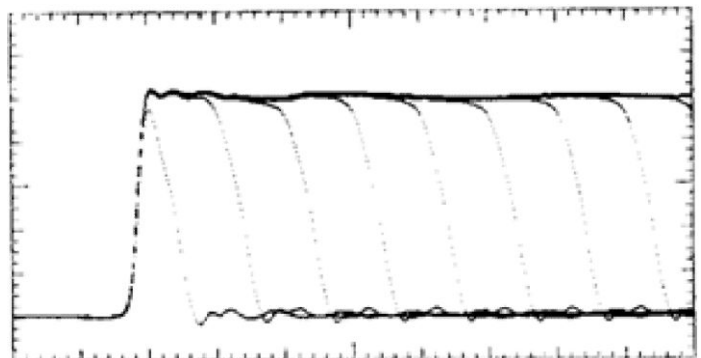
Applications

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

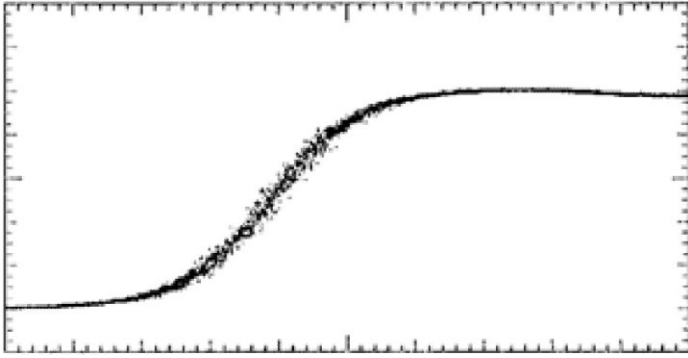
Typical performance



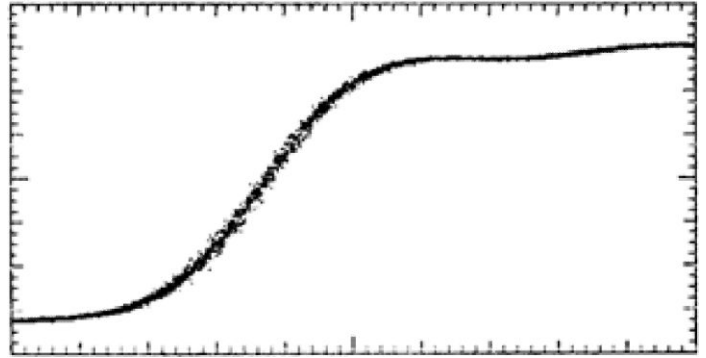
Rise time for the PSPL10050A at 2 V/div and 20 ps/div



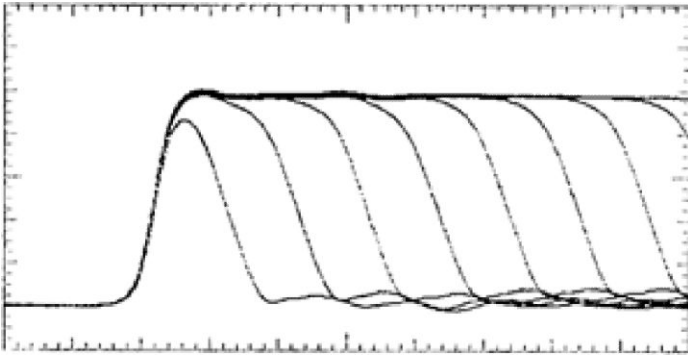
Adjustable duration for the PSPL10050A at 2 V/div and 200 ps/div



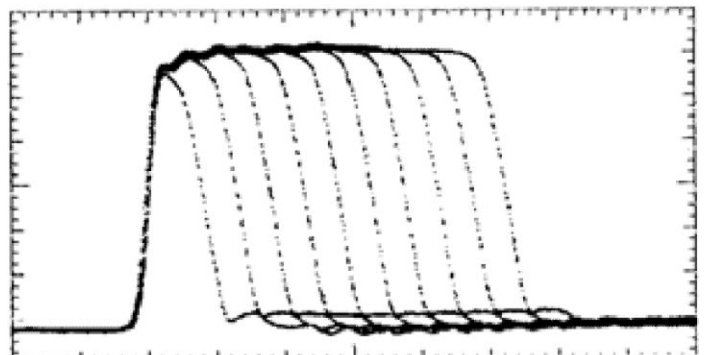
Rise time for the PSPL10060A at 2 V/div and 20 ps/div



Rise time for the PSPL10070A at 1.2 V/div and 20 ps/div



Adjustable duration for the PSPL10060A at 2 V/div and 100 ps/div



Adjustable duration for the PSPL10070A at 1.2 V/div and 200 ps/div

Specifications

All specifications apply to all models unless noted otherwise.

Model overview

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

Parameter	PSPL10050A	PSPL10060A	PSPL10070A
Amplitude into 50 Ω (See Notes)	10 V (fixed)	900 μ V to 10 V, adjustable in 1 dB steps	\pm 700 μ V to \pm 7.5 V, adjustable in 1 dB steps
Amplitude accuracy, into 50 Ω	\pm 0.2 V		
Polarity	Positive only	Positive only	Positive or negative
Baseline	0 V	0 V	-5 V to +5 V in 1.25 mV steps
Transition time, leading edge (10 – 90%) (20 – 80%)	\leq 45 ps typ, \leq 55 ps max ---	\leq 55 ps typ, \leq 65 ps max ---	\leq 65 ps typ, \leq 75 ps max \leq 40 ps typ, \leq 50 ps max
Transition time, trailing edge (10 – 90%) (20 – 80%)	\leq 110 ps typ, \leq 130 ps max ---	\leq 115 ps typ ---	--- \leq 80 ps typ \leq 100 ps max
Reflection coefficient	\pm 5% during pulse +80%, -40% after pulse	\pm 5% during pulse +80%, -40% after pulse (improves with increasing atten.)	50% @ 0 dB (7.5 V) 20% @ 6 dB (3.7 V) -10 % @ > 10 dB (< 2.3 V)
Source impedance (nominal)	50 Ω		
Duration (FWHM) (See Notes)	100 ps to 10 ns in 2.5 ps steps		
Baseline precursor	< 1%		
Topline overshoot	< 4%		
Topline perturbations	< \pm 3% for $t < 2$ ns		
Topline flatness	< \pm 0.5% for 2 ns < $t < 10$ ns		

Notes:

The duration and delay values displayed on the front panel LCD and programmed over the GPIB are only to be considered “nominal” values and not absolute values. The duration and delay parameters do exhibit some thermal drift, rep rate dependency and interaction. There will be some loss in amplitude at minimum pulse durations. The amplitude tolerance of \pm 0.2 V holds only for > 2 ns durations. 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 $^{\circ}$ C (\pm 3 $^{\circ}$ C) at a rep. rate of 100 kHz. The instrument will operate over a temperature range of 0 to 50 $^{\circ}$ 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	PSPL10050A	PSPL10060A	PSPL10070A
Trigger in/out delay	90 ns	90 ns	100 ns
Repetition rate	1 Hz to 100 kHz		
Period	10 μ s to 1 s, 0.1 μ s 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	\pm 5 V		
External trigger impedance	50 Ω		
Trigger output into 50 Ω	2.4 V, 50 ns		
Delay (See Notes above)	0 to 63 ns, 1 ns steps		
Delay jitter, RMS	1.5 ps		

Trigger and timing

Parameter	PSPL10050A	PSPL10060A	PSPL10070A
External trigger jitter, RMS	5 ps (<1 ns rise)		
External gate input	TTL, >2 V on, <0.5 V off		
External gate impedance	50 Ω		

General specifications

Parameter	PSPL10050A	PSPL10060A	PSPL10070A
Accessories included	Remote Pulse Head & 4 ft coaxial cable, power cord, rack mount kit, instruction manual	Power cord, rack mount kit, instruction manual	Power cord, rack mount kit, instruction manual
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 <small>(See Notes above)</small>			
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, 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 back up		
Warranty	One year		

Ordering information

Models

PSPL10050A	45 ps PULSE GENERATOR, GPIB
PSPL10060A	55 ps PULSE GENERATOR, GPIB
PSPL10070A	65 ps PULSE GENERATOR, GPIB

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